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CATTLEYA CRISPA.

" LAWRENCEANA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 12, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a fine importation, just arrived, of the grand and showy CATTLEYA CRISPA, with large bulbs and broad, distinct-looking leaves; also a very fine lot of C. LAWRENCEANA: this beautiful Cattleya is extremely rare in its native country, and one of the finest of the genus; it has received the award of the Certificate, and has been the admiration of all beholders, being the most lovely formed and glowing of all Cattleys.

A quantity of ORCHIDS also will be offered from the Roraima Mountain, the whole in extra condition, including a splendid lot of Zygopetalum atratum, Houletia species, Scuticaria, probably new; Oncidium fonsomianum, Maxillaria species, Brassia species, Bifrenaria species, Oncidium Mariballianum, and many other fine ORCHIDS.

On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 18, at half-past 12 o'clock precisely, and he will be glad if gentlemen desirous of entering plants for this sale will send list not later than Thursday next.

Wednesday, January 18.

CATTLEYA EXONIENSIS, splendid plant of the fine long-leaved variety, in 15-inch pan, in flower.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 18, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Home Counties.

TO BE SOLD, at a great sacrifice, an important well-known NURSERY BUSINESS, established many years. Personally inspected and recommended. Full particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

TO LET, on Lease, a SMALL NURSERY, about 4 acres, with Subscription Bowling Green, &c., upon it. Good Landscape, Jobbing, and Seed Business. A few miles south of Manchester. Stock at valuation.

Apply. Mr. GILLIBRAND, 8, Robert Street, Rooden Lane, Manchester.

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

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

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by **PULHAM AND SON, BROXBORNE.**

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An immense Stock.

Thousands Showing for Bloom.

NEW CATALOGUE

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FRUIT TREES

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IMMEDIATE BEARING.

IMMENSE STOCK OF

HEALTHY, HARDY TREES,

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1-yr., No. 2 choice, per 10,000, £3 10s.
2-yr. transplanted, extra choice, per 10,000, £10.
2-yr. transplanted, No. 1 choice, per 10,000, £7.

FRUIT TREE STOCKS.—Pears, 1 and 2 years; Quince, Plums, Apples, seedling, Paradise, Doyen, Myrobolant, Mahaleb, Mazard; Forest and Ornamental Trees and Shrubs. Young stocks from seeds or cuttings disposable by millions. Stocks very fine and very cheap. Prices and CATALOGUES sent on demand to

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Fine leathery-foliaged Seaforthia elegans, 4 feet high, 15s. per pair.

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10,000 VICTORIA PLUMS.

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20,000 of other good sorts.

20,000 PEARS, in 50 sorts.

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Brompton, Brussels, and Common PLUM STOCKS,

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Strong trained Morello CHERRIES.

Price per 100 or 1000, on application to

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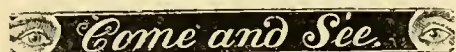
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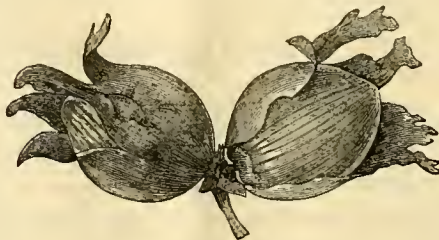
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APPLE TREES with MISTLETO growing on
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Trade Price Current Seeds, 1888.

PETER LAWSON AND SON (Limited),
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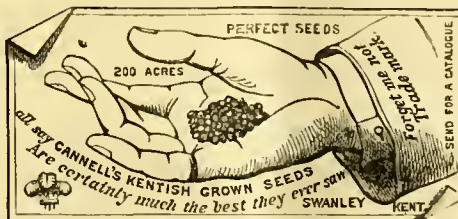
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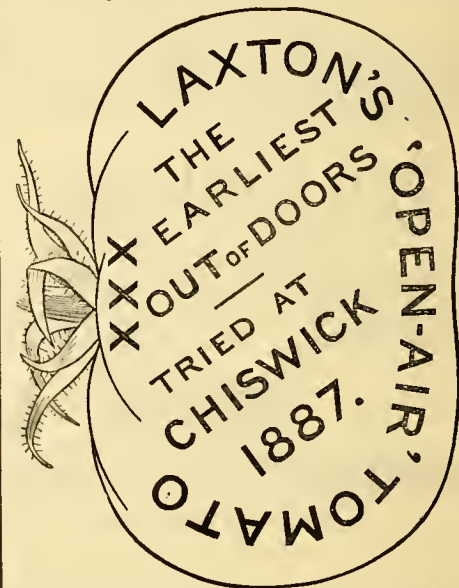
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quality late round, good till June, shallow-eyed, robust,
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This new variety was raised at Hylands Park three years ago. It is without doubt the finest Ageratum grown for bedding purposes. It blooms in masses from the time of planting out until it is cut down by the frost, and requires no pegging down, as it is only 9½ inches high; the trusses measure from 6 to 7 inches across. It is of a very effective and telling delicate blue colour.

It is a most valuable acquisition when propagated in pots in the autumn for early winter flowering. Its freedom in blooming is so pronounced that each pot is quite a ball of flower, and continues so to the middle of January.

Per Packet, 1s. 6d.

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"MAGENTA QUEEN" (new).

This new variety is of very compact habit of growth, very vigorous and robust; the leaves are of a dark green colour. The blooms are very large, measuring upwards of 2½ inches in diameter; they are of very good substance and a bright magenta, with a small bright lemon eye. It is quite a new colour in Primulas, and its distinctness is very pronounced when associated with other kinds.

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"CRIMSON GEM" (new).

This variety, on account of its charming and decided colour, is an acquisition of considerable merit, as it is a great advance in richness and brilliancy of colour upon any known kind of Stock. It will be found very serviceable for spring bedding, window boxes or pots, where it will produce a wonderfully fine and pleasing effect. It is of a dwarf compact habit; the central spike and lateral branches produce a great profusion of very rich crimson blooms of very large size.

Per Packet, 2s. 6d.

MELON, HAMSTEAD PARK SEEDLING

(new).

This fine new variety is a cross between *Golden Perfection* and *Victory of Bristol*. The raiser speaks very highly of it, and says that it does as well in a pit as in the Melon-house. It is a first-rate setter and a very strong grower, and never shows any sign of canker at the collar. It is round in shape, very handsome, and beautifully netted. The flesh is of a very pale scarlet colour, about 3 inches in depth, with very delicious flavour. The fruit weighs from 4 to 6 lb. each.

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TO THE
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FOR

Next Week, Jan. 14,

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Published an Ink-Photograph,

REPRESENTING

"THE FERNERY"

at Nash Court, Faversham.

In the same Number will be published a LIST of the PRINCIPAL HORTICULTURAL SOCIETIES of the KINGDOM, with names of their Secretaries, &c.



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 7, 1888.

THE ROYAL HORTICULTURAL SOCIETY.

AS one who took a great interest in the Royal Horticultural Society in the palmy days, when its meetings were held in Regent Street, and who well remembers the dismay and forebodings with which its migrations to South Kensington were regarded by some of its enlightened Fellows, I may be allowed to express the satisfaction with which I view the prospect of its return to its old ways, and my confidence in its future justifying the anticipation of those who urge such means for its restoration to prosperity.

My position as an Honorary Fellow of the Society (a distinction of which I am very proud), whilst, on the one hand, it debars me from taking a part in its business affairs, on the other it encourages me to look with keen interest on all projects for its welfare, and to endeavour to make others do so too. And to this end I have for a good many years past ventured to urge upon some of its officers and most influential Fellows the necessity of reverting to the practices of old, if they would see the Society replaced in a position of independence, and resume its legitimate functions.

It is not horticulturists only whose sympathies are enlisted in the present movement, but botanists and agriculturists; and these are all, in so far as my inquiries enable me to judge, agreed as to the chief desiderata for the reconstruction of the Society on a satisfactory basis. They are—meeting rooms in a position as accessible to Fellows as those in Regent Street were, and the obtaining the whole time and energies of an efficient permanent Under-Secretary.

The meeting room (which should be in connection with the library and Council and officers' rooms) should be, not only a convenient, but an attractive place of resort for the Fellows, where something of interest might always be seen

on ordinary as well as on show days. To this end Fellows should be encouraged to send rare, curious, and ornamental plants for exhibition (not necessarily for competition) on any day of the week, though naturally preferring a show day if that were convenient, which it often is not. And the room should be provided with some glazed cases, in which the plants could be put when the rooms are cleaned, so that they should suffer as little as possible from the dust and drought of the metropolitan climate. If there were always something to see in the rooms, not only would the Fellows frequent them, but by bringing their friends they would tend to swell the ranks of Fellows. The gardens at Chiswick might be largely utilised towards this object.

The permanent Assistant-Secretary should be an officer with a fair amount of botanical knowledge, especially of cultivated plants, and who could thereby aid visitors in naming specimens brought for this purpose, and be some check upon the appalling grievance of nomenclature that too often disgraces the exhibitions, and excites the wonder of foreigners. The editing of the Journal should be under the Assistant-Secretary's control, and be one of his chief duties.

I am constantly told, when urging the necessity of such an Assistant-Secretary as I have here indicated, that there is no such phoenix to be found. This is perhaps true in so far as a ready-made one is concerned, but I am confident that there would be no difficulty whatever in creating one, even *pro re nata*. Kew has had no difficulty in finding for foreign, Indian, and colonial botanical gardens, gentlemen who would have distinguished themselves as efficiently and highly as an Assistant-Secretary of the Royal Horticultural Society as they have done in their present offices, and for the duties of which offices none of them was altogether prepared when they were first undertaken. There is no lack of gentlemen with the necessary botanical training who, by the aid of the Lindley Library, visits to Kew and the principal horticultural establishments in the vicinity of the metropolis, might be expected rapidly to acquire the requisite technical knowledge of plants. Lindley did not culminate in a day; he grew in knowledge with the growing needs of the Society; and though we may not look for an Assistant-Secretary who would combine, as he did, with the duties of that office a Professorship of Botany, a first-rate position as a scientific botanist, and a voluminous author, we may reasonably expect to obtain, for a fair salary, an efficient and in every way satisfactory official. *J. D. Hooker.*

HALF-HOLIDAY IN GRENADA.

LAND travelling in this island, where there are no roads to speak of, is done on horseback by all white people, and such coloured inhabitants as can afford it. Luggage is carried on the heads of negroes, who can go long distances with heavy burdens. The horses are a very mixed race, but though not much to look at, as a rule, they are very sure-footed. A West Indian horseman, as a matter of course, traverses places where no one else would ever dream of going. Ordinarily on inland journeys I have been mounted on a quiet mare called the Lady Rowena, but better nicknamed "the Camel," and have had an additional assurance of safety in the instructive and pleasant companionship of the Government botanist, who is founding a garden and exploring the flora of the island. He has gone, however, to the north of the island for a

week or more, and my sheet-anchor, the popular Camel, has been hired by a fortunate resident. There are not many other horses to choose from, and ultimately I select an animal which I have hitherto known only as "the cat's-meat horse." This was not done without deliberation. It has the recommendation of having been habitually ridden for some time by a naval officer on shore. Trusting, therefore, that it has thus become accustomed to a free-and-easy kind of equitation, and knowing that it has carried a sea-faring man without mishap, I feel a certain confidence in this companion of my lonely ride into the interior.

I go without guide, porters, or collecting equipment of any kind, since the trip is intended merely as a forenoon's relaxation from more serious business in the shallow seas. In the early morning my men come to me and I appoint a bay in the south-west of the island where they are to meet me in the late afternoon with the boat, carrying with them a boy to bring the horse back. Skirting the lagoon and passing negro gardens, or provision grounds, as they are called, I note Carica papaya (the Papaw tree), the juice of which has the property of rapidly rendering tough meat tender. In tropical countries, where no great time elapses between the killing and the cooking of an animal, this tree has a great culinary value. A preparation of the juice has recently been found to yield valuable results as a drug. Among the other plants to be found here is *Sterculia acuminata* (the Kola-nut), brought doubtless by the negroes from Africa, which has also valuable medicinal properties. The one, perhaps, that has made it most famous is the power this nut possesses of quickly sobering drunken people.

This lagoon, which is separated from the carenage of St. George by a coral reef, a few feet beneath the surface, is the crater of an old volcano, which is said to have swallowed at least part of the original French settlement. After sharper shocks of earthquake than usual the inhabitants are wont to regard it anxiously, and having explored its depths with a dredge, I can sympathise with their anxiety in one respect. If one is to be bombarded by a volcano, one would prefer not to have insult in the shape of foul water, barracontas, and fathoms of liquid mud added to the injury. My horse here has the misfortune to step on and maim a young chicken, and immediately the owner and several sympathising female friends are upon me. I give her compensation, with which she is so much pleased that I am at once offered the chicken's "mother" a "fair bargain." Considering the value of this fowl I reluctantly decline. There is hardly a chicken, I am assured, anywhere about but owns this one as its parent; the eggs it has laid are beyond number, and, not only the owner, but the neighbours have had this notable fowl under observation for years. Neglecting this excellent opportunity of testing the value of the juices of the Papaw tree, I urge on my way, which soon brings me to the path that leads inland.

Following the path, which is deep in mud owing to heavy rains last night, I come out on an open grassy space, more like an English park than any other tropical scene I have met with. Over the damp grass a few large crabs are crawling—a sight that is hardly in keeping with the thoughts conjured up by the appearance of the place. Here, however, crabs migrate, as is well known, in large numbers to a great elevation in the mountains. Passing a thick copse, in which there are growing a few trees of the sort that furnishes the "swizzle stick" used in churning the pernicious but excellent "cocktail," I

go off my route a little way to the right, to get a view of country new to me. This leads me—of all places in the island—to the colonial racecourse. Looking at the "cat's-meat horse" I think of my own accomplishments, which are confined to the useful faculty of sticking on. It has apparently some sense of shame left, too, for with one accord we hasten from the spot.

The next part of my way leads through dense bush, which I had been told was cleared. Evidently there had been at no distant date a good road, for these parts, underneath; but the bush, which springs up here with extraordinary rapidity, has obliterated all apparent trace of it beyond the not very noticeable fact that the vegetation along this track is not so high as the surrounding bush. Pushing through it with much scratching and tearing, in spite of careful selection of the way, I come at last to the place where the work of clearing is going on. A band of negroes armed with big curved cutlasses are resting from their labours in groups among the fallen branches, which for the present more effectually block the way than they did before being cut down. While a passage is being cleared for me I have a chat with the foreman of the gang, who contrasts very graphically the rapidity of the growth of the vegetation with the dilatoriness of the negro who cuts it down. He is himself very nearly as black as his men, but on the strength of a dilution of his blood by some remote white ancestor, which the "swamping effect" of intervening close breeding with the primitive stock of Ham has well nigh effaced, he ranks himself as a white man, and has more than the ordinary white man's contempt for his coloured friends.

Our talk is interrupted by an agonising scream from a negro, who makes towards us, the picture of abject terror. Nothing but a jumbie (ghost) or a serpent could produce such an effect, and I accordingly seek the spot on foot, armed with the foreman's stick. The negroes have one and all cleared out of the fallen bush, and the foreman's ancestor evidently was no naturalist, for he shows the common repugnance to reptiles. I am just in time to witness the retreat of a great red snake with slate-coloured spots among the branches. However, I soon come up with him, and one good blow breaks his back. His head and teeth proclaim him a constrictor, and an animal more likely to do damage to the negroes' live stock of the smaller sort than to his person. He now reposes with others of his kind in the Natural History Museum. After this my difficulties with this sorry horse increase. It is plainly aware of the fact that I am carrying the snake tied up with a string, and it strongly objects to this addition to the party. I conclude that, like Heine's donkey in the *Harzreise*, its ancestors must have eaten forbidden oats in Paradise, and that the snake is too suggestive a reminder of the fact. I accordingly take the first occasion of meeting a negro's cabin to dismount, and, seated outside, eat my breakfast. The owner furnishes me with a Cocoa-nut, the clear fluid of which mixed with a little whiskey is very refreshing. The snake is then coiled up in the bag, in the bottom of which my breakfast had been carried. This arrangement satisfies my travelling companion, and crossing a swamp by a good firm track with only one ford to pass, I gain the region I have come particularly to visit.

The land vegetation of this island is distributed in two great zones—one occupying the central mountain mass of extinct volcanoes, and the other the lower grounds and maritime region. The "high woods" of the mountains form that part which we have more especially in the mind when we speak of a tropical forest (see *Gardeners' Chronicle*, June 25, July 2 and 9, 1887). Mountain Palms, graceful Tree Ferns, giant Silk-cotton trees, and numberless others here raise domes of foliage far aloft, while from their branches hang down masses of lianes and lialines, and the whole is abundantly festooned with a wealth of creepers and epiphytic plants such as Orchids. Balisiers (*Heliconia*), Ferns, Fern-allies, mosses and lichens are scattered everywhere, and the whole forms so dense an entanglement that the traveller has ordinarily to cut his way through it step by step.

Covent Garden Market. They vary also in size, some according to the kind of fruit or vegetable they contain, and some according to the time of year and size of the articles they contain. It is, therefore, almost impossible to convey an accurate impression of these measures; but the following will be useful to those who are interested in Covent Garden quotations:—

A sieve is understood to be about 15 inches in diameter and 8 inches deep, and to contain 7 imperial gallons; half-sieve, 3½ gallons; quarter-sieve, 1½ gallon. A bushel basket is 17½ inches in diameter at top, 10 inches deep, and 10 inches in diameter at bottom. When heaped, it is supposed to contain an imperial bushel. Punnet: for Seakale, 8 inches in diameter at top, 7½ at bottom, and 2 inches deep; for Mushrooms, 7 inches in diameter and 1 inch deep; for salads, 5 inches in diameter and 1 inch deep.

A bunch of Radishes varies from one dozen to two dozen roots, according to the season.

A bundle of Asparagus contains from 100 to 150 heads.

A bundle of Rhubarb from 20 to 30 stems.

A bunch of Carrots, 12 and upwards.

A bunch of Turnips, 12 and upwards.

A bunch of Leeks, 6 and upwards.

Bunches of Greens and of herbs vary much, according to kind, size, and season.

Roll of Celery = 6, 8, to 12 heads.

A tally = five dozen.

A score of Lettuce or Endive = 22.

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ARTIFICIAL MANURES AND THEIR APPLICATION.

Manures.	Applied to	Weight per acre.
Guanos	All crops	1 to 3 cwt.
Superphosphate of Lime	Turnips, Barley, Oats...	3 " 5 "
Common Salt	Grain and Wurzel	1 " 2 "
Soot	Grain and Potatoes	30 " 40 bushels
Sulphate of Ammonia	Grain crops, with common salt	1 " 1½ cwt.
Nitrate of Soda	Ditto, ditto	1 " 1½ "
Gypsum	Clover, Potatoes, &c.	10 " 20 "
Rape cake	Grain crops, &c.	6 " 8 "
Bone-dust	Turnips, grass lands	12 " 16 bushels

Soluble manures should be applied during growth.—*Garden Annual.*

SEEDS REQUIRED TO SOW AN ACRE.

Barley, 2½ to 2½ bushels.	Mustard, 3 gall., or 20 lb.
Beans, 2 to 2½ bushels.	Oats, 3 to 4 bushels.
Beet, 12 lb.	Parasols, 8 lb.
Broom (for Cover), 60 lb.	Peas, 3 bushels.
Buckwheat, 2 bushels.	Potatoes, about 2½ bushels.
Cabbage, in drills, 5 to 6 lb.	Rape, 1 gallon.
" for transplanting, 1 lb.	Rye, 2½ to 3 bushels.
Canary, 3 pecks.	Rye-grass, 3 bushels.
Carrot, 8 to 10 lb.	" drilled, 2½ bushels.
Chicory, 8 lb.	Sainfoin, in husk, 5 bushels.
Clover, 16 lb.	" milled, 50 lb.
Gorse for Cover, 30 lb.	Sunflower, 8 lb.
" for Cutting, 50 lb.	Swedes, 3 lb.
Kohl Rabi, to transplant, 1 lb.	Tares, spring, 2 to 2½ bushels.
" in drills, 4 lb.	" winter, 2½ bushels.
Lucerne, 20 lb.	Trifolium, 2½ lb.
" drilled, 15 lb.	Turnips, yellow-fleshed, 3 lb.
Lupin, 3 bushels.	" white-fleshed, 3 to 4 lb.
	Wheat, 2 to 2½ bushels.

To reduce degrees C. above zero to degrees F., double the number, deduct one-tenth and add thirty-two.

To reduce degrees C. below zero to degrees F., double the number, deduct one-tenth and subtract thirty-two.

To reduce degrees R. above zero to degrees F., multiply by two and a quarter and add thirty-two.

To reduce degrees R. below zero to degrees F., multiply by two and a quarter and deduct thirty-two.

To reduce degrees F. to degrees C., halve the number of degrees above or below thirty-two and to that add one-ninth of the same.

To reduce degrees F. to degrees R., proceed as above, but deduct one-ninth instead of adding.

TABLES OF AGRICULTURAL MEASURES, &c.

ENGLISH SQUARE MEASURE.		Sq. Yards.
Yard.	Pole or Perch.	English or Statute Acre
30½ =	1	Irish or Plantation con-tains
484	16 =	1
1210	40 =	1
4840	160 =	1

CUBIC OR SOLID MEASURE.

1728 cubic inches make 1 cubic foot.
27 cubic feet make 1 cubic yard.
40 cubic feet of rough, or 50 cubic feet of heavy timber make 1 load.
12 cubic feet make 1 ton of ship-board.
5 cubic feet make 1 barrel bulk.

HAY AND STRAW.

Truss of Straw, 35 lb.	Truss of Old Hay, 55 lb.	Truss of New Hay, 60 lb.
30 Trusses = Straw, 11 cwt. 2 qr.	8 lb.; Old Hay, 18 cwt.; New Hay, 19 cwt. 1 qr. 4 lb.	

A TON WEIGHT OF THE FOLLOWING WILL AVERAGE IN CUBIC FEET

Earth	21	Pit Soil	23
Chalk	18	Red ditto	18
Clay	14	Marl	23
Shingle	20	Shingle	23
Gravel	20	Night soil	18
Coarse gravel	19		

SIZE OF SLATES.

Princes	24 x 14.
Duchesses	24 x 12
Countesses	22 x 12
Viscountesses	20 x 10
Ditto	18 x 9
Ladies	18 x 10
Ditto	16 x 8
Ditto	15 x 8
Ditto	14 x 12
Plantations	14 x 18
Bundles	13 x 18
Ditto	12 x 20

SIZES OF FLOWER-POTS—CHISWICK STANDARD.

(INSIDE MEASURE.)		Ins. diam. at top.	Ins. diam. deep.
Thimbles	...	2½	2
Thumbs	...	2½	2½
Sixties (60's)	...	3	3½
Fifty-fours (54's)	...	4	4
Forty-eights (48's)	...	4½	5
Thirty-twos (32's)	...	6	6
Twenty-fours (24's)	...	8½	8

Carrots, 12 to 15 square yards	...	1
" bed of 12 square yards	...	2
Cailliflower, 4 square yards	...	2
Celery, 4 square yards	...	1
Cress, 4 square yards	...	1
Endive, 4 square yards	...	2
Kale, 4 square yards	...	1
Kidney Beans, row of 80 feet	...	1
Leek, 2 square yards	...	1 pint
Lettuce, 4 square yards	...	1 ounce
Mushroom, 7 square yards	...	1
Onions, 9 square yards	...	1 bushel
Parsley, row of 80 feet	...	2 ounces
Parsnip, drill of 200 feet	...	1½
Peas, early, row of 60 feet	...	1½ pint
" large, late, row of 80 feet	...	1½
Potatoes, row of 30 feet	...	1½ peck
Radishes, 4 square yards	...	1½ ounce
Savoy, 4 square yards	...	1
Spinach, 10 square yards	...	2
" drill of 120 feet	...	2
Turnip, 4 square yards	...	1

TIMBER MEASURE.

TO FIND THE AREA OF A BOARD OR PLANK.—*Rule*.—Multiply the length by the mean breadth of the area. *Note*.—When the board tapers add the breadth at the two ends together, and take half the sum for the mean breadth.

TO FIND THE SOLID CONTENTS OF SQUARED TIMBER.—*Rule*.—Multiply the mean breadth by the mean thickness, and the product by the length, for the contents.

TO FIND THE SOLIDITY OF ROUND OR UNSQUARED TIMBER.—*Rule I*.—Multiply the square of one-fourth of the mean circumference, or of the mean quarter girth, by the length, for the contents. *Rule II*.—Find the area corresponding to the quarter girth in inches, and multiply it by the length of the tree or piece of timber in feet, then will the product be the solidity in feet, and decimal parts of a foot, according to Rule I.

Note.—When a tree tapers regularly the girth may be taken at the middle for the mean girth, or it may be taken at both ends, when half the sum will be the mean girth. When a tree tapers irregularly, being thick in some places and small in others, the girth may be taken at the ends, and at equal intervals, then the sum of the girths, divided by their number, will be the mean girth; or the tree may be divided into several lengths, and the contents of each part computed separately, then their sum will be the contents of the whole tree.—*Purdon's Almanack.*

A TABLE FOR PLANTERS

SHOWING THE NUMBER OF TREES REQUIRED PER IMPERIAL ACRE, AT FROM 1 TO 30 FEET DISTANCE BETWEEN EACH PLANT.

Distance.	Number.	Distance.	Number.	Distance.	Number.
1	43,560	6½	1031	12	302
1½	19,360	7	889	12½	270
2	10,890	7½	774	13	257
2½	6,970	8	680	13½	239
3	4,840	8½	603	14	222
3½	3,556	9	537	14½	207
4	2,722	9½	482	15	193
4½	2,151	10	435	15½	181
5	1,742	10½	395	16	170
5½	1,440	11	360	16½	164
6	1,210	11½	329	17	150

—*Brown's Forester.*

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11 F	68.4	Ascension Day. [Ghent Fl. Sh.]
12 S	53.8	Royal Botanic Society: General Meeting.
13 S	53.8	Sunday after Ascension.
14 M	54.0	Chambre Syndicale of Ghent Fl. Show.
15 Tu	54.3	
16 W	54.6	Royal Botanic Society's Show.
17 Th	54.8	
18 F	55.1	Easter Law Sitings end.
19 S	55.4	
20 S	55.5	White Sunday.
21 M	55.9	White Monday. Bank Holiday.
22 Tu	56.1	R.H.S., Sci. Fr. & Fl. Com., and Council.
23 W	56.3	
24 Th	56.4	Queen Victoria b. 1819. Linnean Soc. [Anniv. and Centenary].
25 F	56.6	
26 S	56.7	
27 S	56.9	Trinity Sunday. Veplantenkring, Antwerp, meets.
28 M	57.2	
29 Tu	57.5	Trinity Law Sitings begin.
30 W	57.9	Derby Day.
31 Th	58.1	Joan of Arc burnt. 1431.

SEPTEMBER.

Day of M.	Day of W.	Mean Tem.
1 S	60.0	New Moon, 6th, 4h. 36m. morn.
2 S	59.8	14th Sunday after Trinity.
3 M	59.6	First Quarter, 12th, 10h. 0m. after.
4 Tu	59.5	Full Moon, 20th, 5h. 24m. morn.
5 W	59.4	Last Quarter, 28th, 8h. 30m. morn.
6 Th	59.3	Royal Caledonian Hort. Soc. (two days)
7 F	59.1	Copenhagen taken, 1807. [Edinburgh.]
8 S	59.0	
9 S	58.9	15th Sunday after Trinity.
10 M	58.7	Chambre Syndicale of Ghent Fl. Show.
11 Tu	58.5	Royal Hort. Soc., Fr. and Fl. Committees.
12 W	58.3	Glasgow and W. of Scotland (three days).
13 Th	58.1	
14 F	58.0	Doncaster Cup.
15 S	57.8	
16 S	57.6	16th Sunday after Trinity.
17 M	57.3	Sum rises 5.40, sets 6.9.
18 Tu	57.2	Ember Day.
19 W	57.1	
20 Th	56.9	Battle of Alma, 1854.
21 F	56.7	Sir W. Scott d. 1832.
22 S	56.6	
23 S	56.3	17th Sunday after Trinity.
24 M	56.1	
25 Tu	55.9	Royal Hort. Soc., Fr. and Fl. Committees.
26 W	55.7	Lacknow relieved, 1857.
27 Th	55.5	
28 F	55.4	
29 S	55.2	Michaelmas Day.
30 S	55.0	18th Sunday after Trinity. E. Johnston d. 1887. Veplantenkring, Antwerp, meets.

OCTOBER.

Day of M.	Day of W.	Mean Tem.
1 M	54.7	Sun rises 6.3, sets 5.36.
2 Tu	54.5	
3 W	54.2	Treaty of Limerick, 1691.
4 Th	54.0	
5 F	53.7	Dividends payable.
6 S	53.4	
7 S	53.0	19th Sunday after Trinity.
8 M	52.6	Chambre Syndicale of Ghent Fl. Show.
9 Tu	52.5	R.H.S., Fr. and Fl. Coms., and Council.
10 W	52.3	W. Heale d., 1857.
11 Th	52.1	
12 F	51.7	
13 S	51.4	Murrat shot, 1815.
14 S	51.3	120th Sunday after Trinity.
15 M	51.0	Sun rises 6.26, sets 5.5.
16 Tu	50.7	
17 W	50.5	
18 Th	50.0	Fire Insurance to be paid.
19 F	49.8	Sir C. Wheatstone d. 1875.
20 S	49.5	
21 S	49.2	21st Sunday after Trinity.
22 M	48.8	
23 Tu	48.4	Royal Hort. Soc., Fr. and Fl. Committees.
24 W	48.0	
25 Th	47.6	
26 F	47.3	W. Hogarth d. 1764.
27 S	47.0	[King, Antwerp, meets.
28 S	46.6	22nd Sunday after Trinity. Veplanten-
29 M	46.4	Sun rises 6.51, sets 4.37.
30 Tu	46.2	
31 W	45.9	Allhallows' Eve.

NOVEMBER.

Day of M.	Day of W.	Mean Tem.
1 Tu	45.7	All Saints.
2 F	45.5	All Soule's Day.
3 S	45.4	
4 S	45.1	23rd Sunday after Trinity.
5 M	44.8	
6 Tu	44.5	Portsmouth Chrysanth. Show (three days).
7 W	44.1	[Kingston (two days)
8 Th	43.8	
9 F	43.5	Prince of Wales b. 1841.
10 S	43.3	Royal Botanic Society: General Meeting.
11 S	43.1	24th Sunday after Trinity. [Ghent Fl. Sh.]
12 M	42.8	Sun rises 7.16, sets 4.13. Cham. Synd. of
13 Tu	42.5	Winchester (two days). R.H.S., Sci. Fr.
14 W	42.3	[& Fl. Coms., and Council.
15 Th	42.2	Chiswick Hort. Soc. Ryl. Hort. of Ireland.
16 F	42.1	Devon & Exeter Hort. Chrysanth. & Fr. Sh.
17 S	42.0	[Sheffield Chrysanth. (two days).
18 S	41.9	25th Sunday after Trinity.
19 M	41.8	
20 Tu	41.7	Edinburgh Chrysanth. Show (two days).
21 W	41.6	Birmingham & Mid. Chrysanth. Sh. (two
22 Th	41.4	Hull Chrysanth. Show (two days). [days].
23 F	41.6	
24 S	41.5	26th Sunday after Trinity.
25 S	41.5	[King, Antwerp, meets.
26 M	41.4	Sun rises 7.39, sets 3.56.
27 Tu	41.4	
28 W	41.4	Mary Somerville d. 1872.
29 Th	41.4	
30 F	41.3	St. Andrew.

DECEMBER.

Day of M.	Day of W.	Mean Tem.
1 S	41.3	Princesses of Wales b. 1844.
2 S	41.3	1st Sunday in Advent.
3 M	41.3	
4 Tu	41.3	T. Carlyle b. 1795.
5 W	41.2	
6 Th	41.2	A. Trollope d. 1882.
7 F	41.1	
8 S	41.0	Royal Bot. Soc.: Gen. Meeting. [d. 1857.
9 S	41.0	2nd Sunday in Advent. [Ghent Fl. Sh.]
10 M	40.9	Sun rises 7.58, sets 3.49. Cham. Synd. of
11 Tu	40.8	Royal Hort. Soc., Sci. Fr. and Fl. Coms. [and Council.]
12 W	40.7	
13 Th	40.7	
14 F	40.6	Princess Alice d. 1878.
15 S	40.5	1st Walton d. 1683.
16 S	40.4	3rd Sunday in Advent.
17 M	40.2	Marshall Wilder d. 1836.
18 Tu	40.0	
19 W	39.8	
20 Th	39.7	Lord Macanlay d. 1859.
21 F	39.4	Lord Beaconsfield b. 1804.
22 S	39.4	
23 S	38.9	4th Sunday in Advent.
24 M	38.7	Sun rises 8.8, sets 3.52.
25 Tu	38.4	Christmas Day.
26 W	38.1	Boxing Day. Bank Holiday.
27 Th	37.8	
28 F	37.6	
29 S	37.5	[King, Antwerp, meets.
30 S	37.3	1st Sunday after Christmas. Veplanten-
31 M	37.1	St. Silvester.

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(THE "TIMES" OF HORTICULTURE)

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[P.T.O.]

This is the haunt of the monkey, the seven-banded armadillo, more especially of the humming-birds, and such other forms as one associates with the tropical forest.

My expeditions into the interior have naturally led me for the most part to this happy hunting-ground, and such expeditions cannot be reasonably done under two days. But the vegetation of the lower ground, unimpressive as it looks beside the high woods, has its beauties and its interests. The Cocoa-nut and other Palms, the Flamboyant tree (Poinciana), the Bread-fruit, the Mango, the Cacao, and many other forms, for the most part cultivated or escaped from cultivation, and largely introduced from other lands, mix with an indigenous flora, which certainly is not particularly taking to the eye. Whether from contrast with the stately trees of the "high woods" or not, this flora of the lower ground gave me the impression of a general scrubby look, relieved here and there by towering Palms. The traveller appreciates the beauty of our northern Pine trees never so fully as when fresh from tropical scenes.

It is as little my intention to attempt any detailed picturesque description of tropical vegetation as it is to give a scientific account of it. Kingsley in *At Last* tried to tell us of the beauties of the neighbouring island of Trinidad and the result, even in the case of that master, was a warning to those who feel tempted. To oscillate between a riotous excess of adjectives in all degrees, and a bare recounting of names which are Greek (and many of them bad Greek) to the ordinary reader is but poor entertainment. I shall therefore take my way with a lighter heart if with a lighter head as well.

The narrow track leads me upward, and the journey is interrupted now and then by dismounting to examine this or that. I come at last to a bare grassy ridge, from which a wide view is obtained of the lower ground, the bays and headlands and the shining sea beyond. Below the south-west horizon lies the island of Tobago—Cruise's island of fancy though as real a place in the minds of all of us as most we have set foot in. It was from these very bays on which I am now looking that the cannibal Caribs set out on those expeditions which culminated in banquets on his shore. On these very slopes are still picked up the arrow-heads and other stone weapons with which the victims were dispatched. From the brothers of these trees were hollowed out their war canoes, but the people themselves have gone, and in a fashion worthy of men with a true contempt for death. In the north of the island (as was noted in a previous article) there is a high rock (Morne des Sauteurs), from which well-nigh the last of the Grenada Caribs leapt into the sea when beaten by the French in an infamous war of extermination. A scattered remnant still survives in neighbouring lands. In Dominica, at least, a number of the Carib inhabitants lead a shy and remote life in the forests, rarely appearing to the faces of the white and black usurpers of their ancient possessions. There is said to be a mystery hanging over the relationships of this people, so strikingly unlike their original neighbours. Some have supposed, under the seductive influence of a hare-brained kind of comparative philology, that they are a stock akin to the Arabs, and that their ancestors were drifted across by the trade winds while on a voyage on the North-West African coast. There has been modern demonstration of the fact of such driftings of people in boats, and Martyr mentions that at a place called Quarequa, in the gulf of Darien, Vasco Nunez met with a colony of negroes. Besides, in all probability Columbus was not "the first to cross the main," since he is said to have discovered the stern-post of a vessel on the shore of Guadeloupe. I venture to think, however, that

"His stones and his bones and his bows"

are grave inconsistencies with this theory of Carib degeneration from an Arab people which built ships, or, at all events, such large boats as enabled them to cruise in the North Atlantic. The Caribbees (whence the names Galibis, Calibis, Caliban) were, it is stated, a powerful people on the mainland of South America, and we may rest content with that without seeking

their origin farther afield. At all events this is one of those cases in which prophecy is more certain than history. In a few generations this formerly strong and warlike race will be buried with whatever mystery surrounds its origin.

My route now lies downward to the coast, and on the way I pass a group of negroes' cabins. In the garden of one there is lying a child's coffin. It seems a strange custom to expose this sad object to the dangers of the wilderness. On a previous occasion I had wasted much sympathy on the sorrowing parents until I learnt from His Excellency's *aide-de-camp* that such coffins hold no corpse, but belong to the scarecrow family, and are designed to avert robbery!

Two boys, as black as they may be, without a scrap of clothing, dart off at my approach, and their playfellows, a couple of pigs, follow them under the paternal roof. Just before I reach the bay, while passing over an open grassy field, once a cane field, no doubt, in the days when sugar-planting was carried on in the island, I note a bird very like, if not, the cowbird (*Molothrus pecoris*), perching on an ox, and making short flights meanwhile about its head. It appears to be feeding on the insects disturbed by the animal as it moves among the grass, but it may well supplement its diet by relieving the beast of parasites.

There is no sign of the boat in the bay as yet, and my hopes of dredging wane with the afternoon. The steamy heat is nearly insupportable, and is alleviated only by the malignant attacks of a cloud of mosquitos. This is the only known use of mosquitos! They keep one from thinking exclusively of the heat. Since they are like this in the afternoon, I try to imagine what they must be at night should any poor wretch have to sleep here. There is a legend on this coast to the effect that three benighted travellers were bitten through an inverted sugar-boiler beneath which they had taken shelter. In despair I begin my journey, and when well round the bay come upon a vile smelling creek, where the boat is lying with its crew fast asleep, the whole carefully hid from view. I speak to them about this. The boy mounts the horse, and we are off. Once outside, we are soon in the current, and rapidly making for home. They had not been asleep all the afternoon, since my diver has a few jars full of specimens. He tells me of them—using mostly his own names for each—and the depths at which they were found, in which I have never found him mistaken. He is especially fascinated, however, with the scientific names of the plants and animals searched for by sea and land, and I verily believe if he ever beget a daughter she will be called—according to the negro taste for "fine names"—*Rhipilia Peripatus White*. *George Murray.*

NEW OR NOTEWORTHY PLANTS.

ÆRIDES DIFFORME, Wall.

I HAVE already spoken of this rare and exceedingly striking Orchid, with its sun-like anterior lip, as far back as 1865 (*Gardeners' Chronicle*, 1865, p. 698), when I had it from Messrs. Hugh Low & Co. It was received later in the Hamburg Botanic Garden, where it flowered in July, 1875. I am very sorry that I kept no records as to the colours of the flowers of those plants. Sir Trevor Lawrence, Bart., M.P., kindly favoured me with an inflorescence in July, 1878. The flowers were yellowish-green; the sepals and petals had some nearly parallel cinnamon stripes on the inferior halves internally. The side lacinia of the lip are cinnamon, with similar lines on the greenish-yellow spur. There are some cinnamon lines at the base of the column, which is yellowish, with a brown border to the androclinium, and a similar zone in the middle of the infrastigmatic part.

Finally, M. Regnier, 44, Avenue de Marigny, Fontenay-sous-bois, Seine, has kindly sent me a very fine inflorescence, a foot long, covered with very deeply

coloured flowers. Sepals and petals yellowish-ochre, coloured with long cinnamon nearly parallel stripes, reaching to the top. Side lacinia of the lip yellowish, with six to seven mauve-purple bars. Mid-lacinia reddish mauve-purple, ultimately darker reddish. Spur reddish, light. Column reddish-brown at the back, and with a similar zone transversely over the centre of the infrastigmatic area. It is very pretty, and was imported, as I learn from M. Regnier, from Siam. The area of the species is very wide. I have only to repeat that I cannot distinguish *Ærides hystrix* as a distinct species. Its colours, noted by Dr. (now Sir) J. D. Hooker in Sikkim, correspond very well with those of Mons. Regnier's plant. *H. G. Rehb. f.*

ERIA NICOLOR, Lindl.

Mr. S. Courtauld, Bocking Place, Braintree, has been so kind as to send me a fine specimen of this lovely plant, which was described by Dr. Lindley in 1830 from materials given him by Macrae. I had never seen a living plant before, neither have I any note about it. I learn from Mr. S. Courtauld that this fine gem (for a gem it is, as we have to inform the lovers of *Cattleyas*, *Odontoglossums*, and *Cypripediums*) is called by the English the Cingalese Lily of the Valley. This name may be explained by the inflorescence of one-sided white flowers, though the contrast between these with the white bracts and the dark purple pedicelled ovaries and rachis is far more striking than anything in *Convallaria majalis*. At all events the comparison is not so good as that of the greenish *Polystachya* inflorescence with *Mignonette*.

The stem itself is rather strong, very tumid at its base, covered there with wide brown sheaths, generally half a span long. There are from five to seven narrow cuneate, lanceolate, acuminate, very stiff leaves of the stem's length, which stand nearly upright at the top. Under these stand the inflorescences, probably usually two. Their main rachis is of a fine dark purple colour and velvinous. The triangular acuminate bracts are deflexed and snow-white. The stalked ovaries are in colour and pubescence like the main axis. The flowers themselves are of the purest white. I can only see some purple at the superior part of the column. The very base of the column, with the adnate base of the lip, is filled with honey. The chin is blunt. Sepals triangular acuminate. Petals narrower. Lip sigmoid, trifid, side lacinia blunt, mid lacinia acute. There is no trace of any keels or ridges, which appear only in dried specimens.

My wild specimens are from Gardner, 860! Thwaites, 2982! Dr. Wallace, of Colchester, sent me wild specimens, so he may have the plant, which was also collected by the late Wawra von Fernsee whom science lost so early last year.

What I see in Mr. S. Courtauld's fine specimen is not quite what Dr. Thwaites said, who stated (*Enum. Pl. Zeyl.*, 299). "columna labelloque ad basin plus minus rubro tinctis." There may be varieties. *H. G. Rehb. f.*

FICUS CANONI, N. E. Br., n. sp.

This is the plant that was introduced in 1875 by Mr. W. Ball, and described and distributed by him under the name of *Artocarpus Canoni*. There is no doubt that during the twelve years it has been in cultivation it has flowered elsewhere than at Kew; but having recently flowered there, the Assistant-Director, Mr. Morris, at once perceived that it was not an *Artocarpus*, but a true Fig, and kindly placed it in my hands for identification, and having failed to recognise it as a described species, I name it as above; and I may say, that had the plant in the first instance been placed in the hands of a botanist it would not have been erroneously referred to the genus *Artocarpus*. The plant is too well known to need much description, but it may be noted that when in a young state the leaves are more or less lobed in a pinnatifid manner; when older the leaves are entire and ovate or ovate-oblong in outline; in both entire and lobed leaves the apex is very acuminate or cuspidate-acuminate, and the base cordate

with rounded auricles, which often overlap or have their edges pushed upwards from their under sides being applied to each other; both sides are sparsely and somewhat roughly hairy, but the hairs are most abundant beneath; the margin is irregularly and obtusely sinuate-dentate, though much less marked on the entire leaves, and the lobed leaves have the tips of the lobes drawn out to a somewhat blunt point. In the axils of the basal veins on the under-surface of the leaf are seated large pallid glands. The colour of the leaf is dark bronzy-red on bronzy-green, with a purple tint, and red veins above, and entirely vinous-purple beneath. The Fig is stalked, subglobose, about half an inch in diameter, finely and densely pubescent, and of an ochreous colour, the mouth is slightly conical, and closed with purple scales; the peduncle is about one-third of an inch long, finely pubescent, with three or four small, oblong, obtuse, pubescent, reddish-brown bracteoles placed under the Fig. The flowers in the only Fig examined by me were all female, and alternately pedicellate and sessile, the sessile ones usually with four, and the stalked ones with five, linear-oblong purple perianth segments. The plant is a native of the Society Islands. *N. E. Brown, Herbarium, Kew.*

*ALBUCA (LEPTOSTYLA) ALLENÆ, Baker, n. sp.**

This is a fine new species of *Albuca*, which has just been flowered at Hildenley, and a plant sent to Kew by Sir C. W. Strickland. It comes from Zan-zibar, doubtless from the mountains of the interior, at the same height above sea-level, as the new *Koiphofia* I described a short time ago. It is interesting botanically, as being just half-way between a typical *Albuca* and a typical *Ornithogalum*. The stamens are just like those of an *Albuca* of the section *Pallastema*, but the style is not at all triquetrous, nor are the inner segments of the perianth connivent or appendiculate, with a gland at the tip. In general habit and the size and colour of the flowers it closely resembles *A. Wakefieldii*, Baker, in *Botanical Magazine*, t. 6429, which is identical with *A. Elwesii*, Regel, and which comes from the same region, I have named it *Allenæ* at the request of Sir Charles Strickland, after the lady from whom he has received this and several other interesting plants.

Bulb globose, above 2 inches diameter; outer tunics pale brown, produced. Leaves about six, lanceolate, flaccid, bright green, glabrous, 1—1½ foot long, 1½—2 inches broad low down, with a narrow diaphanous entire edge. Peduncle terete, green, stiffly erect, 3—4 feet long. Inflorescence a lax narrow raceme a foot long; pedicels ascending, the lower under an inch long; bracts small, brownish linear from a deltoid base. Perianth oblong, greenish-white, under an inch long; inner segments oblong, opening out when the flower expands; outer, oblong-lanceolate. Stamens nearly as long as the segments; filaments linear, sharply constricted above a quadrate base; anthers oblong, yellow, versatile, one-sixth of an inch long. Ovary trigonous; style subulate, ½ inch long, reaching to the tip of the segments; stigma capitate. Ovules many in a cell, superposed. *J. G. Baker.*

CATASETUM PULCHRUM, N. E. Brown.†

The species of *Catasetum* are, as a rule, more curious than beautiful, but of late M.M. Linden, of Brussels (Société anonyme, "l'Horticulture Internationale"), have been the fortunate introducers of several rather striking species, notably *C. tigrinum*,

* *Albuca (Leptostyla) Allenæ*, Baker, n. sp.—Bulbo globoso magno; foliis productis 6—8 lanceolatis flaccidis glabris viridibus pedalis vel sesquipedalibus; pedunculo valido erecto 3—4 pedali; racemo laxo angusto, pedicellis ascenduntibus; bracteis parvis acuminatis; perianthio albo-viridi segmentis ascenduntibus, exterioribus oblongo-lanceolatis interioribus oblongis haud conniventibus; staminibus perianthio vix brevioribus, filamentis supra basin latam constrictis; stylo subulato elongato. *J. G. Baker.*

† *Catasetum pulchrum*.—Bulbis fusiformibus, 4—6 poll. longis, leviter sulcatis; racemo paucifloro, deflexo; sepalis petalisque ellipticis, acutis, patentibus, viridibus, rubro-brunneis transverse zonatis; labello saccato apice breviter tridentato, aurantiaco. Ea iconem tantum descripsi. Habitat Brazil. *E. N. Brown.*

and the superb *C. Bungei*, which is the finest known member of this interesting genus. The present novelty has recently been introduced from Brazil by E. S. Rand, Esq., and sent to M.M. Linden. It is a very pretty and distinct species, and one that is likely to become a desirable plant. It is of dwarfer habit than many of the species, and has short racemes which curve downwards and bear four or five flowers, which are about 1½ inch in expanse. The sepals and petals are broad, elliptic acute, and widely spreading. They are of a light green, marked with several transverse bars of a chocolate colour. The lip is saccate, with an oblong mouth, entire on the margin and shortly three-toothed at the apex. The colour is orange-yellow. It would be interesting to know what the other sexual forms of this species are like, though possibly they may be less ornamental than the form here described. [From an inspection of the drawings only.] *N. E. Brown.*

USEFUL INFORMATION.

THE subjoined lists were intended for publication in the Sheet Almanac given in the present issue, but considerations of space led to their exclusion and to their publication in the present place:—

GOVERNMENT OFFICES, &c.

Privy Council, Agricultural Department, Whitehall.—Vice-President, Lord John Manners.

Board of Trade, Whitehall.—Vice-President, Lord Stanley of Preston; Secretary, H. G. Calcraft, Esq.

Emigration Information Office, 31, Broadway, Westminster, S.W.

Normal School of Science, South Kensington.—Professors, Botany, D. H. Scott; Agriculture, J. Wrightson.

Science and Art Department, South Kensington.—Secretary, Colonel Donnelly.

School of Forestry (India), Cooper's Hill, Staines.—Professor of Botany, Marshall Ward.

Woods, Forests, and Land Revenues, 1 and 2, Whitehall Place.—Principal Clerk, John Russell Sowray.

Natural History, Museum, Cromwell Road, S.W.—Keeper of Botany, Wm. Carruthers, F.R.S.

Works and Public Buildings, 12, Whitehall Place.—First Commissioner, Right Hon. David Robert Plunket, M.P.

ROYAL BOTANIC GARDENS, KEW.

Director, W. T. Thiselton Dyer, F.R.S., C.M.G. Assistant-Director, D. Morris, M.A., F.L.S. Keeper of Herbarium and Library, Professor Oliver, F.R.S.

Principal Assistant, J. G. Baker, F.R.S.

Mycologist, Dr. M. C. Cooke, M.A.

Assistant for India, W. B. Hemsley, A.L.S.

Curator of Museums, J. R. Jackson, A.L.S.

Curator of Gardens, George Nicholson.

Assistant Curator, William Watson.

ROYAL PARKS AND PLEASURE GARDENS.

St. James's, Green, and Hyde Parks.—Ranger, H.R.H. the Duke of Cambridge; Superintendent of Works, William Browne.

Richmond.—Ranger, H.R.H. the Duke of Cambridge; Deputy ditto, Major-General T. H. Clifton; Keeper, J. W. Jordan.

Greenwich and Victoria.—Superintendent, J. T. Gibbon.

Bushey.—Keeper, C. Dann.

Hampton Court.—Keeper, G. T. Sawyer; Pleasure Gardens.—Superintendent, A. Graham.

Regent's.—Superintendent, C. Jordan.

Battersea and Kennington.—Superintendent, A. Roger.

Windsor.—Ranger, H.R.H. Prince Christian; Deputy ditto, Captain Walter Campbell; Bailiff, John Peel.

New Forest.—Official Verderer, Rt. Hon. George Sclater Booth, M.P.

New Forest, Alice Holt, Bere, Parkhurst, and Woolmer.—Deputy Surveyor, Hon. Gerald W. Lascelles.

Forest of Dean.—Gaveller, George Culley; Deputy ditto, Thomas Foster Brown; Deputy Surveyor, Sir J. Campbell; Assistant, J. Ward.

BOOKS.

A SELECT List of Books useful for Young Gardeners and Amateurs:—

BOTANICAL BOOKS.

Botany, London Science Class Book. By Dr. McNab. (Longmans.)

Botany for Beginners. By M. T. Masters, F.R.S. (Bradbury, Agnew, & Co.)

British Flora, Handbook of. By G. Bentham, F.R.S., (L. Reeve & Co.)

Elementary Course of Botany, Henfrey. Edited by M. T. Masters, F.R.S., and A. W. Bennett. (Van Voorst.)

Lessons in Elementary Botany. By Oliver. (Macmillan.)

Plant Life. By M. T. Masters, F.R.S. (Bradbury, Agnew, & Co.)

Students' Flora of the British Isles. By Sir J. D. Hooker. (Macmillan.)

Treasury of Botany. Edited by J. Lindley and T. Moore. 2 vols. (Longmans.)

COTTAGE GARDENING.

Amateur Gardener's Calendar, London's (F. Warne & Co.)

Garden Calendar. By T. W. Sanders. (London: (Adams & Co.)

Paxton's Calendar. (41, Wellington Street, Strand.)

DICTIONARIES, &c.

Alpine Flowers. By W. Robinson. (Murray.)

Cassell's Popular Gardening. (Cassell & Co.)

Dictionary of English Plant Names. By J. Britten and R. Holland. (Trübner & Co.)

Dictionary of Gardening. (Upcot Gill, 170, Strand.)

Encyclopædia of Plants. By Loudon. (Longmans.)

English Flower Garden. By W. Robinson. (Murray.)

Fruit Manual. By Dr. R. Hogg. (171, Fleet Street.)

DISEASES.

Diseases of Field and Garden Crops. By W. G. Smith. (London: Macmillan & Co.)

FORESTRY, TREES, &c.

Arboriculture. By J. Grigor. (Edinburgh: Edmonston & Douglas.)

Conifers, Manual of. (J. Veitch & Sons, Chelsea.)

Grafting and Budding. By C. Baltet. (London: Garden Office, 37, Southampton Street.)

Hardy Trees, Shrubs, and Herbaceous Plants, Handbook of. By Decaisne, Naudin, and Hemsley. (London: Longman, Green & Co.)

The Forester. By J. Brown. (Edinburgh and London: W. Blackwood & Sons.)

Tree Pruning. Des Cars. (Rider & Sons.)

FRUIT.

British Apples, Apple Congress Report. (Macmillan.)

Fruit Book, the Hardy. 2 vols. By D. T. Fish. (London: Bazaar Office, 170, Strand.)

Fruit Culture under Glass, Handybook of. By D. Thomson. (Edinburgh and London: W. Black & Sons.)

Fruit Farming for Profit. (G. Bunyard, Maidstone.)

Fruit Garden, the Miniature. By T. Rivers. (Longmans.)

Fruit Trees. By M. De Breuil. (London: Lockwood & Co.)

Orchard House. By T. Rivers. (Longmans.)

Pear Congress Report. (Royal Horticultural Society.) (Macmillan.)

Pine-apple, Culture of the. By D. Thomson. (Edinburgh and London: W. Blackwood & Sons.)

Strawberries. By W. Hinds. (Gardening World Office, 17, Catherine Street.)

Vines and Vine Culture. A. F. Barron, Sutton Court Road, Chiswick, W.

INSECTS.

Manual of Injurious Insects. By Miss E. A. Ormerod. (London: Swann, Sonnenschein & Co.)

LANDSCAPE GARDENING.

How to Lay out a Garden. By E. Kemp. (London: Bradbury, Agnew, & Co.)

MANURES.

Artificial Manures. By M. G. Ville. Translated by W. Crookes. (London: Longmans, Green & Co.)

PLANTS, FLOWERS, &c.

Bulbs and Bulb Culture. 2 vols. By D. T. Fish. (London: Bazaar Office, 170, Strand.)

Carnations and Picotees. By E. S. Dodwell. (Groombridge.)

Carpet-Bedding at Hampton Court. By A. Graham. (Hampton Court.)

The Chrysanthemum. F. W. Burbidge. Garden Office, 37, Southampton Street, Strand.)

Chrysanthemums. By Molyneux. (London: 171, Fleet Street.)

Chrysanthemums. National Society's Catalogue. (E. W. Allen, Ave Maria Lane.)

The Clematis as a Garden Flower. By Moore & Jackman. (Woking Nursery, Surrey: Jackman & Son.)

Ferns, Select. (B. S. Williams, Holloway.)

Florists' Flowers, Hardy, their Cultivation and Management. J. Douglas.

Flower Garden, The, Handybook of. By D. Thomson. (W. Blackwood & Sons.)

Gladiolus Cultivation. By Rev. H. H. D'Ombraim. (Reeve & Co.)

Greenhouse and Stove Plants. By T. Baines. (J. Murray.)

Greenhouse Management for Amateurs. By W. J. May. (Bazaar Office, 170, Strand, W.C.)

Hardy Herbaceous and Alpine Flowers, Handbook of. By W. Sutherland. (W. Blackwood & Sons.)

Ivy. By Shirley Hibberd. (E. W. Allen, Ave Maria Lane.)

Lily of the Valley Culture. By Jannock, King's Lynn.

Lilies and their Culture. By Dr. Wallace. (New Plant and Bulb Co., Lion Walk, Colchester.)

Narcissus, the, its History and Culture. By Burbidge and Baker. (London: Reeve & Co.)

Orchid Conference Report. (Royal Horticultural Society.)

Orchid Growers' Manual. (B. S. Williams, Holloway.)

Orchidaceous Plants, Manual of. (Veitch & Sons, Chelsea.)

Orchids, Cool. By F. W. Burbidge. (Chatto & Windus.)

Orchids, their Structure, History, and Culture. By L. Castle. (171, Fleet Street.)

Primula Conference Report. (Royal Horticultural Society.)

Rose Garden. By W. Paul. (Waltham Cross.)

Roses, Book About. By Dean Hole. (Blackwood & Sons.)

Roses, List of. National Society's Catalogue. By Rev. H. H. D'Ombraim, Westwell Vicarage, Ashford, Kent.)

Roses for Amateurs. By Rev. H. H. D'Ombraim. (Gill, 170, Strand.)

Tobacco Culture. By E. J. Beale. (Carter & Co., Holborn.)

Willow, Cultivation of. By Scaling. (Kent & Co.)

PASTURE LAND.

Permanent and Temporary Pastures. By M. H. Sutton. (Hamilton, Adams & Co.)

VEGETABLES, &c.

Asparagus, Culture of. By W. Earley. (Bradbury, Agnew, & Co.)

Cucumbers and Melons. By W. J. May. (170, Strand, W.C.)

Kitchen and Market Garden. (Macmillan.)

Market Gardening. London: C. W. Shaw, (37, Southampton Street.)

Market-gardening, Farm. By C. Whitehead. (Effingham Wilson.)

Mushrooms for the Million. By J. Wright. (*Journal of Horticulture* Office, 171, Fleet Street, E.C.)

Potatoes, How to Grow. By J. Pink (Lockwood & Co.)

Vegetable Culture. By Sutton & Sons. (Hamilton, Adams & Co.)

Vegetable and Fruit-farming. By C. Whitehead. (12, Hanover Square.)

Vegetable Garden. By Vilmorin. (Murray.)

Watercress, Culture of. By Shirley Hibberd. (4 and 5, Ave Maria Lane.)

MISCELLANEOUS.

Buildings, Horticultural. By F. A. Fawkes. (Swann, Sonnenschein & Co.)

Cultivated Plants, their Propagation and Improvement. By F. W. Burbidge. (W. Blackwood & Sons.)

Floriculture, Domestic, Window Gardening and Floral Decorations. By F. W. Burbidge. (W. Blackwood & Sons.)

Garden Receipts. Edited by C. W. Quin. (Macmillan & Co.)

Gardeners' Assistant. By R. Thompson. (Blackie & Sons.)

Gardening, Epitome of. Moore and Masters. (Adam Black & Co.)

Parks and Gardens of London. By N. Cole. (*Journal of Horticulture* Office, 171, Fleet Street.)

Sub-Tropical Cultivation. By R. C. Haldane. (Blackwood & Sons.)

Tropical Agriculture. By P. L. Simmonds. (Spon.)

GARDENING PERIODICALS.

1787—Botanical Magazine. Editor, Sir J. D. Hooker. Monthly. (L. Reeve & Co.)

1841—Gardeners' Chronicle. Friday. Editor, Dr. Masters, F.R.S. Publisher, W. Richards, 41, Wellington Street, Covent Garden, London, W.C.

1842—Gardener's Magazine. Friday. Editor, Shirley Hibberd, Esq. Publisher, W. H. L. Collingridge, 148, 149, Aldersgate Street, E.C.

1848—Journal of Horticulture. Thursday. Editor, Dr. Hogg, F.L.S. Publisher, E. H. May, 171, Fleet Street, London, E.C.

1871—The Garden. Friday. Editor, W. Robinson, F.L.S. Publisher, W. Robinson, 37, Southampton Street, W.C.

1886—Horticultural Times, 127, Strand, W.C.

1879—Gardening Illustrated. Editor and Publisher, W. Robinson, 37, Southampton Street, W.C.

1884—Amateur Gardening. Editor, T. W. Sanders. Publishers, W. H. & L. Collingridge, 148 and 149, Aldersgate Street, E.C.

Garden Work. Editor, J. Wright. Publisher, E. H. May, 171, Fleet Street, E.C.

1884—Gardening World. Editor and Publisher, B. Wynne, 17, Catherine Street, Covent Garden, W.C.

1887—Royal Gardens, Kew, Bulletin of Miscellaneous Information. Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C.

Reichenbachia, Devoted to the Illustration of Orchids. Monthly. F. Sander, St. Albans.

Orchid Album. Monthly. B. S. Williams, Upper Holloway, London, N.

Rosarians' Year Book. Annually. Bemrose & Sons. Garden Annual. Garden Office, 37, Southampton Street, Strand, W.C.

Garden Oracle. By Shirley Hibberd. London: *Gardeners' Magazine* Office, 4 and 5, Ave Maria Lane, E.C.

Horticultural Directory. *Journal of Horticulture* Office, 171, Fleet Street, E.C.

Horticultural Advertiser. Weekly. Pearson, Chilwell, Notts.

Tropical Agriculturist. Ceylon. Ferguson.

PRINCIPAL FOREIGN HORTICULTURAL PUBLICATIONS.

AMERICA.

Gardeners' Monthly. Philadelphia. Editor, Prof. Meehan.

The American Garden. Editor, E. H. Libby. New York.

American Florist.

Orchard and Garden. Published by J. T. Lovett, Little Silver, New Jersey.

Vick's Monthly. Publisher and Editor, J. Vick, Rochester, New York.

American Pomological Society's Reports.

American Agriculturist, Broadway, New York.

Massachusetts Horticultural Society's Reports. Boston, Mass.

American publications may be obtained through Charles H. Marot, publisher, 814, Chestnut Street, Philadelphia.

AUSTRIA.

Wiener Illustrierte Garten Zeitung. (Journal of the Imperial Horticultural Society, Vienna.)

BAVARIA.

Illustrierte Monatshefte für des Gesamt-Interessen des Gartenbaues. Editor, Max. Kolb, Munich.

BELGIUM.

Lindenia. MM, Linden and Rodigas, Brussels.

L'illustration Horticole. M. Linden and M. Rodigas, Brussels.

Revue de l'Horticulture Belge. M. Pynaert, Ghent.

Bulletin d'Arboriculture. Editors, M. Pynaert and others, Ghent.

FRANCE.

Revue Horticole. Paris. Editors, MM. Carrière et André. Rue Jacob, 26, Paris.

Le Jardin. Editor, Godefroy. Publisher, A. Picard, Argenteuil.

L'Orchidophile. Editor, M. Godefroy - Lebeuf, Argenteuil.

Journal des Roses. Editor, M. Bernardio. Publisher, M. Goin, Paris.

Journal de l'Horticulture Pratique. Paris.

Lyon Horticole. Lyon.

Journal de la Société Nationale d'Horticulture. Rue de Grenelle, 84, Paris.

Le Moniteur d'Horticulture. Editor, M. J. Chauré. Rue de Sévres, 14, Paris. Bi-monthly.

Bulletin de la Société d'Acclimatation de France, Paris.

GERMANY.

Gartenflora. Berlin. Editor, Professor Wittmack. (Paul Parey, Berlin.)

Monatsschrift des Gartenbauvereins zu Darmstadt.

Rosen Zeitung. Frankfurt-on-the-Maine.

Deutsche Gärtnerzeitung.

Möller, Deutsche Gärtnerzeitung. Editor, Dr. Goeze. (Hamburg: Rittler.)

Lebl Illustr. Gartenzeitung.

HOLLAND.

Sempervirens, Gronewegen. Amsterdam.

Het Nederlandsche Tuinboublad. Editor, Dr. Cattie. Arnhem.

ITALY.

Bulletino della Società Toscana d'Horticultura. Florence.

PORTUGAL.

Jornal de Horticultura Practica. Oporto.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM CRISPUM VAR. FAS-TUOSUM.

A splendid variety, with deep rosy-lilac segments and a narrow tongue-shaped white lip, with a central blotch of yellow and a few purple spots. When Hartweg, and about the same time Linden, discovered *O. crispum* (Alexandrac), they could have had no idea of the enormous numbers that would eventually be cultivated. *Lindenia*, t. 115.

CATASETUM BUNGEROTHII VAR. AUREUM.

A variety with lemon-yellow flowers. This magnificent species must surely conquer the prejudice of amateurs, and induce them to cultivate the variety.

For six months in the year they require next to no care, being simply hung up in a moderately warm dry position after the flowering period (October) till about the middle of March, when they are placed in a wooden basket in a compost of fibrous peat and green sphagnum, and then placed in a warm damp house, when they speedily renew their growth and sometimes show their flowers within a month. *Lindenia*, t. 116.

ALANTHES GRANDIFLORA.

A beautiful Madagascar species, with oblong leaves in two rows, and slender flower-stalks, each nearly as long as the leaves. The individual flowers are about 5 inches in longest diameter, pure white, with sepals and petals broad at the base and tapering into long tails; the lip is bent abruptly in the middle, with a dilated basilar portion and an anterior broadly ovate lobe prolonged into a long process. The lip is provided at the base with a bluntish spur, shorter than the flower segments. *Lindenia*, t. 109.

MASDEVALLIA MACRURA.

A species with stalked, oblong leaves, tapering at the base, tall peduncles, nearly as long as the leaves and each bearing two flowers, each 9–10 inches in the longest diameter, with a short tube about three-quarters of an inch long, and three long slender tails, directed, one vertically upwards, the other two straight downwards. The colour is yellow, flushed and spotted with brown round the open throat, which latter is white. It is a native of New Granada, where it was discovered by Wallis, and introduced by him into M. Linden's establishment (*Lindenia*, t. 113), and originally described in our columns, 1874, i., p. 240.

CATTELEYA LABIATA VAR. AUTUMNALIS.

The autumn-flowering variety of *Cattleya labiata* is remarkable for the intensity of its colouring, its rarity, and the season of its flowering. The sepals are narrow and oblong, the side petals broadly ovate, obtuse, deep rose, the basal part of the lip upturned on each side, so as to form an imperfect tube, and an anterior roundish lobe of a rich purplish-crimson, with yellowish blotches on each side near the throat, and a few purplish stripes in the same place. *Cattleyas*, as the Editors of the *Lindenia* rightly say, justify the fancy of the amateurs for them, not only by reason of their dazzling beauty, but from the fact that some one or other of them may be had in bloom almost throughout the year; thus, in spring come those of the Triana section, quadricolor, bogotensis, and chocoensis. These are followed by the Mossies, then gigas, aurea, Gaskelliana, then Percivaliana. *C. magnifica* is not yet introduced. *Lindenia*, t. 112.

CYPRIPEDIUM Io X.

A hybrid between *C. Argus* and *C. Lawrenceanum*. Leaves marbled, dorsal sepal ovate, white with purple stripes, petals spreading, green at the base, purplish at the tips, and with deep brown hirsute spots at the edges; the lip is greenish suffused with purple. A coloured figure is given in the January number of the *Revue de l'Horticulture Belge*.

NOTICES OF BOOKS.

DAS PFLANZENPHYSIOLOGISCHE PRACTICUM.
By Dr. W. Detmer, Professor in the University of Jena. 1887. (Physiology of Plants, &c.) Williams & Norgate.

There are two points about the experimental science of the physiology of plants which should be borne in mind by those who teach it; in the first place, the apparatus needed to demonstrate most of the fundamental phenomena is extremely simple; and in the second, the order in which the demonstrations are arranged is a matter of primary importance. It must be allowed by all readers that Dr. Detmer has at least not neglected the first of these points, for he has produced a book which is full of excellent descriptions of simple and efficient pieces of appa-

ratus designed to illustrate the chief facts known about the physiology of plants, and he never forgets that his science is an experimental one—a truth too much neglected in this country. With respect to the second point, however, we are not quite so fully in accord with the author. Of course, there is always in the arrangement of a series of studies something to be put down to the individuality of the teacher; but there is, again, much that is generally conceded, and we should suppose that the fundamental idea running through a course of experimental physiology should be progress from the less special to the more special phenomena. For instance, Dr. Detmer gives a chapter or section on "the formation of proteids in the plant," near the commencement of the book (p. 39); but the properties of proteids, and their re-actions, are not studied until we reach the middle of the work (p. 168); and again, a series of very elementary studies of the properties and structure of starch grains, are given at pp. 70–72, though the production of starch grains in the chlorophyll corpuscles is studied in the first section of the work. There are also several other cases of what looks to us like an inversion of the proper order of teaching, and we think the author has also unnecessarily entered into purely histological and anatomical details, e.g., the vascular bundle of Zea Mays, the structure of the endosperm of Wheat and Ricinus, &c. It seems to us that, on the one hand, the student who has not mastered these or equivalent exercises, is not properly prepared for the study of physiology proper; and, on the other hand, Dr. Detmer's short paragraphs on a few of these subjects are not calculated to replace the proper preliminary studies. To give an outline sketch of the plan:—The work is divided into two parts. Part I. deals with the "Physiology of Nutrition," Part II. with the "Physiology of Growth and of Irritability." Each part is further subdivided into sections, those in Part I. being devoted to (1) "The Nutritive Materials of Plants," (2) "The Molecular Forces of Plants," (3) "The Processes of Metabolism in the Vegetable Organism," those in Part II. comprise "The Growth Movements of Plants," and "Movements of Irritability." Each of these five sections is then subdivided into what we may perhaps call chapters on Assimilation, the Origin of Proteids, the Ash-constituents, Organic Compounds as Nourishment for Plants, &c.; and under each of these headings are numbered paragraphs embracing the descriptions of apparatus and procedure in experiments.

We have scarcely anything but unqualified praise to bestow on the individual experiments, and we need say no more as to the arrangement.

A few words are called for as to the meanings of some of the titles to sections and chapters, however. What is the implication under the mysterious heading, "The molecular forces of plants"? We know it is a favourite German expression, but Dr. Detmer collects under this title so many and such various phenomena, that it leaves the reader in a maze of doubt as to the meaning. For instance, why is the subject of the absorption of minerals, &c., by the roots treated here, and that of the decomposition of nitrates in the plant under a totally different heading? Or, again, surely so far as the above title indicates, the absorption of gases is a subject as well qualified to be honoured under it as that of the absorption of water. And now a final grumble as to the literature. It would have been an intelligible position had the author assumed that there was no necessity to quote literature; having done so here and there, however, he lays himself open to the criticism that the citations are very incomplete and partial. For instance, no mention of Dr. Francis Darwin's elegant experiments on the transpiration current occurs, though the writer gives no better method. Knight's name is referred to in connection with the centrifugal machine; but no mention of Hales occurs when treating of root-pressure, &c. Bous-singault's name is mentioned in connection with the question of the relationship of atmospheric nitrogen to plants, but Messrs. Lawes and Gilbert's magnificent results are ignored; and although Sachs is quoted as using the lithium method for determining the rate

of the transpiration current, no notice appears of McNab. We are surprised to see no mention of Elvring's experiments on the conductivity of vascular bundles, or of Engelmann's fascinating bacteria test for oxygen. It will thus be seen that the book is not free from the charge of partiality, and it is at any rate in so far incomplete that no experiments on reproduction are given; but, worst of all, there is no index. The print is very clear, and the woodcuts numerous, sharp, and simple, and admirably chosen; a goodly number of the histological ones, however, are old friends to all who know Strasburger's *Botanische Practicum*.

ROSES.

THE FORCING OF THE MARECHAL NIEL ROSE.

This fine Rose is more easily excited by heat than almost any other, hence it is the earliest of all Roses in the open air, heating even the Gloire de Dijon by a fortnight or three weeks. Were it as thin and flimsy as Madame Falcot or Roses of that type, it would be still earlier in bloom. Our temperature in the open air is by no means exciting, but it suffices to unfold this Rose on sunny walls. Hence a range of temperature included between 50° and 65° is probably the most suitable for forcing it. The air should be dry rather than moist, and but little overhead syringing should be done early in the season. Keeping the fat buds wet is a sure recipe for disfiguring their crown or rotting their base. In bright weather a mere dewing over in the early morning and about 4 o'clock in the afternoon may be indulged in, but any overhead sprinkling beyond this should be avoided. Overwatering at the roots should also be guarded against, as well as the opposite extreme of excessive dryness.

Immediately after the blooming, too, when the fresh breaks are rubbing forth, or current ones, relieved of the strain of the flowers, are being plumped up into vigorous maturity, the roots also need to be liberally supplied with food and drink, but during the blossoming a moderate water and food supply proves the most successful, and results in the fullest crop of the most perfect flowers. A free circulation of air is also one of the most vital conditions of success. At all times, when the external air exceeds 45° or 50°, the air may be admitted with tolerable freedom. During colder weather, a free circulation of the internal air of the Rose-house should be promoted by every available means, such as unequal distribution of heating surface, underground drains, dividing screens, and other causes of motion. That the air should be kept in motion is almost as essential to the full development of colour, as that the plants should be fully exposed to direct sunlight. And two of the most substantial benefits resulting from the forcing of the Maréchal Niel Rose on roof trellises are, that the plants are at once subjected to the maximum intensity of solar light and the maximum forces of atmospheric air in vigorous motion. And these two combined result in a vigour, finish, and intense glow of colour comparatively seldom reached in the open air.

Of course there are exceptions. Maréchal Niel may be hurried out of character or form by excessive heat, and the brilliant gold matured or blanched down into pale straw colour by excess of food or a paucity of light; but such samples are spoilt in the process of development, and are by no means fair illustrations of good forcing. It may also be added, as a warning against coddling treatment or any excess of heat, that the most brilliantly coloured and altogether most perfect Maréchal Niel Roses ever seen by the writer were grown in an unheated house, very openly glazed, in which any excess of heat was a physical impossibility. But this testimony to cool treatment reads rather like a bull in an article on the forcing of the Maréchal Niel Rose; I will therefore hasten to conclude with a few re-

marks on the forcing of the *Maréchal Niel* in pots. This has developed into almost a new form of Rose growing in pots. Visitors to nurseries have long been familiar with the requirements of pot-Vines, many thousand battalions strong, that fill perfect glass villages of pots and houses in many nursery gardens. These are struck from eyes early in the spring, and rushed up as rapidly and robustly as possible throughout the season to a height of from 6 to 10 feet high. No expense of time, labour, skill, manure, space, is spared to develop and mature these long Vine-rods; and all this is done to such good purpose that the canes of the current year are able to carry from four to six good bunches of Grapes to perfect maturity; the next after that, as a rule, the plants are thrown away. Now by substituting *Maréchal Niel* Rose for the Grape

but rather that of growing and blooming maiden plants only once.

These one-shooted, highly portable plants, grown in 10 or 12-inch or larger pots, are also admirably adapted for subjection to bottom-heat, which proves a most useful stimulus to the forcing of *Maréchal Niel* Roses, if not carried greatly beyond a temperature of 65°—70°. Plunged into fermenting materials, such as leaves and farmyard manure considerably ameliorated and sweetened down, it is astonishing how the roots run into new growth, and are quickened into almost unnatural activity and vigour. This speedily reacts on the tops, and one can almost see the Vine-stemmed Roses burst into leafage and bloom under such stimulating treatment. The plants have been formed on the principle of as much flowering force as possible within the smallest

of their plants, but rather to prevent any from despairing. But the *Maréchal Niel* well forced or grown under glass, or in the open either, is so magnificent, that no effort, nor skill, nor attention can be deemed excessive to produce it in perfection. Those Vine-stemmed plants, so admirably adapted for forcing, are equally useful for the furnishing of walls with flowering plants on the instant in situations where, from various causes, such as lack of depth, or mass, or suitability of root-runs, the plants cannot be permanently grown where wanted to bloom. By plunging the pots, mulching them with manure, feeding them with liquid-manure made from soot and guano in equal parts, such plants will furnish any bare building with a magnificent golden harvest without further preparation or trouble. They would do better still if turned out of the pots into a nice bed of rich



FIG. 1.—*STACHYS TUBERIFERA*; A CHINESE EDIBLE TUBER. (SEE P. 16.)

Vine this system of propagation and treatment describes exactly the newest and most improved system of forcing the *Maréchal Niel* Rose in pots. Thousands and tens of thousands of this Rose are thus propagated either from eyes or worked on rootstocks, grown on, matured, flowered, and afterwards thrown away or planted out for general furnishing.

These long Canes may be trained up roof trellises of houses or pits, or grown on stages or floors of light and airy houses, forced into bloom throughout the whole or a portion of their length as is most convenient or most profitable. So far as their forcing is concerned, they are treated as annuals, and done away with so soon as their first harvest of flowers is gathered.

By cutting back at once near to the base of the scion or rootstock, a second flowering shoot might be produced for the following season; but this is not the course recommended here and now,

possible area and the least time, and they respond with showers of gold, while those grown on less intense and concentrated methods have hardly broken into their first leaflets.

All this, however, must not be allowed to convey the impression that no considerable success in forcing the *Maréchal* is possible on more ordinary modes of culture. On the contrary, no variety of Rose will yield better results with less care. Hence standards on the Brier, dwarfs, or pyramids, or bushes on their own roots and on various stocks, will yield good harvests of bloom in pots under glass. The writer has seen starved looking and stunted *Maréchals*, and in one special case a venerable scrambling weeping bush yield a magnificent harvest of bloom in a vinery, put under a dense canopy of Vines—about the most unsuitable place possible. This is not recorded for the sake of making cultivators careless or indifferent about the character or strength

compost or manure. By such means those who can command a moderate sum of money may post *Maréchal Niel* on bare walls, balconies, against our houses or offices, in streets, and the most unlikely and impossible places, and yet cut golden Roses in quantity and of creditable quality. The cost of maiden plants annually will be as nothing, and the pleasure of seeing their beauty and sharing their sweetness, when all else is hard, utilitarian, bald, and bare, if not absolutely vile, is very great. *Rosa*.

GARDENING UNDER DIFFICULTIES.—The Superintendent of the garden of His Highness the Maharana of Oodeypore (Central India), reports that a large number of shrubs and trees have been "completely destroyed by a large gang of black-faced monkeys through wanton mischief." The Superintendent further reports that he is "glad to hear that the chief of the gang was captured and transported to Chittore."

PLANT NOTES.

OXERA PULCHELLA.

Amongst the many rare and beautiful plants in Sir George McLeay's collection, the above stands out conspicuous. At the time of my visit (December 28) this plant was coming into bloom, and when more generally known will become a favourite with lovers of handsome climbing plants. It is of easy culture, requiring the temperature of the stove or intermediate-house, it grows freely in a mixture of loam and sand, with a little peat and charcoal added and is readily propagated from cuttings. It is a native of New Caledonia. The flowers are nearly white, and are produced in profusion. The plant was figured in the *Botanical Magazine*, t. 6933, where we are told that the genus is closely allied to *Clerodendron*, of the climbing species of which it has the habit, also in its flowers when in a bud state; in fact, when we first saw it in that stage it looked remarkably like *C. Balfourii*, but it differs in having only two stamens, and a deeply divided drupe. *W. B.*

TULIPA AUSTRALIS.

A yellow-flowered species suitable for rockwork. It is known also as *T. Celsiana* and *T. Breyniana* (*Botanical Magazine*, t. 717). It is very like *T. silvestris*, which in this country has the defect of not opening well. *T. australis* is figured in the *Garden* for December 17.

THEOPHRASTA JUSSIÆI.

Some weeks ago there was an article in the *Gardeners' Chronicle* relating to this plant by Mr. Nicholson, of the Royal Gardens, Kew, stating on my authority that the plant at Kew was the only one known to be in this country, or even in Europe. I formed this opinion on many years' correspondence with curators and nurserymen, both in this country and on the Continent, and on my never having seen the name in any garden or nurseryman's catalogue; but in this I find I am mistaken, for in reply to Mr. Nicholson's notice, Mr. Burbidge, of the College Botanic Garden, Dublin, says it is not such a rare plant as Mr. Nicholson states, as there is a plant in the College Botanic Garden, one at Glasnevin, and one he has heard of at Cork. I begin first with the history of the Kew plant, which is this, as told by Mr. Lambert, who was a great introducer of rare plants towards the end of the last and early years of the present century:—In 1818 it was sent to him by Dr. Hamilton from San Domingo, and for care it was placed in the nursery of Mr. Colville, King's Road, Chelsea, whose property it ultimately became. On the breaking up of that nursery in 1834 the plants were disposed of by public sale, and I was instructed by Mr. Aiton (then Director of the Royal Gardens) to endeavour to purchase certain rare plants for Kew. This I did, *Theophrasta Jussiei* being one which was knocked down to me for £4, being the highest price realised for a single plant at the sale; it was then about 3 feet high—a single-stemmed plant, with a crown of Holly-like leaves. It has now, Mr. Nicholson informs me, a clear stem of 12 feet, thus showing that its rate of growth is about 2 inches in a year, which is verified by the spaces between the scar marks of the rings of fallen leaves.

With regard to the size of the Irish plants Mr. Burbidge informs me that the plant in the College garden is 5 feet 10 inches high; he does not give the height of the clear stem, but we presume it to be about 4½ feet; to attain this at the same rate of growth as the Kew plant it must have been a young plant about the year 1860. With regard to the Glasnevin plant, it is said to have a clear stem of 4 feet 9 inches; which at the same rate of growth shows that these two plants must have been received at the respective gardens about the same time, but neither Mr. Moore nor Mr. Burbidge can give any historical account of their introduction; but this is not all, for Mr. Moore informs me that about

twenty years ago there was a fine plant of *Theophrasta Jussiei* in the Glasnevin Garden about 15 feet high, but contingent on its removal to a larger house, which did not suit it, it died. To have been 15 feet high twenty years ago (say 1866), with the same rate of growth as the Kew plant, its introduction must have been at the end of the last century—if then introduced as a young plant.

I have now to speak of a distinct plant which for several years bore the name of *Theophrasta Jussiei* in gardens. In 1819 Dr. Wallich sent from the Calcutta Garden a case of living plants to the Edinburgh Botanic Garden; in it there was a pretty plant about 6 inches high, with Holly-like leaves; it was not named. On my coming to Kew I found that he had sent plants here, which had been propagated, and bore the name of *Theophrasta Jussiei*. I presume that it received this name on account of its likeness to the plant of *Theophrasta* in Colville's nursery, and it was considered a plant of fame, and worthy of being stolen. It, however, lost its fame consequent on its having flowered in the Comtesse des Vandes' garden at Bayswater, when Dr. Lindley figured and described the plant in the *Botanical Register* as a new genus under the name of *Brexia madagascariensis*, being the type of a small family, *Brexiaceæ*.

My reason for inserting this in the *Gardeners' Chronicle* is to bring it to the notice of your readers, in hopes that one of them may be able to throw some light on the introduction of the plants of *Theophrasta* in the Irish gardens, as also on the plant seen by Mr. Watson in the Rotterdam Garden, which, he says, is equal to the Kew plant in height. *J. Smith, Ex-Curator, Royal Gardens, Kew.*

"BOLDA" (BOLDOA FRAGRANS).

A plant of this interesting shrub is now in flower in the cool Economic-house at Kew. The leaves are 1½ inch long, ovate, deep green, and almost stalkless; they are also very aromatic when bruised, the odour being something like that of the Allspice tree. The flowers are in small terminal racemes on the small twiggy branches, and they may be compared to bunches of May blossoms. Each flower is composed of a row of white strap-shaped, twisted petals, a quarter of an inch long, and the centre is occupied by a cluster of stamens with yellow anthers, the plant under notice being a male. The economic value of this plant is chiefly in the medicinal property of its leaves, which are used against indigestion. The bark also is useful for tanning, and the fruits, which are about the size of plums, are eaten in Chili, where this species is a native. In the *Genera Plantarum* this plant is placed under the genus *Peumus*. It is figured in the *Botanical Register*, 1845, t. 57, *W.*

HOYA BELLA.

This is one of our neatest stove plants, but seldom seen in collections. It is an excellent subject for baskets, and is equally well grown as a plant trained as a balloon, a pyramid, or as a climber—a damp wall in the stove is well adapted; the beautiful corymbs of small waxy flowers possessing a pleasing effect in such a position. Cuttings taken off in late spring, put in a pot containing a compost of one part silver sand, the other fine broken peat, and placed in a handlight on a brisk bottom-heat, will strike readily. *G. H., Merton.*

COLONIAL NOTES.

THE BANANA TRADE, TRINIDAD.

Mr. Hart, Superintendent of the Royal Botanic Gardens, Trinidad, has published a pamphlet advocating the culture of Bananas in that island for the New York market. Mr. Hart shows that the scheme is quite feasible, and that the variety to be grown is that known as Gros Michel. Jamaica in 1885 exported Bananas to the amount of £130,000, an amount still increasing; and there is no reason, according to Mr. Hart, why Trinidad should not share in the spoil. Mr. Hart looks to the United States to take as many Bananas as can be grown, and reads his fellow-countrymen a lesson in the following terms:—

"Throughout the American continent we find a readiness to adopt to certain uses whatever comes to hand which we do not find in older countries with more lengthy traditions. The Englishman, whether he calls himself Conservative, Liberal, Radical, or even Home-Ruler, is, and cannot help being, when at home, in most of his actions nothing else but a Conservative, and hence his general unwillingness to adopt new ideas and take up food-sources as quickly as the American. For these reasons it is doubtful, even if the difficulty of transit were overcome, whether the trade would prosper to the same extent and with the same rapidity as it has done in America."

While in the main we agree with Mr. Hart, nevertheless we believe that if the Trinidad planters could supply our markets with some of the finest flavoured varieties in place of the mawkish things we get now, there would spring up a demand even in conservative Britain. Many people also are unaware how greatly even ordinary Bananas are improved by stewing with syrup.

MONTREAL.

The twelfth annual report of the Montreal Horticultural Society has been published. It contains the reports of the practical discussions on fruits, which are so valuable a feature in Transatlantic societies. In the course of these, Mr. Gibbs alluded to the Russian varieties of Apple tried in Canada. Mr. Penhallow reports on the spot in Apple due to the fungus *Fusicladium* and other observers narrate their experiences in cultivation. Mr. Stevenson and Mr. Starr speak with pride, as well they may, of the magnificent display of fruit and other Canadian products at the Colonial Exhibition, and give some good advice as to marketing, packing and shipping only the best fruit. A translation of Dr. Albert Regel's paper on the fruits of Turkestan is also given. Some of the Central Asiatic Vines are distinguished for early ripening; thus, in Tashkend, the Grapes ripen in June, in Darvas at the end of July. These Grapes would be worth experimenting on could they be obtained, either for cross-breeding or grafting. Apricots, Cherries, Peaches, and Nectarines, are very abundant, and of excellent quality. Melons are abundant, but the few that have been tried in this country are of indifferent flavour.

HALIFAX, NOVA SCOTIA.

Dr. Lawson reports that the Apple crop in Annapolis and Cornwallis is this year deficient in quantity. Potatoes also are deficient and of bad quality from the long drought. In the United States also the Potato crop is deficient.

NATAL BOTANIC GARDENS.

White ants are no respecters even of Eucalypti. Mr. Medley Wood records in his annual report for 1886, which has only now reached us, that out of fifty-eight plants belonging to twenty-two species only eighteen plants remain. Roses have not been molested, but the immunity has only been obtained by growing the Roses in tubs placed upon inverted glass bottles. The wooden seats in the garden also offer irresistible temptations to the ants.

PLANTS AND THEIR CULTURE.

As we have now entered on another year, possibly no more fitting time than the present will be found in which to take a brief retrospect of our experiences in the culture of plants under glass during the year which has just ended. In doing so, notwithstanding the success with which many of our efforts were crowned, some of us will, unfortunately, have to chronicle some failures more or less, and this, too, in spite of well laid plans and much consideration; but having noted the probable cause, it should be our aim this season to convert at least some of them into successes. It sometimes seems rather puzzling why a cultivator should succeed with a particular plant, when his, it may be almost next-door neighbour, attains but a very meagre degree of success; and this, too, after the most careful and unremitting attention on his part. Clearly there are some circumstances or conditions to which the plant cannot adapt itself. Now whether it be the comparative absence or excess of heat, light, moisture, or ventilation, this the cultivator ought to strive to find out. Old and experienced hands can very often tell from the general appearances of a plant what kind of treatment is likely to suit it; they know that a plant which

has leathery shining leaves will withstand a great amount of light, the same of thick fleshy leaves; besides, they would not suffer so much from any temporary want of water as would a plant with thin soft leaves, with very little stock of reserve materials to fall back on; or, again, gardeners would not heavily syringe hairy or woolly-leaved plants. These indications also afford a pretty good idea as to the plants' requirements in regard to water and atmospheric conditions. Of course in a glasshouse it is rather difficult to reproduce in our artificial way the conditions under which tropical plants luxuriate in their native habitats, yet the nearer we approach to natural conditions the more likely we are to succeed; therefore, in the culture of plants under glass, it is well to take into consideration the conditions under which they were found growing in their original home, and adopt them as a basis for our cultural operations, and, all other things being equal, success will follow.

To attain to any degree of excellence in growing plants cleanliness must prevail, for when they become infested with insects it is vain to look for satisfactory results. Perhaps no more favourable time can be found than the present in which to give the plants and houses a general overhaul, and doing so at this season of the year has several advantages; inasmuch as in the majority of cases there is less pressure of work than later in the season, so that the work can be done in a systematic manner; moreover, the leaves of many kinds of plants are in a matured state, and therefore less likely to be injured in the work of cleaning. In the case of deciduous plants cleaning at this time of the year is rendered comparatively sure and easy. Again, many plants are partially cut back at this time, while others may be more or less thinned out, such as many of the climbers. If this kind of work is to be effectual no half measures are of any use—every plant and every part of the house must be seen to. It is best to begin by washing the house, first with warm water in which a little soft-soap—or, better still, Calvert's 10 per cent. carbolic soft-soap—has been dissolved, moving the plants to one side as the washing proceeds, so that when you get to the end of the house there will be a small space clear of plants. This space ought next to be thoroughly cleaned, including the shingle or other material which may be used for covering the stages or tables. Next see that the plants are clean before they are put back into their places. Having tried many insecticides it is but fair to say that I found most of them do all that they claimed to do, that is, if they are applied according to the directions given with them; but of recent years I have all but given them up, relying chiefly on clean water, which I find, if applied with sufficient force and persistence, is by far the least injurious, and most effective of all the insecticides I have tried.

Allamandas.—The present is a good time to prune back large plants which have been resting during the winter, and if they are growing in large tubs or pots, it may not be necessary to repot them if the drainage be good, for although they require a liberal allowance of water when growing, it must not become stagnant in the soil, or the bad effects will soon become apparent by the leaves beginning to droop and turn yellow. If they are not to be potted, scrape off as much as possible of the soil from the surface, and top-dress with manure—either well-rotted yard-manure, or some of the prepared fertilisers. Those which require potting had better be left until they break away, after being pruned. A moderately stiff loam, with sufficient sand to keep it porous, a small quantity of leaf soil, and a pinch of some concentrated manure is a soil which will afford good results. Do not give peat if it can be avoided. *Allamandas* enjoy a high temperature—75° at night, and full exposure to the sun. If the space at command is limited, and larger specimens cannot be accommodated, take pieces of the ripened wood, about three joints long—or the points of the shoots may be taken—insert them at once singly in small pots, and place in the propagating frame or house; if all goes well they will root in about a month, then gradually inure them to the atmosphere of the house. Shift them into 4-inch, and later into 6 or 7-inch pots, using the soil recommended above. Do not let more than two or three shoots develop, and usually once pinching will be found sufficient: those cuttings from the ripened wood rarely require any pinching. Grown on in this way, with plenty of heat and full exposure to the sun, they begin to flower, when about 3 feet high, generally in June (that is, if the cuttings are put in at once), and continue flowering up to Christmas, if occasionally supplied with liquid manure or top-dressed. In

potting, make the soil quite firm, indeed they can hardly be too firmly potted. The chief advantages of this system are, that large quantities of this charming flower may be produced without being encumbered with large plants or having large houses. The best species for this purpose are *A. cathartica*, light yellow, with a rather small undulated limb to the corolla; *A. nobilis*, a fine large flower, yellow, rather darker shaded in the throat; *A. Schottii*, a magnificent species, also with yellow flowers, but the throat is beautifully marked with brown; *A. grandiflora* is a very fine species, and which apparently does best when grafted on some of the stronger growing sorts. *F. Ross, Pendell Court Gardens, Bletchingly.*

THE HARDY FRUIT GARDEN.

PRUNING.—The remainder of the pruning of all kinds of fruit trees should be hastened on every favourable opportunity, so as to bring it to a close as soon as possible.

Nailing and Training.—The same remark also applies to the nailing and training of wall trees, which should be proceeded with without delay, beginning with Plums and Pears first, following with Morello Cherries, red and white Currants (when grown on walls), and Apricots, leaving the Peach and Nectarine trees till last. Here we always make a point of having Apricot trees nailed as early as possible, so that the trees can be protected should severe weather set in, the buds being liable to injury after the early part of January. Three-fourths of the buds on the Apricot trees were killed here two years ago in the early part of that month. After Morello Cherries are nailed the trees and walls should be subjected to a good washing of soapy water, forcibly applied by means of the garden engine or syringe, choosing a mild morning for the operation.

Manuring.—Cordon, pyramid, and bush Pears on the Quince, and Apples on the Paradise stock, which bore heavy crops last season, will be greatly benefited by a good mulching of half-rotten manure. Strawberry borders and beds that have been made a considerable time may, after being hoed and cleared of weeds, receive a liberal dressing of manure placed between the rows, which should be spread but should not be dug in, as by so doing a great number of the roots near the surface are destroyed. Raspberries and black Currants should also receive a good dressing of manure, old hotbed material being a capital dressing for Raspberries, and for black Currants nothing is better than long stable manure.

Insects.—Now is a good time for dressing with petroleum emulsion any Pear trees infested with scale. To make the latter, put 1 pint of petroleum in a bucket, over which pour 3 pints of boiling water, then take a syringe, and by its forcible use mix the two ingredients together for about ten minutes. The liquid will then have the appearance of cream, and should be allowed to cool before being used. This, if carefully applied to the stem and branches, with a brush, taking care not to touch the buds, is the most efficacious remedy that I know of for scale. It is also equally useful for dressing Apple trees infested with American blight, but on no account should it be used unless the trees are quite at rest. *A. Ward, Stoke Edith Gardens, Hereford.*

FRUITS UNDER GLASS.

THE PINERY.—*Fruiters.*—Pines which are swelling off their fruit must not receive too much water at the root, else they are liable to turn black in the centre. Maintain a moist growing atmosphere by sprinkling the paths and surface of the bed. Do not syringe the plants if you would avoid too large a development of crown. In mild weather the night temperature may range to 70°, and in the case of hard frost and wind to 65°. Where early Pines are a desideratum no time should now be lost in getting a few Queens on the way; but before starting them thoroughly clean and paint, if necessary, a division of the Pine-stove for their reception, and if the bottom-heat be dependent upon tan or leaves, it will be necessary to add some fresh material to produce the requisite degree of bottom-heat; but where hot-water pipes are in use this will not be necessary. The best plan is to plunge empty pots the same size as the plants occupy, this will allow of the plunging material

being made of more uniform firmness and ensure a more level surface; there is less likelihood of the leaves of the plants sustaining injury, all that is necessary being the removal of the pot and the substitution of the one containing the plant. In making a selection from the stock of Queens, choose those which matured their growth early, which are thickest at the collar, open in the centre, and have the greatest number of short leaves. These are the likeliest to show fruit without making growth. Remove a little of the old soil from the top of the ball and replace with loam containing a moderate dash of soot and Thomson's Vine Manure, ramming the soil moderately firm; give a good watering with clear water at a temperature of 85°, sufficient to moisten the whole ball; let the bottom-heat be kept as near 85° as possible; if it exceeds 95°, the pots should be shaken to allow the surplus heat to escape at the side of the pot. The day temperature should be 70° in mild weather; when it reaches 75° with sun, a little air should be admitted: during cold stormy weather 5° less will be better. Avoid syringing the plants overhead, as all the water runs down the leaves into the centre of the plant. Sprinkle the paths, walls, and surface of the beds with a fine rose, and by preference use the evaporating troughs. The night temperature should be 65° in mild and 60° in stormy weather.

Succession Plants should be kept quiet for the present, 55° top and 75° bottom; and when hard firing becomes requisite, the plants may require watering—this should not be done indiscriminately, but each plant should be first examined. Suckers which have well filled their pots with roots must be guarded against over-dryness at the root, else they are almost certain to "bolt" when a rise of temperature is afforded them. *W. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

With the beginning of another year come the various seed catalogues, and upon the way in which the order for seeds is made out a great part of the success of the crops, &c., will depend, preference being given to approved kinds. Novelties when they appear in the lists should be dealt with in small quantities only at first, proving their merit or otherwise before sowing or planting much of them; the want of caution in this way having sometimes unpleasant results, the following selection can be relied on:—Broad Beans: Johnson's Wonderful. French Beans: Sir J. Paxton and Canadian Wonder. Runner Bean: Champion Scarlet. Beet: Pragnell's Exhibition, Dell's Crimson. Broccoli: Veitch's Self-protecting Autumn, Snow's Winter, Adams Early, Leamington, Carter's Champion, Victoria. Brussels Sprouts: Exhibition and Imported. Cauliflower: Early London, Asiatic, Eclipse, Autumn Giant. Cabbage: Ellam's Early, Mein's No. 1, Enfield Market, Chou de Burghley. Carrot: Scarlet Horn, Early Nantes, Matchless Scarlet. Celery: Sandringham White, Major Clarke's Red. Cucumber: Rollison's Telegraph Improved. Leek: The Lyons. Cabbage Lettuce: Paris Market, Perfect Gem. Cos Lettuce: Alexandra White, Paris White, Bath Cos. Onion: White Spanish, Reading, James Keeping, Globe Tripoli, Zittauer, Danver's Yellow. Peas: Laxton's Earliest of All, Marvel, British Queen, Ne Plus Ultra, Walker's Perpetual, Sturdy, Parsnip. Student. Savoy: Universal. Turnip: Extra Early Milan, Early Snowball, Veitch's Red Globe, Chirk Castle. Tomato: President Cleveland, Gilbert's Surpass, Trophy. When reliance can be placed on the stocks of the above-named varieties of vegetable seeds, preference should be given them over ordinary varieties, as better produce may thus be obtained, and especially is this noticeable in Onions and some other root crops.

General Work.—As crops get cleared off the ground take advantage of frosty days to get manure wheeled on to the vacant quarter and spread it at once. Give Asparagus beds a good dressing of well rotted manure—from the cowyard if possible; look over stores of roots and remove all that are decaying; attend to Seakale and Rhubarb for forcing, and get succession lots covered up as may be required. Veitch's Self-protecting Broccoli should now be turning in, and it will be advisable to take up any that are showing heads, placing them in a pit or other place of protection. Give plenty of air on all favourable occasions to Cauliflowers and Lettuce in frames and under hand-glasses; and dust occasionally the soil with lime and soot if slugs are troublesome. *W. H. Divers, Ketton Hall.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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

GARDENERS' CHRONICLE OFFICE TELEGRAMS.
NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	JAN. 9	Chambre Syndicale of Ghent.
TUESDAY,	JAN. 10	Royal Horticultural Society: Scientific, Fruit, and Floral Committees; also Special General Meeting.
THURSDAY,	JAN. 12	Edinburgh Botanic Society.
SATURDAY,	JAN. 14	Royal Botanic Society, Regent's Park: General Meeting.

SHOW.

WEDNESDAY,	JAN. 11	National Chrysanthemum Society: Mid-winter Exhibition at Westminster (two days).
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SALES.

MONDAY,	JAN. 9	Importations of Lilies, &c., from Japan, at Stevens' Rooms.
		Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms.
WEDNESDAY,	JAN. 11	Lilium auratum and L. Krameri, Roses, &c., at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 12	Importations of Orchids from Mr. F. Sander, at Stevens' Rooms.
FRIDAY,	JAN. 13	Imported and Established Orchids, at Protheroe & Morris' Rooms.
		Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms.
SATURDAY,	JAN. 14	Lilies, Roses, and other Plants, at Protheroe & Morris' Rooms.

A New Vegetable.

It rarely falls to our lot to have to chronicle the introduction of an absolutely new vegetable. New

Peas—literally as like Peas from the same pod—new Potatos, new Cabbages, Tomatos, Onions—these there are by the score. Only a few of them, however, stand the trial of the test at Chiswick, where the synonyms imposed by gardeners and seedsmen are as ruthlessly cut down and referred to their proper places as are the like double names by the systematic botanist in preparing a monograph.

But now we have really a novelty to lay before our readers, and it is one which we venture to think is far from unpromising. The tubers which we figure at fig. 1, p. 13, were exhibited at the meeting of the Royal Horticultural Society, on December 13 last, by Mr. HASKINGS, gardener to Sir H. THOMPSON, Hurstside, West Moulsey, and were obligingly communicated to us for the purpose of illustration.

The plant producing these tubers is a Labiate, and is said to be a species of *Stachys*, allied to the Woundwort of our hedges, but without the disagreeable odour; but as we have not seen flowers or seed-vessels, we do not know whether this is correct or not. At any rate, the plant goes for the present under the name of *Stachys tuberifera*, our excellent correspondent, M. NAUDIN, having bestowed this name upon it, to replace that of *Stachys affinis*, which is quite a different plant.

Our first knowledge of this vegetable was derived from a notice in the *Revue Horticole*, 1885, p. 236. According to this, the plant was introduced from China to the Société d'Acclimatation of Paris by Dr. BRETSCHNEIDEN, Physician to the Russian Embassy at Peking. M. NAUDIN, however, in his recently published *Manuel de l'Acclimateur* (1887), p. 507, speaks of it as coming from Japan, and probably also from China. Possibly it may be the same as *Stachys Sieboldi*, which we learn is cultivated in Japan under the name of "Chorogi," but of this we have no means of judging. Its culture in France is due to M. PAILLIEUX, who now grows it on a large scale for the Paris market, where it is known under the name of Crosnes, from the locality in which it is cultivated.

As will be seen from our illustration, the tubers, are borne at the ends of underground branches, or stolons, exactly as in the Potato. The tuber in this case is, in fact, the thickened extremity of an underground branch, and it is marked by buds, or eyes, at the nodes, as in the Potato. Those who know the Fir-Apple, or Asparagus-Potato, will recognise the similarity between that variety and the new-comer. These tubers are produced in great profusion, and though at present of small size, are doubtless capable of enlargement at the hands of the gardener, especially if seedling varieties can be obtained. Unlike the Potato, these tubers have a bud at the end of the tuber (terminal), and this curves upward to form the new shoot; hence the propagation of the plant is easily effected, and as each tuber consists of several internodes—that is, has several buds or eyes—we have no doubt whatever that they may be propagated by sets or cut tubers, as in the Potato.

The plant is alleged to be perfectly hardy and of the easiest possible culture. It will grow anywhere, on any ordinary soil, but like other plants it will no doubt repay a little attention in the way of trenching and manuring. Its defects at present are its small size, and the fact that the tubers do not keep well when lifted; but both these defects can be overcome or evaded. In point of flavour we have heard it compared to Salsafy, Jerusalem Artichokes, and to boiled Chestnuts. Our own taste would lead us to consider it as most nearly allied in point of flavour to the latter. M. CARRIÈRE publishes the following analysis, which shows that the plant is a valuable food agent:—

Starch	17.80
Albumen: (including 0.60 N.)	4.31
Fatty matters	0.55
Woody matters and cellulose	1.34
Mineral matters: (including 0.28 phosphoric acid)	1.81
Water	74.19
	100.00

M. CARRIÈRE, while admitting that the difficulty of preserving the tubers militates against them as a market-garden crop, points out that it is well suited for the domestic kitchen garden, where the tubers can be lifted in late autumn or winter and eaten in a fresh state, either boiled, fried like Salsafy, made into sauce, or cooked in a dozen other ways that any cook—especially a French one—will devise.

The microscopic examination that we have been able to make does not reveal so large a proportion of solid starch as the chemical analysis would lead us to expect. Probably the amylaceous element exists in some other form than starch, as is the case in the Jerusalem Artichoke. The mass of the tuber consists of polygonal cells, with thickened corners, minute granules

perhaps of inulin, a few oil globules, large granular nuclei, and very bright nucleoli. Pitted vessels, sieve-tubes, and other elements of a modified stem-structure, are clearly apparent.

We believe that this new vegetable will make its way, not perhaps as a staple article of food—its tubers are too small for that—but as a very acceptable change on the tables of the connoisseur.

Its complete hardness and easy cultivation will, we should also expect, cause it to be considered a luxury by the poor.

The Novelties of 1887.

ALTHOUGH the past year has not been marked by the introduction of any such wonderful things as *Vanda Sanderiana*, and a few others which the collectors' enterprise has recently introduced to us, there is evidence that the importer as well as the hybridist has been busily engaged, and that, too, with considerable success. The summer-flowering Begonias of LAING and CANNELL have given us many improvements with single and double, and the Messrs. VEITCH in their new race of Begonias of the "John Ince" type bid fair to give us much of the beauty of the summer flowering kinds on autumn and winter flowering plants. The Dahlia still meets the approbation of the Floral Committees, more especially in the single, decorative, and Cactus formed classes; and the Chrysanthemum is likely to become the popular flower, even if it is not already so.

ORCHID S.

We naturally turn first to these for novelties; so many hands are engaged in the furtherance of their interests in these days that they must necessarily give a supply of good things. Among these the plant of the year may be said to be *Odontoglossum Harryanum* (*Gardeners' Chronicle* p. 460, August 7, 1887), which was sent out by Messrs. JAMES VEITCH & SON, and quickly made plentiful by a fine importation of Messrs. F. SANDER & CO., the same taking place in the matter of that other lovely autumn and winter-flowering plant, *Cattleya Bowringiana* which gives a very welcome addition to the Orchid-houses in the dull season, with its bright rosy-crimson flowers. *Catasctum Bungeothii*, Certificated to Baron SCHRODER at the Royal Horticultural Society, with its massive sprays of clear white flowers, is certainly a grand novelty of the highest merit, and an opportune arrival, as it gives a fresh start to a genus hitherto considered to be only worth culture on account of the curious structure of their flowers (*Gardeners' Chronicle* (Supplement), January 20, 1887). *Cattleyas* receive a valuable reinforcement in the varieties of *C. labiata* Schrodere, on account of their delicately tinted and well-formed fragrant flowers being produced over a long period, but generally coming in between the *Trianes* and *Mendeliis*. *Cattleya labiata leucophæa*, certificated to F. G. TAUTZ, Esq., is a very fine plant, the sepals and petals delicately tinted with lavender, and the darker portion of the lip the nearest approach to dark blue of any *Cattleya*; unfortunately it has no chance of becoming plentiful.

The *Odontoglossums*, which have hitherto been so prolific in certificated new and fine varieties, have of course fallen off in the number worthy of being considered distinct enough to particularise. Of crispums, the Royal Horticultural Society's Floral Committee have during the year selected but two, both grand things, viz., THOMPSON'S variety, with grand flowers nearly 6 inches across, heavily spotted with brownish-red, and *O. c. leopardinum*, a very neat, handsome, and

distinct form, with flowers barred and blotched all over with crimson. It was certificated to H. M. POLLETT, Esq., of Bickley, the same gentleman also receiving a First-class Certificate for a fine violet-spotted *Odontoglossum Pescatorei*. *O. cambridgeanum* of R. J. MEASURES, Esq., is very distinct, its appearance being between *O. nevadense* and *O. Halli*; and *O. Jacombianum*, a grand dark crimson-spotted form of the *Ruckerianum* type, but with flowers more of the form of *O. crispum*. The white and new varieties of

broad, richly-coloured lip of this variety which makes it easy to distinguish, and as a rule its flower-spikes are much shorter than the type. Many of these forms of *Laelia* have been illustrated in our columns. Another pretty little novelty is the *Laelia Batemaniana* × of Messrs. VEITCH, for which Baron SCHRODER was awarded a First-class Certificate on July 12 last.

The hybrid *Cypripediums* are just now great favourites, and several new operators are making good practice with them, and notably Mr.

mitted to the scrutiny of the Floral Committee during this year. In imported species of *Cypripedium* we gain two grand things in the quaint and lovely *C. Sanderianum* of the St. Albans firm, and *C. præstans* of LINDEN, figured in our last issue, the latter being in appearance a curious compound of *C. levigatum*, *C. Parishii*, and *C. Stonei*. It is a good and distinct plant.

Calanthes, although largely crossed by several, manage to pass but two, viz., the fine pure white *C. Halli* × of Mr. HALL, and the rich and glow-

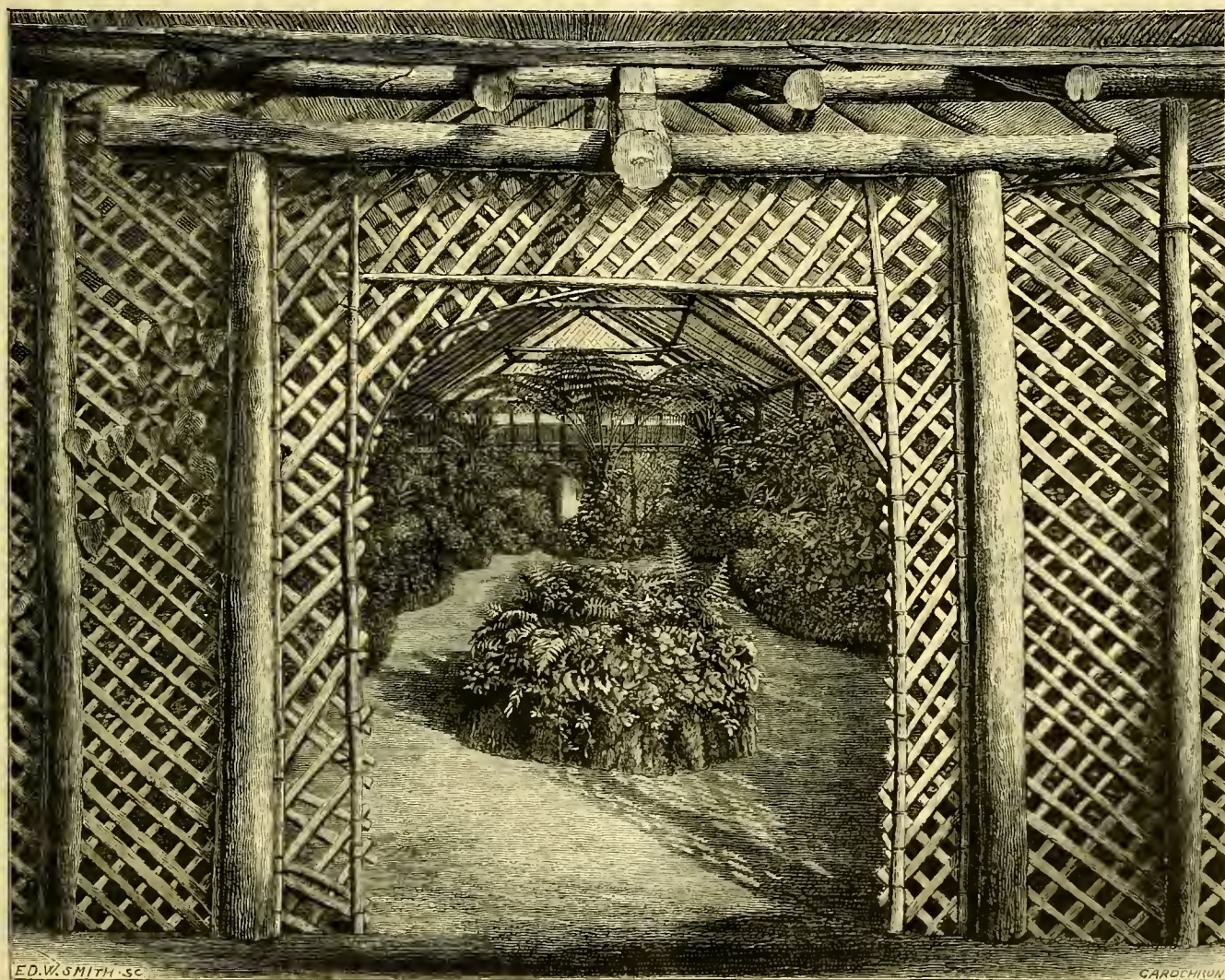


FIG. 2.—ENTRANCE TO A "CHICK HOUSE" AT GANISH KIND, INDIA. (SEE P. 18.)

Laelia anceps, from which much was expected, have not proved disappointing. *L. a. Schroderae* is a charming flower with blush sepals and petals and finely coloured lip; *L. a. Sanderiana*, a grand white, near to *L. a. Dawsoniana*, and well worthy to keep it company; and *L. a. Stella*, a large pure white, with dark crimson lines in the lip. Among the coloured kinds the *L. anceps* "Morada," of the Liverpool Horticultural Company, gives varieties which beat *L. a. Barkeriana* and other vaunted fine forms easily: a few of them, which have been selected and named *L. a. grandiflora*, being superb in size, form, and colour. There is a peculiar character about the

NORMAN COOKSON and Mr. DREWETT O. DREWETT. Among the new kinds which have been prominent during last year may be mentioned *C. Measuresianum* ×, illustrated in the *Orchid Album*; *C. Marshallianum* ×, a great beauty, illustrated in the *Gardeners' Chronicle*, April 16, 1887, p. 513; *C. leucorrhodum* ×, a beautiful thing of the *Sedeni* strain, certificated to the raisers, Messrs. VEITCH & SON; *C. plumerum* × and *C. alium* × of Mr. NORMAN COOKSON; *C. Io* × and *C. orphanorum* ×, certificated to F. G. TAUTZ, Esq. Many other grand hybrids have bloomed with Messrs. JAMES VEITCH & SON, and others, which will doubtless be sub-

ing crimson or blood-red *C. sanguinarium* × of Sir TREVON LAWRENCE—both extremely handsome.

Among the other new certificated Orchids are the pretty terrestrial *Habenaria militaris*, with its leaves as pretty as those of an *Anætochilus*, and its fine soft vermilion flowers—Sir TREVON LAWRENCE grows it freely; *Celoglyne Dayana*, *Odontoglossum Schroderianum*, *Phalenopsis Harrietae* of Messrs. JAMES VEITCH & SON, *Saccolabium Heathii* to Baron SCHRODER; the rich scarlet *Masdevallia Harryana lutea oculata* (TAUTZ), *M. H. grandis* (SANDER), and several other acceptable novelties, which make the year fruitful so far as new and good Orchids are con-

cerned; and beyond this there are several fine importations, such as *Cœlogyne Fostermanni* and *C. Sanderiana*, which have not yet been proved, but from which much is expected.

We must postpone till our next issue our comment upon other New Plants of the year.

OUR ALMANAC.—Owing to the restrictions imposed by the Post-Office authorities, as explained in a previous number, we have modified our Almanac, which is now issued as an ordinary Supplement on a separate sheet. In addition to the usual calendrical matter, the Almanac contains indications of the mean temperature as observed at Chiswick for a long series of years, notices of the meetings of the horticultural and botanical societies of the British Islands and of the *Chambre Syndicale* of Ghent. These notices are much fuller than usual, but many are of necessity omitted, as the arrangements are not yet made. On the reverse side of the Almanac will be found a variety of miscellaneous information likely to be useful to our readers, but as the space is so limited a good deal of similar information is given in the pages of our present issue. Next week we hope to publish a list of all the more important horticultural societies of the kingdom, with the names of their respective Secretaries.

"CHICK HOUSES."—We do not propose to revive the old controversy as to who was the originator of these structures in India; suffice it to say that they are light structures of Bamboo and lattice-work, designed to afford protection from the burning sun and fierce wind. These Betel or Chick houses are now in general use in India, and, as our illustration shows, are by no means unpicturesque. A similar cheap contrivance might readily be adopted in this country for Lilies, Ferns, Camellias, Rhododendrons, and other plants for which a little shelter, either permanent or temporary, is desirable. We have seen such constructions used with advantage in some of the Italian Botanic Gardens, as at Pisa. The illustration (fig. 2) shows a structure erected at Ganish Kind, by Mr. Woodrow.

M. MORREN'S LIBRARY.—We have received a copy of the catalogues of the botanical and horticultural library of the late Professor EDWARD MORREN. It comprises more than 7000 entries, exclusive of the works of the two MORRENS, which by some accident are omitted from the copy of the catalogue which has reached us. It is rather astonishing that the Belgian Government should not have secured so valuable a library. As it is, the works are to be sold separately on application to Mme. V. EN. MORREN, Boverie 1, Liège. This is one of the richest collections that has ever been offered.

GHENT QUINQUENNIAL, APRIL 19—24.—In addition to the numerous prizes offered for new plants, Orchids, Nephentes, Anthuriums, Palms, Cycads, Ferns, Amaryllis, Hyacinths, Azaleas, Camellias, Rhododendrons, Conifers, &c., we understand that the Agricultural and Botanical Society of Ghent, under whose auspices these shows are held, has offered prizes for the following botanical subjects:—1. A series of fifteen distinct fungi, dried or in fluid, and representing the principal genera of Hymenomycetes. 2. A series of preparations showing the different stages of flowering, e.g., ripening of the anthers, of the stigma, self-fertilisation, &c., illustrated by six flowers, which are fertilised by insects. 3. A collection of preparations showing the course of the fibro-vascular bundles in twelve flowering plants belonging to different families, isolated leaves and fruits not considered. 4. A collection of flowers of ten different types of Orchids preserved in fluid. 5. A collection of preparations showing the nature and construction of the different forms of fruits or seed-vessels that occur in wild plants or in those commonly cultivated in gardens. Ordinary herbarium specimens are excluded from these five classes.

Microscopic preparations, &c.:—1. A series of preparations representing six stages in the development of the stem, and of the root of the same species of the flowering plant. 2. A series of twelve microscopic preparations showing the division of the cell and of the nucleus (karyokinesis) in two or three different species. 3. A series of microscopic and macroscopic preparations representing at least ten different stages in the evolution of a hymenomycetous fungus from the first germination of the spore to the complete development of the plant. Competitors should indicate on each specimen the most remarkable points of interest.

NEW GUINEA PLANTS.—Baron VON MCCELLER writes:—"From a small collection of plants, obtained by Mr. SAYER during the expedition of Mr. CUTHBERTSON to Mount Obree in New Guinea, it is demonstrated that *Araucaria*, *Agapanthus*, *Rhododendrons*, *Ardisias*, *Myrsine*, *Ixoras*, *Oldenlandias*, *Myrtus*, *Medinilla*, *Scutellaria*, *Bradleyas*, *Mollineda*, *Nephelium*, *Elatostemma*, *Elatocarpus*, *Biophytum*, *Dendrobium*, *Sarcobolus*, and *Calamus*, are among the genera which are represented at elevations up to 8000 feet, that being the culminating height."

VETPLANTENKRING.—Under this title has been established at Antwerp a society for the promotion of the knowledge and cultivation of Cacti and other succulent plants. The Secretary is Mr. J. HAVERMANS, Rue Jésus, 46, Antwerp, and meetings are to be held on the last Sunday of every month, at 11 o'clock, at the Tivoli, Rue du Pélican, 82, Antwerp. The annual subscription is fixed at six francs, with an entrance fee of three francs.

OODEYPORE.—The Superintendent's report of the gardens of His Highness the Maharana of Oodeypore, for 1886-7, contains a record of satisfactory progress. Roseries, carriage-drives, and fountains, "Jubilee halls," and other constructions, have been inaugurated. The rainy season began in June, when nearly 4 inches fell. This was increased to 8 inches in July, and 15 inches in August, more than 8 inches having fallen in two days. In September 5 inches fell, and after that time but little fell. The total amount for the year was 33.7 inches—no very large amount in itself. A frost occurred in the nights of the 16th and 17th of February, which did much damage. Potatoes do not flourish at Oodeypore; none of them were as large as a fowl's egg, and they had "a wildish taste." It is curious to read with this that the *Victoria Regia* flourishes in any lake or tank. By the way, the flowers are noted as opening at about 5 o'clock in the afternoon.

GERMINATION OF THE BRAZIL-NUT.—Most of our readers are familiar with the three-sided toothsome nut, and some perhaps have seen the hard, woody, globular case in which they are contained. The tree is native in the forests of Guiana and Brazil, and it has been an object with the authorities at Kew to introduce so valuable a tree into North Australia and other tropical colonies. It is recommended in the *Kew Bulletin* that the fresh seeds which arrive here in June should be sent in a box packed in cocoa-nut fibre or peat. On arrival the seeds should be soaked, the outer shell carefully removed, and the kernels sown in ordinary nursery beds. The germination of the seeds of this tree, *Bertholletia excelsa*, in the wild state, while enclosed in the wonderfully strong fruit-case, was long involved in obscurity. The hard, woody shell, useful as a protection against monkeys, seemed to offer a powerful obstacle to the germination of the contained seeds. Mr. BARNINGTON BROWN, in the *Kew Bulletin*, describes the process as follows:—"In each fruit-case or pericarp, when lying on the ground, there is a small hole at the point at which it was attached to the stalk. Through this, after the fruit has been lying for some months in a moist situation, the shoot, produced by one of the germinating seeds, is able to effect an exit. When this is done, it gradually increases in size, but still uses the fruit-

case, which indeed protects its roots and serves all the purposes of a natural pot. The other seeds, unable to find outlet for their sprouts to reach the light and air, ultimately perish, and their remains probably go to nourish the solitary plant which is destined to represent the family. This latter, when it has grown to a certain size, bursts the shell in which its roots have hitherto been confined, and grows up into a tree." The gardener by cracking the shells, interferes greatly with this very Malthusian tendency on the part of the natural tree.

SMITHSONIAN INSTITUTION.—At a special meeting of the Board of Regents of the Smithsonian Institution Professor SAMUEL PIENPONT LANGLEY, LL.D., was duly elected (on November 18) Secretary of the Smithsonian Institution, Washington, to succeed the late Professor SPENCER F. BAIRD.

ORANGE CULTURE.—We learn that Mr. A. DIXON, of Cherkley Court, Leatherhead, has two Orange trees, each bearing more than 200 fruits. His Citrons usually produce fifty to sixty fruits annually in January.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The annual friendly dinner of the members of this Institution and their friends will take place after the General Meeting on Friday, January 13, at SIMPSON'S, 101, Strand, upon which occasion the Right Hon. Sir ROBERT PEEL, Bart., has promised to preside. The dinner will be upon table at 6 o'clock precisely.

FORMATION OF STARCH BY PLANTS.—Experiments have recently been conducted at the School of Agriculture, Canterbury, New Zealand, by Professors W. E. IVEY and G. GRAY, with a view to determine the formation of starch by plants. It has long been known that starch is formed either in chlorophyll granules or in starch-forming corpuscles, which ultimately become converted into chlorophyll granules, but up to the present little has been done towards ascertaining the rate of formation and dispersion. Accordingly a series of experiments were made to determine the rate at which starch is formed in the leaves of Peas, Beans, and Wheat, and up to date the following results have been obtained:—Starch is least plentiful in leaves collected in early morning, more plentiful in those collected late in the afternoon, but before evening. The degree of sunshine has a direct effect on the rate of starch-formation; in continuous cloudy weather starch is formed by plants but very slowly. This result was brought out in a striking manner. During some very cloudy weather, plant leaves collected before 9 o'clock A.M. exhibited but small quantities of starch, except on two occasions, when they had been under the action of direct sunshine; in those instances starch was proved to exist in large quantities. Determinations have not yet been made in leaves collected during absolute darkness.

REINWARDTIA TETRAGYNA.—The *Revue de l'Horticulture Relgée* for the present month opens with a coloured plate of this pretty old warm greenhouse plant, which has well-nigh dropped out of remembrance, but whose many good qualities should have ensured it a better fate. It flowers at this season of the year, is attractive-looking, easily grown, and easily propagated. The plant is so near to *Linum* that it seems a pity to have ever separated it from that genus.

THEORY AND PRACTICE.—There is a theory which has scarcely yet got a name; we speak of it as the periodic law, or as the principle of MENDELÉEFF. According to this principle, stating it very broadly, all the properties of an element, physical and chemical, can be deduced by calculation from its atomic weight; that, given the atomic weight of an element, you have all that you require to find out by calculation everything connected with it. If this were so, the whole of chemistry would be derivable by calcu-

lation from the atomic weights of the elements. This is a very broad way of putting the theory, but it indicates the direction which it seems likely to take. We shall be obliged, of course, to examine it, and put it to the test. It may die of some disease of infancy or youth, or it may survive to old age. But there it is now. I may give you some illustrations of this theory without going into details. It is not many years ago that M. LECOQ DE BOISNAURAN obtained from the zinc ore of the Pyrenees a new metal, to which he gave the name of gallium. This metal had been expected: theory led to the belief that there should be a metal with about the atomic weight which gallium actually has. From this atomic weight the properties of the expected metal had been calculated. Now the actual properties of gallium, some of them very remarkable properties, have been wonderfully closely anticipated by the calculations. Gallium has a low fusing point, it melts with the heat of the hand; it is, however, not sensibly volatile. These physical characters and many of the chemical characters of the compounds of gallium had been predicted before any one had seen the metal, or had the least idea where it was to be found. It is curious that another discovery of the same kind should follow at no long interval. About two years ago Professor WINKLER, of Freiburg, discovered another new metal, to which he gave the name germanium. At first there was some doubt as to its atomic weight, but when larger quantities of the substance were obtained, this was determined with accuracy, and it was at once seen that germanium was a metal that had been expected, its general properties had been foreseen. Such examples of course add to the credit of the theory, but we are still a long way from anything like a proof that all the properties of an element are deducible from its atomic weight. *Professor Crum Brown.*

"LES SERRES VERGERS."—We are glad to see that M. PYNAERT has published a fourth edition of his treatise on forcing fruits. The new edition is considerably larger than its predecessor, and has been completely revised. We shall have further occasion of speaking of this valuable work.

"HARDY FLOWERS."—A fourth and cheaper edition of this work has been issued, and may be had at the Garden Office, Southampton Street. It comprises a descriptive list of upwards of 13,000 of the most ornamental species. The plants are arranged alphabetically, without any reference to their family relationships. The selections of kinds suitable for various purposes are very useful.

CHINESE PRIMULAS.—At the Winter Exhibition of the National Chrysanthemum Society, to be held at the Westminster Aquarium on January 11 and 12, Messrs. SUTTON & SONS, of Reading, will we learn exhibit a large collection of their improved strains of Primula.

TREES AND SHRUBS.

THE SEA BUCKTHORN (HIPPOPHAE RHAMNOIDES).

OFTEN enough, particularly along the sea coast, do we find this pretty and distinct shrub used largely in the formation of shrubberies, but rarely do we meet with standard or single specimens planted solely for ornamental purposes on our lawns and in our grounds. This, we think, is a great pity, the truth of which was clearly enough demonstrated but a few days ago, when a couple of huge specimens—the pride and ornament of a banker's garden—were pointed out to us, and which from their long, narrow and silvery-tipped leaves offered such a pretty and unusual contrast to the usually employed lawn and garden shrubs.

Of no usual dimensions were the specimens in question, one, the largest, being fully 11 feet in height and 12 feet in diameter of spread of branches, and the other but little short of these measure-

ments; indeed so regular in outline and size were these plants that they could not otherwise be described but as a well-matched pair. No long, bare stems, such as one is accustomed to see in this Buckthorn, were here presented, but simply perfect pyramids of the most perfectly developed foliage—this the result, no doubt, of the partially sheltered situation, and also of the plants being at all times given ample space for lateral spread of branch. The soil which produced these fine shrubs is a free sandy loam, largely intermixed with sea-sand, while the locality in which that grows is hardly a quarter of a mile from the shores of the Irish Sea. As an ornamental berry-bearing plant, the Sea Buckthorn is well worthy of attention, few hardy shrubs producing these in greater abundance than that in question, while at the same time they remain good for a long period, and are not so liable to the attacks of birds as those of the generality of our trees and shrubs.

By treating the fruit in a similar way to that usually recommended for the Holly, and sowing the seeds in early spring, we have been successful in raising numbers of plants, which, in two or three years, are fit for planting out permanently. [Readers should remember what nurserymen sometimes forget that the sexes are separate in this shrub so that both male and female plants should be secured if berries are wanted. Ed.]

ORNAMENTAL BERRY-BEARING PLANTS.

Now that the dull winter days are upon us, and outdoor flowers few and far between, a few words regarding the most valuable of hardy berry-bearing plants will be opportune.

The *Holly* (*Ilex aquifolium*) in its many and varied forms is, perhaps, unsurpassed for general usefulness as a berry-bearing plant, for not only is the fruit highly ornamental, but the foliage, too, and being of good substance lasts for a considerable time, even when kept out of water. In the yellow-berried variety we have a fine and distinct contrast to the normal or red-fruited plant, and when fruiting branches are placed side by side for Christmas decoration the effect produced is truly beautiful, the deep coral-red of the one and the amber hue of the other producing a very pleasing and desirable contrast. Then for variety in foliage tints we have golden and silver-blotched and margined forms, these mixing in nicely with the deep glossy green of the commonly cultivated kind.

Skimmia japonica is another excellent plant for winter decoration, the berries being produced in great abundance, and at a time when such is in most request. As a pot plant this *Skimmia* is extremely useful, it being of neat compact habit, not over large, and with highly ornamental foliage. It forces well, but in our opinion succeeds and bears fruit quite as freely when planted in peaty soil in a north-facing border.

The *Strawberry Tree* (*Arbutus Unedo*), with its curiously shaped Strawberry-like fruit, is well worthy of culture where winter decorative plants are in request. It is, however, doubly useful as an ornamental plant, for both the flowers and fruit are produced at one and the same time; and as the former are of a delightful creamy-white colour they afford a nice and pleasing contrast to the red-cheeked fruit. If placed in water both the fruit and flowers are wonderfully lasting.

To-day we could not help admiring the large pink berries of the Butcher's Broom (*Ruscus aculeatus*). This is rather a neglected plant, but it must be admitted by any person who has had the privilege to behold a well-berried specimen, that in point of beauty in this particular way it is no second-rate plant. The berries are large and plump, the size of a Hazel-nut, or nearly so, and of an enticing hue of red. The plant is readily cultivated—indeed, in certain localities, particularly chalky districts, it is a matter of some concern how to keep it in bounds. We have not seen it as a pot plant, but there can be no doubt, from its accommodating nature, that for this particular purpose it is excellent.

Empetrum nigrum, with its dark shining berries is, unfortunately—or, perhaps, fortunately—a summer or autumn plant, for the fruit is too delicious and tempting to both man and bird to be left alone for any length of time. We cultivated a fine patch of this plant for many years, and solely on account of its polished black berries, which were annually produced in rich profusion.

Pernettya mucronata and its many forms are highly interesting and ornamental plants, and such as can ill be spared where seasonable winter decorations are in request. Some of those sent out from a famous Irish nursery are grand, bearing fruit of almost every conceivable colour; and, what is better still, these remain on the plants and in good condition for a considerable length of time. As pot plants they are of great value, and in some instances, under successful cultivation, so freely produced were the berries that hardly a trace of foliage was to be seen. A free sandy peat, or rather sandy loamy peat, would seem to suit best this highly ornamental tribe of plants—at least under such a condition as to soil we have noted the most satisfactory results in cultivation. *A. D. Webster.*

(To be continued.)

NURSERY NOTES.

THE CHINESE PRIMULA AT SPARKHILL NURSERIES.

BIRMINGHAM has been very deservedly complimented lately on the skillfulness of gardeners of the district in producing the beautiful display of plants at the recent Chrysanthemum show, and which was freely commented on at the annual dinner of the Birmingham Chrysanthemum Society on December 14. Mr. Petch stated that it was in Primulas far away the finest display he had ever seen.

The late Mr. Tomkins, for many years the proprietor of the Sparkhill Nurseries, managed to obtain a fine strain of Primulas, from which two fine varieties, Princess Louise and Marquis of Lorne, were selected as being improvements on existing varieties, and he was also the means of giving a great impetus to the cultivation of the Chinese Primula in the neighbourhood of Birmingham.

On the death of Mr. Tomkins, the sons of Mr. T. B. Thomson, who now so successfully carry on their late father's business, secured the Sparkhill Nurseries, thus adding the nursery branch to their extensive seed business, and Primulas became especially cared for here, some of their new varieties fast gaining in popularity. At the present time an exceedingly fine batch of plants of the two varieties I have named, and others whose names will follow directly, are in the full flush of beauty, the plants of full size and abundantly bloomed, with large flowers of much substance. The Marquis and Princess were not only at the time of being introduced very distinct in the size, substance and form of the flowers, but they were distinct in the thick fleshy foliage, distinct also in form from the ordinary Primula.

This type is preserved in many of the new kinds, whilst in others the Fern-leaved section has dense and stout foliage. Primula sinensis The Queen is a Fern-leaved variety, raised here some four years since, and has a soft pink suffusion on its large white flowers, which are not quite so flat and smooth as those of the Princess Louise, but it is a very fine variety, and of pleasing lovely tint. Her Majesty, another of the Sparkhill seedlings, is a seedling from The Queen, also Fern-leaved, and of a more decided shade of pale rose in its pure white flowers. There are several plants of these two varieties growing in 7-inch pots—excellent examples of cultivation. There is an improved Marquis of Lorne not yet named which has large, bold, smooth blooms of great substance, and, like its parent, is of a shade of rosy-red. A variety named Emperor, of the same type, is brilliant in colour, and of a bright cerise-red. This is also one of the Sparkhill seedlings. Then there is another Marquis of Lorne seed-

ling named Jubilee, a Fern-leaved variety, and a good telling dark companion variety to The Queen and Princess Louise, the parent of some of the excel-

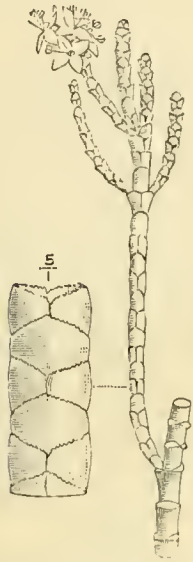


FIG. 3.—VERONICA SALICORNIoidES, TYPICAL.

lent white varieties of the type of Marquis of Lorne, but with very large flowers.

I have not viewed blue Primulas with much favour, but the Messrs. Thomson have a grand thing in King of the Blues, which, so far as known blue varieties

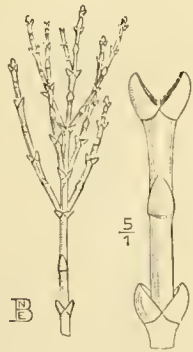


FIG. 4.—VERONICA CUPRESSOIDES, TYPICAL.

are known about Birmingham, must be regarded as a good improvement on all the blues, possessing the foliage and vigour of Marquis of Lorne with the same size, form, and substance in the flower, which has a clear blue tint, strongly marked in the

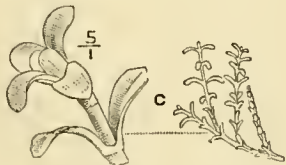


FIG. 5A.—VERONICA CUPRESSOIDES.

flower, and a large yellow eye. Our Primula growers are making great headway in scarlets of the Chiswick Red type, and in Thomson's Sensation we have a fine striking variety, of brilliant colour—or brilliant, resembling Sutton's Scarlet; the habit is good, and the flower well formed, and of a deep rich crimson-red colour.

Some good double varieties have emanated from Sparkhill, the latest addition being Lady Martineau, a sport from Alba magnifica, more fringed than Peach Blossom, with larger flowers than the latter, and a very free habit, the colour a tinted pale pink.

Amongst others now in good bloom at Sparkhill were the following fine doubles, viz.:—A. F. Barron, Miss Eva Fish, Annie Hillier, Marchioness of Exeter, and King of the Purples; and these six varieties give a good variety, and would form a select collection. D.

VERONICA CUPRESSOIDES, AND ITS ALLIES.

A SHORT time since there was considerable discussion in these pages concerning the nomenclature of the plant cultivated in gardens as *Veronica salicornioides*, in which no happy result seems to have

forms of the plant cultivated in gardens as *V. salicornioides*; and fig. 6 is from the plant cultivated in Hay Lodge gardens as *V. cupressoides*; from which it will be seen that no perfectly satisfactory conclusion can yet be arrived at, as none of the garden forms are exactly identical with either typical *V. cupressoides* or *V. salicornioides*. However, I think it will be clear to all that the true *V. salicornioides* (fig. 3) is distinct from the plant cultivated under this name, differing in having stouter branches, in being more strict in habit, and in having the leaves very closely set and decidedly imbricated, which is not the case in any of the forms of the plant grown as *V. salicornioides* that I have seen. So far as is known to me the true *V. salicornioides* is not in cultivation.

Now, with regard to the plant grown as *V. salicornioides*, what is it to be called? It is evidently a very variable plant, as I have endeavoured to show in figs. 5 and 5A, A to E; A and n are from two states grown in Hay Lodge garden; the same form or



FIG. 5.—VERONICA CUPRESSOIDES VAR. VARIABILIS, N. E. DR.

been arrived at. It therefore appeared to me that, as some of the disputants were unacquainted with the true *V. salicornioides*, a small sketch of this species would be of value as showing that the plant cultivated under this name was distinct, and having received from the Editor some specimens grown at Hay Lodge, Trinity, Edinburgh, as *V. cupressoides* and *V. salicornioides*, and some interesting forms of the latter plant grown at Kew, and the Botanic Garden, Edinburgh, kindly lent me by Mr. Dewar, I have thought it would be useful to figure small twigs of them all, as well as of the typical *V. cupressoides*, in order to make clear whatever differences may exist between them. In each case I have represented twigs that are comparable in age and condition, of their natural size, and by their side a portion of a branchlet magnified in each case five diameters. Fig. 3 is drawn from one of the type specimens of *V. salicornioides* collected by Travers on the Wairan Mountains, 4000–5500 feet elevation. Fig. 4 is drawn from one of the type specimens of *V. cupressoides* collected by Sinclair in Upper Wairan, 4000 feet elevation. Fig. 5 represents various

forms are also grown by Mr. C. Wolley Dod, Messrs. J. Veitch & Sons, and at Kew, and seem to be the more ordinary states of the plant, with small Cupressus-like leaves, only differing slightly in habit of branching, but both modes of branching may be found on the same plant; c (fig. 5A) and n are some what similar states, from Kew—in both there are some branches having only the usual small Cupressus-like leaves, and some having the leaves expanded into flat spreading blades, which are sometimes entire, as in c, and sometimes have a tendency to become lobed, as in n, which latter state I have also had from Messrs. J. Veitch & Sons. e represents a condition of the plant grown in the Edinburgh Botanic Garden, in which the majority of the leaves are very distinctly lobed, some being pinnatifid. These four states, therefore, exhibit a complete gradation from small Cupressus-like leaves to pinnatifid ones. f is from a plant grown in the Edinburgh Botanic Garden under the name of *V. lycopodioides*, but it is very different from that species, and is evidently only another modification of the plant we are treating of, and a very remarkable one it is. I have only seen a small

twig of it; the lower leaves are somewhat distant from each other, and are pinnatifid, with acute lobes; whilst those on the terminal branchlets are very closely set, long and subulate, giving it some resemblance to a Lycopodium, whence probably the error in the name. I do not find any of the small Cupressus-like leaves on the small piece kindly lent me by Mr. Dewar, but probably they would be found on the plant if searched for. All these are, beyond a doubt, but variations of one plant, and Mr. Dewar informs me that the variations grown at Kew are all derived from one plant, and are probably due to some differences in soil and situation. But it may be asked, if this is such a variable plant, why may it not still be the same as, or a form of, *V. salicornioides*? (fig. 3). I may say that all who have compared the plant, living and dried, with the type of *V. salicornioides* agree with me in considering it to be quite distinct. Besides the differences previously pointed out, there is, to eyes accustomed to such comparisons, such a very different look about the two plants that convinces one of their distinctness.

On looking to the figure of typical *V. cupressoides* (fig. 4), it will be noted on comparing the magnified portion with that of fig. 5a, that the leaves

var. *variabilis* is a distinct species or merely a variety, as with our present knowledge it appears to me most judicious to consider it. The flowers of this plant are white, whilst those of typical *V. cupressoides* are stated to be violet; but unless there are some other differences in the flowers, of which I have no opportunity of judging, no importance can be attached to this, I think, as most of us are familiar with the fact that the flowers of the same species of *Veronica* vary considerably in colour. *N. E. Brown.*

FOREIGN CORRESPONDENCE.

THE ROSES OF THE SOUTH.

WE extract the following article from a French contemporary, thinking it may be of interest to our readers:—

"The Parisian adores flowers. He could not live without them, and, when the squares are despoiled by the frost, offering nothing to the sight but sad ruins, he demands from Provence those resplendent flowers which bear with them a little of the bright sun of the South. How many of the per-

light straw matting, which are removed in the morning at 9 o'clock. This work entails a large amount of labour, and we think that everywhere where an extended cultivation permits of it, the growers of Roses could advantageously make use of artificial clouds, made by the fumes of thick oil, and which, in the east, have succeeded perfectly in keeping the young Vine-shoots from May frosts. Among the most esteemed varieties of Roses we may mention the following:—*Maréchal Niel*, of a yellow colour; *Malmaison*, tinted with clear rose; *Gloire de Dijon*, fawn, mingled with red; *Papa Gontier*, clear red; *Général Lamarque*, pure white; *Marie Van Houtte*, yellow, with a reddish tinge; *Duchess of Edinburgh* red; and *Isabella Nabonnand*. The least delicate and therefore the most common, is the *Safrano*, the tint of which, as its name indicates, approaches that of saffron. The *Safrano* sells wholesale at Cannes at from 3*l.* to 10*l.* per dozen; the *Maréchal Niel* fetch four or five times more. Roses have been for a long time cultivated at Nice and Cannes, but previously to 1867 they were only utilised for the purpose of making perfumery; it was the restricted outlet which limited the production. From the arrival of Alphonse Karr on the Mediterranean littoral dates the flower industry for bouquets or cut flowers.

"The author of *Guépes* set up a floral establishment at Nice, and his villa of Saint Raphael became a celebrated nest of Roses. These examples were not thrown away, and Hyères, seeing its Vines perish,



FIG. 7.—*VERONICA CUPRESSOIDES* VAR. *VARIABILIS*. (REAL SIZE.)



FIG. 6.—*VERONICA CUPRESSOIDES*, MAY LODGE GARDEN.

are very similar in both, and if those of fig. 4 were placed closer together there would be very little difference between the two and some specimens in the Kew Herbarium which have been considered to be true *V. cupressoides* look very like the *V. salicornioides* of gardens, but there are no specimens in the Herbarium which show any tendency to variation like that of the garden plant, so as this is of decidedly dwarfer habit than the typical *V. cupressoides*, and whether the same species or not, is sufficiently different to require a distinctive name; and taking its variable character into consideration I propose to call the *V. salicornioides* of gardens *V. cupressoides* var. *variabilis* (fig. 7).

The *V. cupressoides* of gardens (fig. 6) is quite like the typical form in habit, but, as will be seen from the figures, the leaves are not quite the same; but as they are seen to be so variable in the dwarf plant, this slight difference may, I think, be neglected, and the plant be considered to be true *V. cupressoides*; especially if we call to mind how the leaves of many other plants of New Zealand and other countries vary—such, for instance, as obtains in the species of *Dacrydium*, &c. It would be interesting to know from what part of New Zealand the garden plants came, as this might help to solve the present doubt as to whether the dwarf plant which I have called *V. cupressoides*

sons who stop before our florists to admire in December Roses superb in their freshness, ask one another, 'How is it possible to obtain such flowers?' And many doubtless believe there is some astonishing and mysterious cultural process. There is nothing of that. The great—one might almost say unique—producer of Roses is the sun; but not this poor winter sun, so sparing of its rays. It is the sun of the Midi, bright and warm, and which a sojourn is delicious at Cannes, Nice, and the whole of the littoral, from Hyères to Mentone. It is to this mild temperature, which, thanks to the mountains, the north wind rarely comes to modify, and also, doubtless, to the saline breezes, that the Rose bushes possess an exceptional vigour. To speak truly, there are no fields of Rose bushes; the Roses are cultivated in the hedges, around the villas, and in the gardens picturesquely arranged in terraces. Certain delicate varieties, or those loving to climb, are trained *en espalier* the length of the walls. This is an excellent course. In this climate Roses have but two enemies—wind and white frost. The wind, shaking the Roses, bruises them, so that they last a less time and must be sold in the environs at a very low price. White frosts are rare, but where they do appear they stop the development of the Rosebuds and seriously affect the number of blown Roses. Thus careful owners in the evening cover their Rose bushes with cloths or

also devoted itself to flower culture. The annual exportation of Roses from the South of France is estimated at a sum of £200,000 sterling."

MARKET GARDENING IN FLORIDA.

I have read with great interest the article on Market Gardening, by Mr. Wm. Earley, of Ilford, in the *Gardeners' Chronicle*, page 75, July 18, 1885, vol. xxiv., No. 603, a copy of which I have just received from a friend in England. I am inclined to agree with the writer on all the points named in his article, and particularly in regard to close planting of Cabbages. I am growing an acre of Cabbages (Burpee's Short-stem Drumhead and Burpee's Surehead), many of which are now ready to cut, and all the rest heading nicely. These were sown in August last, and are planted (being so advised by old resident farmers) 2 feet apart in the rows and the rows 4 feet apart from each other. Between each four rows of Cabbages is a row of young Orange trees, each plant 20 feet apart each way. Had I seen the article of Mr. Earley sooner, I should have tried the system he advocates of close planting. I regret he did not name some of the varieties of Cabbages suitable for close planting, as I feel sure "good medium-sized, well-hearted heads are preferred" in America as well as in England.

Will your correspondent, therefore, kindly furnish the information required in some future issue of your excellent paper? I arrived in Florida last

April, and am delighted with my experience of the Land of Flowers so far, and am contemplating sending you a short article on Florida, its climate and fruits if agreeable to your readers. *Box 147, Waldo, Alachua Co., Florida, U.S.A.* [Please to carry out your intention. Ed.]

CULTURAL MEMORANDA.

PERPETUAL FLOWERING CARNATIONS.

THESE favourite flowers should have free circulation of fresh air during fine mild weather, and when the temperature of the house is not below 55°, otherwise the plants will make a weakly growth. The flower-stems should have support. As the flowers open a piece of matting should be tied loosely round the calyx, to prevent its bursting. Andalusia, primrose-yellow, fringed petals; Miss Jolliffe, pale pink; La Florifère, pure white; Empress of Germany, large white, slightly marked rose; Worthington Smith, deep scarlet; and Valencia, dark crimson clove-scented, are a few of the best varieties to grow, the plants being vigorous growers. Care must be exercised in giving water. When the soil becomes a little dry on the top, give sufficient water to moisten the ball thoroughly. Alternate waterings of weak liquid manure and clear water at a temperature of about 70° will assist in the development of large flowers. Should aphids attack the plants, fumigate lightly with tobacco-paper two evenings in succession. *H. W. W.*

PANCATIUMS, &c.

Mr. Thorpe, speaking at Chicago, recommended that these, as well as Crinum and Amaryllis plants, should have all the encouragement possible till the leaves are thoroughly developed. As soon as this takes place the water should be stinted and the plants allowed to go to rest. Pancatiums require a temperature of not less than 55° at any time. Whilst they are at rest, a top shelf, where they can get the benefit of the light without the direct rays of the sun, is the best position for them. As soon as they show signs of growth they should be watered, gradually increasing the supply as the leaves grow.

ROSE CELINE FORESTIER.

From plants of this free-flowering Noisette Rose we have been, during the last few weeks, cutting half-opened pale yellow and very fragrant blooms, which, set up on its own pale green foliage, came in very useful for buttonholes, as well as for filling small vases and glasses in the boudoir and drawing-rooms. Cuttings taken off any time this month with a little of the old wood attached, and inserted in properly drained 3-inch pots filled with light sandy soil, watered and placed in a hotbed or on a shelf in the stove, or anywhere in heat, will soon take root. They should then be potted off singly into small pots, using a compost of three parts sandy loam and one of sweet leaf-mould, putting the plants back in heat near the glass, and afterwards attending to them in the way of watering, and in due time shifting them into larger pots as the plants require more room at the roots, and gradually hardening them off before plunging the pots to the rims out-of-doors in coal-ashes in a sunny situation early in the summer, giving weak liquid manure at the roots about three times a week during the summer and early autumn months. Thus treated they will make nice useful plants for supplying blooms next Christmas. *H. W. W.*

ASPARAGUS PLUMOSUS.

The pale green flat Fern-like fronds of this South African Asparagus are far superior to the popular Maidenhair Fern (*Adiantum cuneatum*) for button-hole and bouquet work, inasmuch as the fronds keep fresh much longer in a cut state than those of *Adiantum cuneatum* do. Plants in pots ranging from 3 to 6 inches in diameter are also very useful for decorative purposes; but where there is much

table decoration and buttonhole work to do a few plants should be grown on in 9-inch pots for cutting from. This Asparagus, like its allies plumosus nanus, tenuissimus, and virgatus, is easily increased by division of the roots, potted in a mixture of equal parts of light sandy loam and peat, with a sprinkling of small charcoal and sharp sand added, afterwards putting the plants in a stove or Cucumber-house, or in any structure in which a growing atmospheric temperature is maintained, giving water at the roots when the condition of the soil renders its application necessary. *H. W. W.*

THE COLEUS.

About twenty-five or thirty years ago the Coleus was represented in catalogues generally by two varieties—Blumei and Verschaffeltii. Now there are to be found as many as 130 named varieties in some of the leading plant catalogues. The leaves of many of these are undulated, deeply serrated, veined with rose, white and red, and beautifully spotted and margined. Therefore, judiciously pinched plants from three to fifteen months old are very useful for furnishing rooms, &c. The tops of shoots having two or three joints each, taken off now and inserted singly in 3-inch pots filled with light mould placed in heat and watered, will become rooted in a few days, and quickly attain to useful dimensions. *H. W. Ward.*

THE FLOWER GARDEN.

PERHAPS no apology is needed at the present time for a brief retrospect of the past year, which, in so far as regards the flower garden and pleasure grounds, may be said to have been one of a somewhat eventful character, and fruitful of incidents, which, if taken separately or collectively, afford matter for thought and reflection, and which should furnish us with something in the nature of a guide in the future, and convey useful lessons in practice. From the gardening point of view the chief characteristics of the year were, an unusually long and severe winter, which in many instances was productive of disastrous results amongst trees and shrubs. The ground being for a long period frost-bound, planting operations were necessarily postponed to a later period than is generally considered advisable, and, as a necessary consequence, much extra work was entailed in the way of mulchings and watering during the warm weather. Especially was this the case in hilly districts, and on gravelly soil; and in such situations, unless these precautions were taken, an unusual number of failures resulted, particularly amongst large specimens of trees and shrubs. With such severe weather as was experienced in March, when on several occasions the temperature fell to very low readings, it is not surprising that herbaceous plants in beds and borders suffered serious loss, of course this being greatest where much had been left to chance or the protection was insufficient. The lessons taught us will be lasting. Notwithstanding the spring was backward, and was followed by a summer almost tropical in its heat, which entailed a large amount of watering amongst newly planted stuff, the harm caused was more than counterbalanced by the good results derived from the fierce summer. With the wood of all trees and shrubs well ripened, and bulbs, roots of hardy plants well matured, and where the requirements of the plants were duly attended to, we may hope to witness a wealth of bloom in due season.

Planting, Pruning, and Protection.—When the state of the weather will permit, push forward any alterations needed, and with the planting of trees, shrubs and Conifers of most kinds of a hardy nature, but do not remove Hollies or Sweet Bays. As the work proceeds stake and tie all such as require it, and finish off with a good mulching of half-decayed stable manure, or, in the absence of this, litter and leaves: the latter, however, are rather objectionable in well-kept grounds, unless kept in place by a sprinkling of soil, as in rough windy weather they invariably get blown about in all directions. Do not prune any shrub or tree, if it can be avoided, during frosty weather, but rather defer the necessary pruning of deciduous trees and shrubs until later. Overcrowded shrubby borders and clumps should receive attention in the way of thinning out and cutting down where it is required, grubbing out old stumps, turn-

ing in all fallen leaves without disturbing the roots, so as to give the ground a neat and clean appearance. Cut and trim hedges of Quick Beech Privet, and others of a similar nature, cleaning out all weeds and rubbish from the base. Afford protection to all such subjects as require it, and where previous experience has proved it to be unwise to go without. In herbaceous beds and borders many perennials will be benefited by a covering of cinder ashes or cocoanut fibre refuse, amongst them being the more tender species of Lillium, Lobelia fulgens, L. syphilitica and their varieties, Dielytra spectabilis, Iris reticulata, and others of a kindred nature. Ielleborus niger and its varieties will well repay by being covered with hand-lights and freely ventilated on all favourable occasions.

Flower-beds.—Manure and dig over unoccupied flower-beds, leaving the surface rough so as to get well pulverised. Others containing Hyacinths and early flowering Tulips should be protected from severe frosts by a good covering of cocoa refuse. Keep a vigilant outlook for mice amongst the bulbs of Crocus. Beds filled with such spring flowering plants as Arabis, Myosotis, Polyanthus, Violas, and double-flowered Daisies will require attention after a spell of sharp weather, and should be pressed down quite firmly with the hands. *J. Horsfield, Heytesbury, Wilts.*

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

EICHORNEA AZUREA, MART.—Mr. Morris suggests among other theories that the swollen petioles of this plant may act as sails to waft the plants to the edges of ponds, and possibly also to the nutrient mud. In Pernambuco, where I saw it growing wild, the plant only grew in streams, jutting out from the bank very much as *Heteranthera reniformis* does. Is it not more likely that the floats are destined to enable a broken-off plant to be carried down the stream, and so diffused? *E. speciosa* is very common round Pernambuco. You may see the low, swampy fields pink with its beautiful flower-spikes for a long distance. This plant, which has better developed floating petioles than *E. azurea*, does not grow under shade, but in open fields, either simply in the wet mud or in shallow water; in fact, its habits are very much those of the Watercress. I do not doubt that the floats in this case are to diffuse the plant when a bit is broken off by a flood. As the rhizome is attached to the ground, of course the plant cannot be raised up by a flood more than an inch or two without the rhizome being broken. *E. tricolor*, is almost the commonest of the three species round Pernambuco. I have not seen it in cultivation. It is, to my thinking, the most beautiful of all the species. The inflorescence is a panicle with spreading branches, often 6 inches long, covered with the blue, yellow, and violet flowers. The figure in the *Flora of Brazil*, vol. iii., t. ii., represents a small and young specimen, and gives no idea of what the plant can become. It grows in ditches and water-courses running through swampy fields, and often quite chokes them up. *H. N. Ridley.*

NEW VARIETIES OF POTATOS.—Your correspondent "X." will greatly oblige if he will be kind enough to give me the names, through the medium of your columns, of two or three varieties of new Potatos suitable for field cultivation. It is necessary for that purpose that they should be of robust constitution, the tubers of fair size and shape (kidney-shaped or flat round), and when boiled they should be of good colour, either white or yellow, and that the insides will cook through before the outside are "pasty"—a common fault with many kinds—i.e., they are not firm enough in texture to admit of their being properly boiled through to the centre before the outside are all "pap." A Potato suitable for exhibition and one suitable for family use is a Potato of another kind. I have from time to time proved many so-called new kinds and have found them wanting. The American varieties, from "Roses" downwards, have all proved deficient in flavour on my soil. The best flavoured Potato that I ever

grew (previous to the Potato disease) was a variety called the Old Winter Dutch (I believe they came from abroad), the last of which I sent to the late Wm. Tillery, at Welbeck, several years since, he having made enquiry for them through your columns. Since the appearance of the Potato disease I have grown York Regent, Flukes, Balldhereen, an Irish kind, Champions, Paterson's Victoria—the best of any Magnum Bonum, and lastly, Reading Hero. These have all done duty in their turn, and the last-named must give way for something fresh to the soil. I may add that I know of only two kinds of Potatoes that were grown previous to the spread of the Potato disease that I can now find anywhere in this locality, viz., Ashleaf and Early Shaws; the last-named had a flavour peculiar to itself, which none of the recent introductions that I have grown possess, excepting, perhaps, the old Lapstone Kidney. The great fault with so many kinds of Potatoes is want of constitution, i.e., they have no woody fibre in their stems, and their tubers are soft and tasteless (otherwise they are sweet, earthy, or disagreeable) instead, of that quality of texture which is firm, but yet yielding to the pressure of the fork when cooked, and of a somewhat nutty flavour, which is rather difficult to describe on paper. *North Norfolk.*

BEDDING OUT.—In "G. B.'s" article of December 17 on "Bedding Out," I was pleased to see a change advocated, as regards the massing of showy flowering plants, in the centre of a lawn, but would like him to go a little further and say what he would do with "the border" the remaining eight months of the year. *W. B. Jeffreys, Blackheath Park.*

THE ROYAL HORTICULTURAL SOCIETY'S COMMITTEES.—Permit me to suggest that the formal meetings of the Fellows of the Royal Horticultural Society to be held on the 10th should be taken advantage of by the Council to make some statement as to the future constitution of the Society's professional committees, and the nature of the qualifications of members. I ask that, because in the first place I learn that it is proposed to appoint none to the committees except they be Fellows—a course which I would not question if the Council would bring down their rate of annual subscription, so as to suit the pockets of gardeners generally. If the present high rate be continued it is but too evident that many of the most useful elements of these committees must be excluded from them. But whilst the present arrangement exists of admitting other than Fellows to the committees, it would certainly tend to the giving of some much needed confidence in the Society if the President would make a clear and authoritative statement as to how appointments are made, who selects the favoured individuals, why so selected, and on what grounds certain others are removed annually. The Council must know—indeed, it is perpetually referring to the work of its committees as evidence of the Society's usefulness—that these committees are called upon to discharge duties of the highest horticultural interest and confidence; and the manner in which those duties are discharged can only be appreciated by letting the fullest daylight in upon the method now adopted of selecting the committee members. *Spade.*

BRUGMANSIAS.—I have in a cool conservatory at this place a large plant of *Brugmansia suaveolens*, and one of *B. sanguinea*. I think formerly [and now] they were called *Datura*. I cannot find *Brugmansia* in Loudon, or any other Botanical book I possess. *B. suaveolens* has produced since last May 139 flowers, and *B. sanguinea* 94. Last month a great number of flower-buds fell off both plants, and at the present time *B. sanguinea* has flowers which are nearly opened. The conservatory is not maintained as a warm one in the winter, but in the summer-time the sun shines in very warm in the morning, but after mid-day the house gets shaded by a large Cedar of Lebanon. The plants are afforded plenty of water as they stand near to the hot-water pipes. I should be much obliged by any information respecting the proper soil and treatment. *M. Freeman, Ryton-on-Dansmore, Coventry.* [See our Answers to Correspondents. Ed.]

FERTILISING MOSS.—We feel much indebted to Mr. Roberts for his letter on this subject. As plants, both soft and hard-wood, are benefited by being potted in the moss, Mr. Roberts instancing *Bouvardias* and *Gloxinias*, quite justifies its use. I had mentioned *Fuchsias* and *Gloxinias* as being plants benefited by its use. It is a perfectly true statement about the *Bouvardias* in 6-inch pots

bearing thirty to forty heads of bloom each. I remarked in Mr. Roberts' note the statement that plants which endure for many years do well when the moss is used as a top-dressing which I can easily understand, and if the moss is superior to peat and loam in porosity and in capability of absorption, it would be appropriate for some species of Orchids, and is what I intend to experiment on shortly. Mr. Roberts does not underrate the good qualities of loam; he also gives clear reasons for in some instances preferring moss. It is now time some capable cultivator should give us some principles to guide us in the use of this new substitute for mould, there being nothing so useful as the power to combine theory and practice. *W. Bell, Annesley Park.*

POPULUS PYRAMIDALIS MEETENSIS.—I am interested in the note concerning this tree at p. 818, Dec. 31, but am puzzled somewhat about M. Mathieu's description of it. If, as he says, the Metz Poplar is like the Fulham Oak (*Quercus fulhamensis*) in growth, then it cannot be columnar in the sense that the term is generally understood. If it be really a pyramidal or columnar outline, and so rapid and vigorous in growth, it will surely be worth the attention of English nurserymen. Though not a lover of the Canadian Poplar, or any other Poplar of similar habit, I should be glad to see one that, while not so strictly columnar as the Lombardy, has not the monotonous rounded outline of the too familiar Black Italian. [Try Bolle's poplar. Ed.] Again, as to the name of the Metz Poplar, will it not lead to confusion if it is named *P. pyramidalis*, seeing that the Lombardy is also known by that name? *P. Engène* is a more distinct name, but according to the new order of things I suppose it ought to be *P. canadensis Eugène Simon*!—seeing that it is but a seminal form of *P. canadensis*. I should be glad of further information about this Poplar, as, so far as I can ascertain, it is not in English nurseries, though large trees of *P. Engenei* are said to exist in England. I should like to know also the origin of the Poplars known in English nurseries as the Giant Lombardy and *P. canadensis nova*. Perhaps one of these is identical with MM. Simon-Louis' seedling. *W. Goldring, Kew.*

GOOSEBERRIES.—Some time since one of my market garden neighbours sent off into Kent a load of 12,000 Gooseberry bushes for planting, and all of two kinds only—Lancashire Lad and Crown Bob. It is interesting thus to learn that in spite of outcries as to fruit depreciation, there are still growers who have faith in the future. This consignment is but one of many from this district, and but a comparatively infinitesimal one for the whole kingdom—pretty conclusive evidence that we shall not give up the growing of market Gooseberries just yet. This one lot of 12,000 of two-year-old bushes should plant some 6 to 8 acres of ground, but of course all depends upon the fashion of planting. A few years hence and the breadth will add a thousand bushels of fruit to the general produce. Still it is obvious that such breadths of young Gooseberries are not all gain. Every year old exhausted breadths are being grubbed out, and younger ones are replacing them. It is hard to say how long Gooseberry bushes will endure, but one of the finest breadths in this country just now is nearly twenty years old, and with hard thinnings would pay to stand ten years longer. All depends upon the nature of the top crop—for bush fruits are usually so handicapped—and its density. If the standard trees be not too thick, and be kept well pruned, the Gooseberries are similarly treated, the soil beneath kept clean, frequently forked, and regularly manured, it is difficult to place a limit upon the cropping duration of Gooseberry bushes. In too many gardens breadths are choked with weeds and killed by neglect; once the roots are full of Couch-grass and Convolvulus, and absolute cleaning becomes impossible, whilst a year or two's neglect leaves no other course open but to grub bushes and weeds out clean, and manure the soil and start afresh. That sort of thing is common enough amongst market garden failures: indeed, the men who go to the wall are invariably the lazy and the neglectful, whilst the best attention to all matters as invariably produces the best results. Market growers who have considerable areas of bushes find it to their interest to do these well, even for the production of good robust wood, for the formation of cuttings, because if even some 20,000 to 30,000, or even more, be annually propagated, a market is pretty sure to be found somewhere. It is

a fortunate thing for the work-people, men and women, when Gooseberry and Currant hedges are thus propagated. The pruning is got through early; women gather up and trim the cuttings, counting them and tying into bundles, whilst the men find welcome employment in planting them. Given a good season, and 90 per cent will root, and if the soil be good and the weather favourable, quite 50 per cent will make nice bushes for planting the first year, and oftentimes many are so sold. If the spring be harsh and dry, breaking is checked, and rooting is slow and late, so that but little top-growth is made that season. In the following winter these yearlings are, as a rule, lifted, trimmed hard top and bottom, and then, some ground being well manured and deeply ploughed, the young bushes are dibbled out in rows, sometimes with the aid of a line, after the ground has been harrowed, and sometimes in the furrow lines left by the plough. The course of treatment is rough, but seems to be very efficacious, especially in the production of nice clusters of fibrous roots which mark the bushes when they are lifted in the following autumn for sending away. Of the two sorts of Gooseberries named, Lancashire Lad is by far the most popular. It is just a little later in breaking than is the Crown Bob, and of course a little later in fruiting; but the Lad is rather the hardier of the two, and seems, because a little the latest in breaking, less subject to the attacks of birds—a matter of great importance in all cases, but specially so in market orchards in which there are many thousands of bushes grown. Both the sorts referred to produce fine fruits, which swell up early and soon fill the bushel. Remarkably useful in the giving of employment are Gooseberries, and in many ways good crops add exceedingly to the national wealth. Without doubt bushes have their very prolific lives lengthened appreciably by the fact that the demand for early green Gooseberries helps to denude them of their heavy crops before these have begun to prove exhaustive, and the bushes thus get rest, and at the same time ample opportunity ere the leaves fall, to recuperate and plump buds for another year. On the whole there are few fruits more serviceable in many ways than are Gooseberries. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

The following list, which has been sent to us for publication, contains the name of those gentlemen who have been chosen to sit on the various committees during the year 1888:—

SCIENTIFIC COMMITTEE.

Chairman.—Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.B., F.R.S., V.P.L.S., The Camp, Sunningdale.

Vice-Chairmen.—Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W.; Rev. M. J. Berkeley, F.R.S., Sibbertoft, Market Harborough; F. P. Pascoe, F.L.S., 1, Burlington Road, Westbourne Park, W.

Hon. Secretary.—Rev. Professor G. Henslow, M.A., F.L.S., F.G.S., Drayton House, Ealing.

Bennett, Alfred W., M.A., B.Sc., F.L.S., 6, Park Village East, W.

Boscawen, Hon. and Rev. J. T., Lamorran, Probosc, Cornwall.

Boulger, G. S., 9, Norfolk Terrace, Bayswater, W. Barbridge, F. W., F.L.S., Trinity College Gardens, Dublin.

Church, A. H., F.C.S., Royston House, Kew. Clarke, Colonel R. Trevor, Welton Place, Daventry.

Dod, Rev. C. Wolley, Edge Hall, Malpas, Cheshire. Glaisher, James, F.R.S., Dartmouth Place, Blackheath, S.E.

Green, Professor, Pharmaceutical Society, 17, Bloomsbury Square, W.C.

Lowe, Dr. Wm. Hy., Woodcote, Inner Park Road, Wimbledon.

Llewellyn, J. T. D., F.L.S., Penllergare, Swansea.

Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.

Maw, Geo., F.R.S., Benthall, Kenley, Surrey.

McLachlan, R., F.R.S., Westview, Clarendon Road, Lewisham, S.E.

Michael, Albert D., F.L.S., Cadogan Mansions, Sloane Square, S.W.

Morris, D., F.L.S., Assistant Director, Royal Gardens, Kew.

Murray, G., F.L.S., Natural History Museum, South Kensington, S.W.
 O'Brien, James, West Street, Harrow-on-the-Hill.
 Plowright, C., F.L.S., 7, King Street, King's Lynn.
 Ridley, Henry N., B.A., F.L.S., Natural History Museum, South Kensington.
 Scott, D. H., M.A., Ph.D., 8, Thornton Hill, Wimbledon, S.W.
 Snee, A. H., The Grange, Wallington, Surrey.
 Smith, Worthington G., F.L.S., High Street, Dunstable.
 Tait, Alfred W., 115, Entre Quintas, Oporto.
 Ward, Professor Marshall, The Laurels, Englefield Green, Staines.
 Wilson, Geo. F., F.R.S., Heatherbank, Weybridge Heath.

FLORAL COMMITTEE.

Chairman.—G. F. Wilson, F.R.S., Heatherbank, Weybridge Heath.
Vice-Chairmen.—Rev. W. Wilks, Shirley Vicarage, Croydon; Major Lendy, F.G.S., F.L.S., Sunbury-on-Thames; H. Herbst, Kew Road, Richmond, Surrey.
Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick.
 Baines, Thomas, Fern Cottage, Palmer's Green, N.
 Ballantine, H., The Gardens, The Dell, Egham.
 Bates, W., Poulett Lodge Gardens, Twickenham.
 Bennett, H., Shepperton, Walton-on-Thames.
 Cant, B. R., Colchester.
 Dean, R., Ranelagh Road, Ealing, W.
 Drury, C. T., 10, Philpot Lane, E.C.
 Dominy, John, 11, Tadema Road, Chelsea, S.W.
 Duffield, G., The Gardens, Bramford Lodge, Winchmore Hill, N.
 Fraser, John, Lea Bridge Road, Leytonstone, E.
 Goldring, Wm. 52, Gloucester Road, Kew.
 Hibberd, J., Shirley, 1, Priory Road, The Green, Kew.
 Hill, E., The Gardens, Tring Park, Tring.
 Holmes, W., Frampton Park Nurseries, Hackney, E.
 Laing, John, The Nurseries, Forest Hill, S.E.
 Lowe, Dr. W. H., Woodcote, Inner Park, Road, Wimbledon.
 Masters, Maxwell, T. M.D., F.R.S., Mount Avenue, Ealing, W.
 Nicholson, G., Royal Gardens, Kew.
 Noble, C., Sunningdale Nursery, Bagshot.
 O'Brien, James, West Street, Harrow-on-the-Hill.
 Paul, George, The Old Nursery, Cheshunt, Herts.
 Pilcher, Charles, 84, Ringford Road, West Hill, Wandsworth, S.W.
 Pollett, H. M., Fernside, Bickley, Kent.
 Walker, J., Whitton, Middlesex.
 Wildsmith, W., The Gardens, Heckfield Place, Winchfield.
 Wynne, Brian, 17, Catherine Street, Strand, W.C.

FRUIT COMMITTEE.

Chairman.—Robert Hogg, LL.D., F.L.S., 99, St. George's Road, S.W.
Vice-Chairmen.—T. F. Rivers, Sawbridgeworth; Arthur W. Sutton, F.L.S., Reading; H. J. Veitch, F.L.S., Royal Exotic Nursery, Chelsea, S.W.
Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick.
 Adams, H. J., Roseneath, London Road, Enfield, N.
 Barr, Peter, 34, King Street, Covent Garden, W.C.
 Blackmore, R. D., Teddington.
 Burnett, J., The Gardens, Deepdene, Dorking.
 Cheal, J., Crawley, Sussex.
 Crowley, Philip, Waddon House, Croydon.
 Cummins, G. W., The Gardens, The Grange, Wallington.
 Denning, W., The Gardens, Londesborough Lodge, Norbiton, Surrey.
 Ford, Sidney, The Gardens, Leonardslee, Horsham.
 Haywood, T. B., Woodhatch Lodge, Reigate.
 Howe, C., Benham Park Gardens, Newbury.
 Lee, John, 78, Warwick Gardens, W.
 Marshall, William, Auchinraith, Bexley.
 Miles, George T., The Gardens, Wycombe Abbey, High Wycombe.
 Normaa, G., The Gardens, Hatfield House, Hatfield.
 Paul, William, Waltham Cross, Herts.
 Pearson, Alfred H., The Nurseries, Chilwell, Notts.
 Roberts, J., The Gardens, Gunnersbury Park, Acton, W.
 Ross, Chas., The Gardens, Welford Park, Newbury.
 Saltmarsh, T. J., The Nurseries, Chelmsford.
 Smith, James, The Gardens, Mentmore, Leighton Buzzard.

Warren, W., Worton Gardens, Isleworth.
 Weir, Harrison, Ilinwick, Lansdowne Road, Tunbridge Wells.
 Willard, Jesse, The Gardens, Holly Lodge, Highgate, N.
 Woodbridge, John, The Gardens, Syon House, Brentford.
 Wright, John, 171, Fleet Street, E.C.

SCOTTISH HORTICULTURAL ASSOCIATION.

At the ordinary monthly meeting of this body on the 3rd inst., Mr. D. P. Laird, President, a paper entitled "A Chat About Hollies," by Mr. G. Nicholson, Kew, was read by Mr. Robertson Munro.

Another paper, entitled "Horticultural Notes," was read by Mr. Milne, and Mr. Todd gave some interesting particulars respecting the experiences of those engaged in the florist's trade.

Mr. James Grieve, Local Secretary of the Scottish Primula and Auricula Society, directed the attention of the meeting to a rumour that the Royal Caledonian Horticultural Society had been communicated with by Mr. Gair, of Falkirk, respecting an offer by Mr. Lightbody, a son of the late Mr. Lightbody, the eminent Auricula grower of that town, of £150 in trust, the interest of which was to be devoted annually to a prize for the encouragement of Auricula culture, and to be called "The Lightbody Memorial Prize."

The rumour was confirmed by Messrs. D. P. Laird and Milne, both of whom are members of the Council of the Royal Caledonian Horticultural Society, who also stated that arrangements were not yet completed with regard to the proposed trust between the donor and the Society, but that more would be known of it after next council meeting.

Obituary.

PROFESSOR DICKSON.—The death, on December 30, under sad circumstances, of Dr. Alex. Dickson, Professor of Botany in Edinburgh University, is announced. Professor Dickson had been spending the Christmas vacation at his Peeblesshire home of Hartree, and while on the ice there he died. He was very fond of curling, and it is supposed that he was engaged in his favourite pastime when he was suddenly seized with illness. Professor Dickson was born in Edinburgh in 1836, and graduated in medicine at Edinburgh University in 1860. From an early age he devoted much attention to botanical inquiries, and his interest in scientific subjects increased with years. In 1862 he conducted the class of botany in the University of Aberdeen during the illness of Professor Dickie. Four years later, he was appointed to the Chair of Botany in the University of Dublin, on the death of Dr. W. H. Harvey; and in 1868 he became also Professor of Botany in the Royal College of Science, Dublin. In the same year he was appointed Professor of Botany in the University of Glasgow, in succession to Dr. Walker-Arnett, and he filled that office until 1879, when he was translated to Edinburgh as Professor of Botany in the University of Edinburgh, and Regius Keeper of the Royal Botanic Garden. His researches in some of the most difficult departments of Botany are very important contributions to botanical science. A new class-room was built at the Edinburgh Botanic Gardens shortly after Professor Dickson was appointed to his office, and he afterwards arranged for the old class-room being converted into a laboratory for microscopic experiments. The changes which have been made at the Botanic Gardens—mainly in the interests of students—have effected a considerable improvement on the former state of matters, and they may be said to be almost altogether associated with the time of Professor Dickson. His life was a quiet and unostentatious one, and he had endeared himself to his students, who found in him the most approachable of teachers. He had also gained the affections of those with whom he was associated as a country gentleman. Professor Dickson was an honorary M.D. of Dublin, LL.D. of

Glasgow, F.R.S. Edinburgh, Fellow of the Linnean Society, and twice President of the Botanical Society of Edinburgh. He was also a Deputy Lieutenant for the county of Peebles. The appointment to the vacant Chair is in the hands of the curators of the University. *Scotsman*, Dec. 31, 1887.

FRUIT REGISTER.

KEEPING OF APPLES, &c.

We find here that Apples are keeping better this year than during the last three seasons, and certainly it is several years since such a sound and good crop was harvested; but be the crop ever so good, their good keeping depends on the time when they are gathered, manner of storing, &c. We find the flavour of the fruit is much better than usual, this being remarkable in Beurré Rance Pear. I may safely say this variety has not been fit to eat hereabouts since 1878. The best late Pear found in the fruit-room at Burghley was Passe Colmar, a variety that has the valuable property of ripening its fruits over a longer period than most other Pears, and which is always good in this district. The same cannot be said always of Bergamot d'Esperen, Easter Beurré, Ne Plus Meuris, and Beurré Sterckmans, which are, however, of very fair quality this season.

I noticed at Bughley a fine sample of Wellington Apple, also of Barnack Beauty, a local variety which will probably be very largely grown in a few years' time, when better known, as few can surpass it for cropping and keeping qualities. *W. H. Divers, Ketton Hall.*

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending Jan. 2, is furnished from the Meteorological Office:—

"The *weather* has been cloudy or dull generally with occasional falls of cold rain, sleet, or snow. The snowfall which was experienced at the commencement of the period on the south-eastern coasts of England was very heavy.

"The *temperature* has continued below the mean in all districts, the deficit ranging from 4° in Scotland, to 5° or 6° in Ireland, and to as much as 6° to 8° over the greater part of England. The highest of the maxima, which were recorded on December 27 in Scotland, and on January 2 in England and Ireland, ranged from 42° in 'Scotland, N.,' and 'England, N.E.,' to 49° in 'Ireland, S.' The lowest of the minima, which were recorded on irregular dates, ranged from 13° in 'Scotland, E.,' and 'England, N.W.,' and 15° in 'England, E.,' and 'England, S.W.,' to 23° in 'Scotland, N.,' and 'England, N.E.,' and to 27° in the 'Channel Islands.' At the end of the period the thermometer was rising decidedly in all parts of the kingdom.

"The *rainfall* has been less than the mean in all districts.

"*Bright sunshine* has been very little prevalent, the percentage of the possible amounts of duration ranging from 5 to 13 in most districts. In 'England, E.,' however, 25, and in the 'Channel Islands' 39 per cent. was recorded."

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JAN. 14. (AVERAGE OF FORTY-FOUR YEARS.)

Jan. 8	36°.3	Jan. 12	36°.5
" 9	36°.3	" 13	36°.6
" 10	36°.4	" 14	36°.6
" 11	36°.4	Mean for the week ...	36°.4

GARDENERS' CHRONICLE

ALMANAC

1888.



JANUARY.

Day of M.	Day of W.	Mean Tem.
1 S	36.8	1st Sunday after Xmas. T. Moore d. 1887.
2 M	36.7	G. C. first issued, 1841. Sun rises 8.9, sets 4.
3 Tu	36.6	Last Quarter, 8th, 11h. 43m. morn.
4 W	36.5	New Moon, 13th, 8h. 39m. morn.
5 Th	36.4	First Quarter, 21st, 4h. 49m. morn.
6 F	36.3	Full Moon, 28th, 11h. 19m. after.
7 S	36.3	
8 S	36.3	1st Sunday after Epiphany. [Fl. Show.
9 M	36.3	Plough Monday. Chamber Synd. of Ghent
10 Tu	36.4	R.H.S., Sci. Fr. & Fl. Com., Sp. Gen.
11 W	36.4	
12 Th	36.5	Edinburgh Botanic Society.
13 F	36.6	Hilary Term.
14 S	36.6	Royal Bot. Soc., Regent's Park, Gen. Meet.
15 S	36.7	2nd Sunday after Epiphany.
16 M	36.7	Sun rises 8.1, sets 4.19.
17 Tu	36.8	John Ray d. 1705.
18 W	36.9	
19 Th	37.2	Linnean Society meets.
20 F	37.4	London Docks opened, 1739.
21 S	37.5	
22 S	37.7	3rd Sunday after Epiphany.
23 M	37.9	Gustave Doré d. 1883.
24 Tu	38.3	
25 W	38.4	Robert Burns b. 1759.
26 Th	38.5	General Gordon killed, 1885.
27 F	38.6	
28 S	38.7	Capitulation of Paris, 1871.
29 S	38.8	Septuagesima S. Vegetantenkring, Ant-
30 M	38.9	Sun rises 7.40, sets 4.41. [wery, meets.
31 Tu	38.9	

FEBRUARY.

Day of M.	Day of W.	Mean Tem.
1 W	39.1	G. Cruikshank d. 1878.
2 Tu	39.2	Candlemas. Linnean Society meets.
3 F	39.2	Lord Salisbury b. 1830.
4 S	39.3	
5 S	39.3	Sexagesima.
6 M	39.3	
7 Tu	39.3	C. Dickens b. 1812.
8 W	39.3	
9 Th	39.2	Edinburgh Botanic Society.
10 F	39.2	Queen Victoria m. 1840.
11 S	39.1	Roy. Bot. Soc. Gen. Meet.
12 S	39.1	Shrove.
13 M	39.0	Sun rises 7.21, sets 5.8. Chamber Synd.
14 Tu	39.0	R.H.S., Sci. Fr. & Fl. Com. and Council.
15 W	39.0	Ash Wed. [Shrove Tues. & St. Val.
16 Th	39.0	Linnean Society meets.
17 F	39.1	
18 S	39.1	
19 S	39.2	1st Sunday in Lent.
20 M	39.3	
21 Tu	39.4	Battle of Guzurat, 1849.
22 W	39.6	French Revolution, 1848.
23 Th	39.7	
24 F	39.8	St. Matthias.
25 S	40.0	
26 S	40.1	2nd Sunday in Lent. Vegetantenkring, Ant-
27 M	40.2	Sun rises 6.53, sets 5.33.
28 Tu	40.4	Professor Morren d. 1886.
29 W	40.5	Rossini b. 1792.
30 Th	40.5	
31 F	40.6	

MARCH.

Day of M.	Day of W.	Mean Tem.
1 Th	40.6	St. David. Linnean Society meets.
2 F	40.7	Pope Leo XIII. b. 1810.
3 S	40.8	
4 S	41.0	3rd Sunday in Lent.
5 M	41.1	
6 Tu	41.3	Artemus Ward d. 1867.
7 W	41.5	
8 Th	41.6	Edinburgh Botanic Society.
9 F	41.7	
10 S	41.8	Royal Bot. Soc. Gen. Meet.
11 S	42.0	4th Sunday in Lent. [of Ghent Fl. Sh.
12 M	42.1	Sun rises 6.22, sets 5.58. Chamber Synd.
13 Tu	42.2	R.H.S., Sci. Fr. & Fl. Coms. and Council.
14 W	42.3	
15 Th	42.4	Linnean Society meets.
16 F	42.6	
17 S	42.7	St. Patrick.
18 S	42.8	5th Sunday in Lent.
19 M	43.0	
20 Tu	43.2	
21 W	43.4	R. Bot. Show. Preston & Fulwood Hort.
22 Th	43.5	Shropshire Horticultural.
23 F	43.7	Falkirk Spring Flower Show.
24 S	43.9	
25 S	44.1	6th Sunday in Lent. [King, Antwerp, meets.
26 M	44.2	Sun r. 5.50, s. 6.21. J. McHutchison d. 1887.
27 Tu	44.4	R.H.S., Sci. Fr. & Fl. Coms. and Council.
28 W	44.5	Glasgow and West of Scotland Show.
29 Th	44.7	Paisley Hort. Soc. Spring Show (two days).
30 F	44.9	Good Friday.
31 S	45.3	

APRIL.

Day of M.	Day of W.	Mean Tem.
1 S	45.5	Easter Day. Bank Holiday.
2 M	45.7	
3 Tu	45.9	
4 W	46.2	Royal Caledonian Hort. Soc. (two days).
5 Th	46.5	Dividends due. Linnean Society meets.
6 F	46.7	
7 S	46.9	
8 S	47.1	Low Sunday. [of Ghent Fl. Show.
9 M	47.2	Sun rises 5.19, sets 6.44. Chamber Synd.
10 Tu	47.3	R.H.S., Sci. Fr. & Fl. Com. and Council.
11 W	47.5	
12 Th	47.6	Edinburgh Botanic Society.
13 F	47.7	
14 S	47.9	Royal Botanic Soc. General Meeting.
15 S	48.1	2nd Sunday after Easter.
16 M	48.3	
17 Tu	48.4	
18 W	48.6	[Land Newcastle Show (two days).
19 Th	48.7	Royal Botanic Society's Show. Durham
20 F	48.8	Linnean Society meets.
21 S	49.0	
22 S	49.2	3rd Sunday after Easter.
23 M	49.3	St. George's Day.
24 Tu	49.5	R.H.S., Sci. Fr. & Fl. Com. and Council.
25 W	49.6	
26 Th	49.7	Royal Hort. Society of Ireland, Dublin.
27 F	49.8	
28 S	50.1	
29 S	50.4	4th Sunday after Easter. Vegetantenkring.
30 M	50.7	[Antwerp, meets.

MAY.

Day of M.	Day of W.	Mean Tem.
1 Tu	51.0	Brig. Mus. Reading Room open 9 till 7.
2 W	51.3	

JUNE.

Day of M.	Day of W.	Mean Tem.
1 F	58.4	Prince Louis Napoleon killed, 1879.
2 S	58.6	

JULY.

Day of M.	Day of W.	Mean Tem.
1 S	62.7	5th Sunday after Trinity.
2 M	62.8	Sun rises 3.50, sets 8.18.

AUGUST.

Day of M.	Day of W.	Mean Tem.
1 W	63.2	Lammas Day.
2 Th	63.2	Goodwood Races.

POST OFFICE REGULATIONS.

INLAND LETTERS, not exceeding 1 oz., 1*½* d.; exceeding 1 oz. and not exceeding 2 oz., 1*½* d.; exceeding 2 oz. and not exceeding 4 oz., 2*½* d.; and so on, *½* d. being charged for every additional 2 oz.

BOOK-PACKETS (not more than 5 lb. in weight, 18 inches in length, 9 inches in width, and 6 inches in depth), may be sent by any part of the United Kingdom. The postage is *½* d. for every 2 oz., or fraction of that weight. There must be no letter, or any communication of the nature of a letter, written on any part of a book packet.

INLAND MONEY ORDERS.

The commission on Inland Money Orders is:—For sums not exceeding £1, 2*½* d.; sums above £1 and not exceeding £2, 3*½* d.; sums above £2 and not exceeding £4, 4*½* d.; sums above £4 and not exceeding £7, 5*½* d.; above £7 and not exceeding £10, 6*½* d.

POSTAL ORDERS.

Postal Orders for certain fixed sums, from 1*½* s. to £1, are now issued to the public at all Post Offices at which Money Order business is transacted, and at Malta, Gibraltar, and Constantinople.

The following are the amounts for which Postal Orders are issued, together with the poundage payable in respect of each Order:—1*½* s., *½* d.; 1*½* s., 6*½* d.; 2*½* s., 1*½* d.; 3*½* s., 1*½* d.; 4*½* s., 1*½* d.; 5*½* s., 1*½* d.; 6*½* s., 1*½* d.; 7*½* s., 1*½* d.; 8*½* s., 1*½* d.; 9*½* s., 1*½* d.; 10*½* s., 1*½* d.; 11*½* s., 1*½* d.; 12*½* s., 1*½* d.; 13*½* s., 1*½* d.; 14*½* s., 1*½* d.; 15*½* s., 1*½* d.; 16*½* s., 1*½* d.; 17*½* s., 1*½* d.; 18*½* s., 1*½* d.; 19*½* s., 1*½* d.; 20*½* s., 1*½* d.

POST CARDS.

Post Cards, which bear a half-penny impressed stamp, are available for transmission between places in the United Kingdom. They may also be posted to foreign countries by fixing adhesive stamps to cover the extra cost for postage.

STOUT CARDS.			THIN CARDS.		
1 ... 3 <i>½</i> d.	4 ... 2 <i>½</i> d.	1 ... 1 <i>½</i> d.	1 ... 3 <i>½</i> d.	4 ... 2 <i>½</i> d.	1 ... 1 <i>½</i> d.
2 ... 1 <i>½</i> d.	5 ... 3 <i>½</i> d.	2 ... 1 <i>½</i> d.	2 ... 1 <i>½</i> d.	5 ... 3 <i>½</i> d.	2 ... 1 <i>½</i> d.
3 ... 2 <i>½</i> d.	6 ... 4 <i>½</i> d.	3 ... 2 <i>½</i> d.	3 ... 2 <i>½</i> d.	6 ... 4 <i>½</i> d.	3 ... 2 <i>½</i> d.

REPLY POST CARDS.

REPLY STOUT CARDS.			REPLY THIN CARDS.		
1 ... 1 <i>½</i> d.	4 ... 5 <i>½</i> d.	1 ... 1 <i>½</i> d.	1 ... 1 <i>½</i> d.	4 ... 5 <i>½</i> d.	1 ... 1 <i>½</i> d.
2 ... 2 <i>½</i> d.	5 ... 6 <i>½</i> d.	2 ... 2 <i>½</i> d.	2 ... 2 <i>½</i> d.	5 ... 6 <i>½</i> d.	2 ... 2 <i>½</i> d.
3 ... 3 <i>½</i> d.	6 ... 7 <i>½</i> d.	3 ... 3 <i>½</i> d.	3 ... 3 <i>½</i> d.	6 ... 7 <i>½</i> d.	3 ... 3 <i>½</i> d.

REGISTERED LETTERS.

Registration provides a secure mode of transmitting Money, Bank Notes, Bank Post, Bills, Drafts, &c. On their delivery, the person to whom addressed will be required to sign a receipt. Letters, &c., can be registered on prepayment of a fee of 2*½* d. in addition to the ordinary rates of postage. Compensation is given for loss or damage of registered letters or packets.

INLAND PARCEL POST.

The rates of postage, to be prepaid in ordinary postage-stamps, will be for an inland postal parcel of a weight not exceeding 1 lb., 3*½* d.; and 1*½* d. for every succeeding pound.

Dimensions allowed—length, 3 feet 6 inches; length and girth combined, 6 feet.

Examples.—A parcel measuring 3 feet 6 inches in its longest dimensions may measure as much as 2 feet 6 inches in girth; or a shorter parcel may be thicker, *e.g.*, if measuring no more than 3 feet in length, it may measure as much as 3 feet in girth, *i.e.*, around its thickest part.

FOREIGN PARCEL POST.

Maximum weight—3 lb., 7 lb., or 11 lb.; rates from 7*½* d. per lb. to 2*½* s., 4*½* d. per lb., according to country. (See "Quarterly Postal Guide.")

TELEGRAPH MESSAGES.

Twelve words, *½* d.; every additional word, *½* d. Every word telegraphed is charged for, whether in addresses or text.

THERMOMETER.

COMPARISON BETWEEN THE SCALES OF FAHRENHEIT, REAUMUR, AND CENTIGRADE.

Cent.	Fahr.	Rmr.	Cent.	Fahr.	Rmr.	Cent.	Fahr.	Rmr.
100	212	80	50	122	40	Zero	32	Zero
99	210 <i>½</i>	79 <i>½</i>	49	120	39	1	30 <i>½</i>	0 <i>½</i>
98	208 <i>½</i>	78 <i>½</i>	48	118 <i>½</i>	38 <i>½</i>	2	28 <i>½</i>	1
97	206 <i>½</i>	77 <i>½</i>	47	116 <i>½</i>	37 <i>½</i>	3	26 <i>½</i>	1 <i>½</i>
96	204 <i>½</i>	76 <i>½</i>	46	114 <i>½</i>	36 <i>½</i>	4	24 <i>½</i>	2
95	203	76	45	113	36	5	23	2 <i>½</i>
94	201 <i>½</i>	75 <i>½</i>	44	111 <i>½</i>	35 <i>½</i>	6	21 <i>½</i>	3
93	199 <i>½</i>	74 <i>½</i>	43	109 <i>½</i>	34 <i>½</i>	7	19 <i>½</i>	3 <i>½</i>
92	197 <i>½</i>	73 <i>½</i>	42	107 <i>½</i>	33 <i>½</i>	8	17 <i>½</i>	4
91	195 <i>½</i>	72 <i>½</i>	41	105 <i>½</i>	32 <i>½</i>	9	15 <i>½</i>	4 <i>½</i>
90	194	72	40	104	32	10	14	5
89	192 <i>½</i>	71 <i>½</i>	39	102 <i>½</i>	31 <i>½</i>	11	12 <i>½</i>	5 <i>½</i>
88	190 <i>½</i>	70 <i>½</i>	38	100 <i>½</i>	30 <i>½</i>	12	10 <i>½</i>	6
87	188 <i>½</i>	69 <i>½</i>	37	98 <i>½</i>	29 <i>½</i>	13	8 <i>½</i>	6 <i>½</i>
86	186 <i>½</i>	68 <i>½</i>	36	96 <i>½</i>	28 <i>½</i>	14	6 <i>½</i>	7
85	185	68	35	95	28	15	5	7 <i>½</i>
84	183 <i>½</i>	67 <i>½</i>	34	93 <i>½</i>	27 <i>½</i>	16	3 <i>½</i>	8
83	181 <i>½</i>	66 <i>½</i>	33	91 <i>½</i>	26 <i>½</i>	17	1 <i>½</i>	8 <i>½</i>
82	179 <i>½</i>	65 <i>½</i>	32	89 <i>½</i>	25 <i>½</i>	18	0	9
81	177 <i>½</i>	64 <i>½</i>	31	87 <i>½</i>	24 <i>½</i>	19	2 <i>½</i>	9 <i>½</i>
80	176	64	30	86	24	20	4	10
79	174 <i>½</i>	63 <i>½</i>	29	84 <i>½</i>	23 <i>½</i>	21	5 <i>½</i>	10 <i>½</i>
78	172 <i>½</i>	62 <i>½</i>	28	82 <i>½</i>	22 <i>½</i>	22	7 <i>½</i>	11
77	170 <i>½</i>	61 <i>½</i>	27	80 <i>½</i>	21 <i>½</i>	23	9 <i>½</i>	11 <i>½</i>
76	168 <i>½</i>	60 <i>½</i>	26	78 <i>½</i>	20 <i>½</i>	24	11 <i>½</i>	12
75	167	60	25	77	20	25	13	12 <i>½</i>
74	165 <i>½</i>	59 <i>½</i>	24	75 <i>½</i>	19 <i>½</i>	26	14 <i>½</i>	13
73	163 <i>½</i>	58 <i>½</i>	23	73 <i>½</i>	18 <i>½</i>	27	16 <i>½</i>	13 <i>½</i>
72	161 <i>½</i>	57 <i>½</i>	22	71 <i>½</i>	17 <i>½</i>	28	18 <i>½</i>	14
71	159 <i>½</i>	56 <i>½</i>	21	69 <i>½</i>	16 <i>½</i>	29	20 <i>½</i>	14 <i>½</i>
70	158	56	20	68	16	30	22	15
69	156 <i>½</i>	55 <i>½</i>	19	66 <i>½</i>	15 <i>½</i>	31	23 <i>½</i>	15 <i>½</i>
68	154 <i>½</i>	54 <i>½</i>	18	64 <i>½</i>	14 <i>½</i>	32	25 <i>½</i>	16
67	152 <i>½</i>	53 <i>½</i>	17	62 <i>½</i>	13 <i>½</i>	33	27 <i>½</i>	16 <i>½</i>
66	150 <i>½</i>	52 <i>½</i>	16	60 <i>½</i>	12 <i>½</i>	34	29 <i>½</i>	17
65	149	52	15	59	12	35	31	17 <i>½</i>
64	147 <i>½</i>	51 <i>½</i>	14	57 <i>½</i>	11 <i>½</i>	36	32 <i>½</i>	18
63	145 <i>½</i>	50 <i>½</i>	13	55 <i>½</i>	10 <i>½</i>	37	34 <i>½</i>	18 <i>½</i>
62	143 <i>½</i>	49 <i>½</i>	12	53 <i>½</i>	9 <i>½</i>	38	36 <i>½</i>	19
61	141 <i>½</i>	48 <i>½</i>	11	51 <i>½</i>	8 <i>½</i>	39	38 <i>½</i>	19 <i>½</i>
60	140	48	10	50	8	40	40	20
59	138 <i>½</i>	47 <i>½</i>	9	48 <i>½</i>	7 <i>½</i>	41	41 <i>½</i>	20 <i>½</i>
58	136 <i>½</i>	46 <i>½</i>	8	46 <i>½</i>	6 <i>½</i>	42	43 <i>½</i>	21
57	134 <i>½</i>	45 <i>½</i>	7	44 <i>½</i>	5 <i>½</i>	43	45 <i>½</i>	21 <i>½</i>
56	132 <i>½</i>	44 <i>½</i>	6	42 <i>½</i>	4 <i>½</i>	44	47 <i>½</i>	22
55	131	44	5	41	4	45	49	22 <i>½</i>
54	129 <i>½</i>	43 <i>½</i>	4	39 <i>½</i>	3 <i>½</i>	46	50 <i>½</i>	23
53	127 <i>½</i>	42 <i>½</i>	3	37 <i>½</i>	2 <i>½</i>	47	52 <i>½</i>	23 <i>½</i>
52	125 <i>½</i>	41 <i>½</i>	2	35 <i>½</i>	1 <i>½</i>	48	54 <i>½</i>	24
51	123 <i>½</i>	40 <i>½</i>	1	33 <i>½</i>	1	49	56 <i>½</i>	24 <i>½</i>

BOTANIC GARDENS

IN THE UNITED KINGDOM.

BIRMINGHAM—Curator, W. B. 1*st* A. Kew—Director, W. T. T. Dyer, C.M.G.; Assistant Director, D. Morris; Curator, G. Nicholson; Cur. of Herbarium, Prof. Oliver. CHELSEA (London) — Curator, Laverpool—Curator, J. Richardson. DUBLIN (Glasnevin)—Curator, F. Moore. OXFORD—Curator, W. Baker. ROYAL BOTANIC, REGENT'S PARK.—Superintendent, W. Coomber. ROYAL HORTICULTURAL SOCIETY—Superintendent, A. F. Barron. SHEFFIELD—Curator, J. Ewing.

IN THE COLONIES.

MAURITIUS.

PORT LOUIS—Director, J. Horne. NATAL. DURBAN — Curator, J. Medley Wood. PRETORIA—Curator, H. Brice.

NEW SOUTH WALES.

SYDNEY—Botanic Garden Director, C. H. Moore, F.L.S.

NEW ZEALAND.

CHRISTCHURCH—Director, J. B. Armstrong.

QUEENSLAND.

BRISBANE—Director, J. Pink.

SOUTH AUSTRALIA.

ADELAIDE — Director, Dr. R. Schomburgk.

STRAITS SETTLEMENTS.

SINGAPORE—Director, J. Cantley.

TASMANIA.

HOBART TOWN — Director, C. Abbott.

VICTORIA.

MELBOURNE — Government Botanist, Baron F. von Müller, F.R.S.; Botanic Garden Curator, W. R. Guilfoyle, F.L.S.

WEST INDIES.

DOMINICA—Botanist, Dr. Nichols. JAMAICA—Director, W. Fawcett, F.L.S. TRINIDAD — Director, J. Hart, F.L.S.

TABLE SHOWING EQUIVALENT OF INCHES OF RAIN IN GALLONS AND WEIGHT PER ACRE.

Inches of rain	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1 in.
Gallons p. acre	2262	4525	6787	9049	11312	13574	15836	18098	20360	22622
Gallons p. acre	2262	4525	6787	9049	11312	13574	15836	18098	20360	22622

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for as inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending Jan. 2.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 4, 1887.	Below 42° difference from Mean since Jan. 4, 1887.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	4 below	0	51	+ 20	+ 153
1. SCOTLAND, E. ...	4 below	0	64	+ 44	+ 120
2. ENGLAND, N.E. ...	4 below	0	54	- 108	+ 144
3. ENGLAND, E. ...	6 below	0	70	- 176	+ 294
4. MIDLAND COS. ...	6 below	0	70	- 144	+ 284
5. ENGLAND, S. ...	8 below	0	67	- 218	+ 247
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	4 below	0	48	- 110	+ 132
7. ENGLAND, N.W. ...	6 below	0	54	- 123	+ 180
8. ENGLAND, S.W. ...	7 below	0	51	- 184	+ 272
9. IRELAND, N. ...	5 below	0	41	+ 73	+ 46
10. IRELAND, S. ...	6 below	0	43	+ 62	+ 153
— CHANNEL ISLANDS	6 below	2	29	- 154	+ 98

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 4, 1887.	Total Fall since Jan. 4, 1887.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 4, 1887.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	5 less	241	41.5	13	22
1. SCOTLAND, E. ...	5 less	183	24.8	13	31
2. ENGLAND, N.E. ...	2 less	174	20.5	7	31
3. ENGLAND, E. ...	3 less	165	19.1	25	39
4. MIDLAND COS. ...	4 less	143	19.5	11	35
5. ENGLAND, S. ...	4 less	150	21.8	19	38
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	7 less	181	39.0	5	34
7. ENGLAND, N.W. ...	5 less	163	25.4	8	35
8. ENGLAND, S.W. ...	6 less	159	28.5	20	44
9. IRELAND, N. ...	5 less	188	32.5	8	31
10. IRELAND, S. ...	4 less	158	28.6	15	39
— CHANNEL ISLANDS	6 less	181	25.9	39	48

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

ADAMANTUM CUNEATUM: *H. H.* The frond is crippled; it is not a sport.

ADVERTISEMENTS: *J. A. C.* We entirely sympathise with you; but there are considerations, especially financial, which even an Editor cannot afford to overlook, and this is one of them.

AZALEA MISS JARRETT: *R. D.* The variety Miss C.

Jarrett was shown for the first time, with many other fine varieties new to growers on this side of the Channel, by M. Louis Van Houtte, on May 12, 1885. It is creamy-white, with bright green spots on the upper segments. The flower is fringed at the edge.

BOOKS: *G. N.* See our list of books in this week's issue, p. 10.

BRUGMANSIAS: *M. Freeman.* The plants will do very well stood out in a warm sheltered spot during the summer, and should be again put under glass in September. Plants needing more root room may be potted in April or July. The drainage should be ample, and the compost may consist of loam, one-half; peat, one-quarter; burnt earth or leaf-mould, one-quarter; some coarse sand being added to keep the soil open. During the growing period, and when well rooted, the plants may be watered with some weak manure-water, or a layer of deers' droppings may be spread on the surface of the soil. The object should be to make short-jointed floriferous wood rather than rampant growth, which would scarcely get ripe by the end of the autumn; and consequently cramping the roots in rather small pots or tubs is to be preferred to too much room for the roots to run into. In the period from October to the middle of March the watering should be thorough, and applied only when the ball of earth is moderately dry.

BUILDING AT SOUTH KENSINGTON: *Reader.* According to the terms of the agreement the conservatory and all other buildings fall into the hands of the Commissioners.

CHRYSANTHEMUMS AT 4 FEET IN HEIGHT: *H. H.* Train up a main shoot from the cutting, and in June cut it down to about 4 inches from the soil; select three or four of the shoots that result from that operation, and grow the plant quickly by the aid of good soil and stimulating manure.

DEAD GARDENIAS: *B. Ashton.* We have examined the plants sent, but fail to find anything wrong with the roots, although the stem and crown of the root are dead. The appearances point either to some injurious substance having been poured on the soil near the plants, or to constant watering with very cold water, and which has been allowed always to strike the stem.

LÆLIA: *J. W. M.* Very bright form of *Lælia* anceps.

NAMES OF FRUITS: *J. R. H.* Blenheim Orange.—*J. F. L.*, *Dublin*, 1, not recognised; 2, Calville St. Sauveteur.

NAMES OF PLANTS: *W. Earley.* An Aster, but the specimen is insufficient.—*C. M. S.* Bougainvillea spectabilis, probably.—*M. E. B.* Ile mionitis palmata.—*W. S.* *Lælia* anceps.—*G. Humphrey.* The larger spike is a fine one of *Angracum eburneum*, and the other *A. e. virens*.—*W. J. A.* 1, *Cypripedium barbatum*; 2, *C. venustum*; 3, *Dendrobium Linawianum*, generally known in gardens as *D. moniliforme*.—*Filix.* Probably a fragment of some *Hymecophyllum*.

ORCHID FOLIAGE: *J. B. D.* The leaves have the appearance of being in a too warm temperature and too little ventilation. The punctures made by aphid when the leaf is young will likewise appear as spots later on.

PEACH SHOOTS DROPPING THEIR BUDS: *J. M.* The shoots are imperfectly ripened, and may have cast the buds on the less well ripened wood from that cause, or the border is in a dry state. Peach-tree borders want an abundance of water during autumn and winter if the trees are to be kept in health.

PLANT IN LEAD MINE: *H. A. C. J.* The specimen you send is one of the curious things once called *Rhizomorpha*, and consisting of the threads or hyphae of some fungus, it is impossible to say which.

CATALOGUES RECEIVED.

IAELAND & THOMSON, 81, Princes Street, Edinburgh, N.B.—Vegetable and Flower Seeds, and Hybrid Gladioli.

C. FIDLER, Reading, Berks—Vegetable Seeds and Seed Potatoes.

ROBERT VEITCH & SON, 54, High Street, Exeter—Kitchen Garden and Flower Seeds.

W. COTCHEN & SON, Highgate, London, N.—Flower, Vegetable, and Farm Seeds.

JOHN DOWNIE, 144, Princes Street, Edinburgh—Garden Seeds.

THOS. MATHVEN & SONS, 15, Princes Street, Edinburgh, N.B.—Garden, Flower, and Agricultural Seeds.

WILLIAM FELL & Co., Hexham—Spring Seed Guide.

BARR & SON, 12 and 13, King Street, Covent Garden, London, W.C.—Flower and Kitchen Garden Seeds.

HARRISON & SONS, Leicester—Seeds.

J. C. WHEELER & SONS, Gloucester—Seed List.

T. C. HEINEMANN, Hoflieferant, Erfurt, Germany—General Seed and Plant List.

PETER LAWSON & SON (LIMITED), 1, George IV. Bridge, Edinburgh, N.B.—Trade Seed List.

H. & F. SHARPE, Wisbech, Cambridgeshire—Wholesale Seed Catalogue.

OAKSHOTT & MILLARD, Reading—Seed List.

CARTER, PAGE & Co., 53, London Wall, City, London—Garden and Agricultural Seeds.

W. B. SMALE, 30 and 31, Fleet Street, Torquay—Seeds.

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

R. & G. CUTHBERT, Southgate, London, N.—Garden and Farm Seeds.

COMMUNICATIONS RECEIVED.—*K. A. L.*—*J. Inglis*.—*N. S.*—*H. Gay*.—*R. G.*—*J. B.*—*W. S.*—*R. A.*—*R.*—*J. Downie*.—*F. S.* & Co.—*Wild Rose*.—*Dr. Solereder*, Munich. —*J. J. Willis*.—*V. C.*—*C. M.*—*E. P.*, Ghent. —*H. A. C. J.*—*W. E. G.*—*M. F.*—*A. H. S.*—*T. M.*—*Felix*.—*W. B. J.*—*H. H. D'O.*—*J. T.*—*B. H. W.*—*W. J. A.*—*Professor Cornu*, Paris. —*R. D.*—*M. Naudin*, Antibes. —*J. D.*—*H. P.*—*R. J. S.*—*M. B.*—*Middleburgh*.—*M. De Mer*, Boston (anticipated). —*S. & Co.*—*L. Linden*.—*J. B. B.*—*W. P.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, January 5.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted are averages for the past week, must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

No alteration to report this week. *James Webber*, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 3	3 6	Melons, each	0 6	2 0
Grapes, per lb.	1 0	3 0	Pears, ½-sieve	2 6	6 0
— Channel Isl., lb.	1 0	1 8	— French, dozen	1 0	1 8
Kent Cobs, 100 lbs.	50	0	Pine-apples, Eng., lb.	1 0	2 0
Lemons, per case	12	0	— St. Michael, each	2 0	5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, p. dozen	6	0	Mustard and Cress, punnet	0 4	...
Beans, Kidney, lb.	0 9	...	Onions, per bushel	6 0	...
Beet, red, per dozen	1 0	2 0	Parsley, per bunch	0 6	...
Brus. Sprouts, lb.	0 4	...	Potatoes, per cwt.	4 0	5 0
Carrots, per bunch	0 6	...	— kidney, per cwt.	4 0	5 0
Cauliflowers, each	0 6	...	Rhubarb, per bundle	0 6	...
Celery, per bundle	1 6	2 0	Swakale, punnet	1 6	2 0
Cucumbers, each	1 0	2 6	Shallots, per lb.	0 6	...
Endive, per dozen	2 0	...	Spinach, per bushel	3 0	...
Green Mint, bunch	1 0	...	Spruce, per bundle	1 0	...
Herbs, per bunch	0 4	...	Tomatoes, per lb.	1 0	2 0
Leeks, per bunch	0 6	...	Turnips, per bushel	0 8	...
Lettuce, per dozen	1 6	...			
Mushrooms, punnet	1 0	1 6			

POTATOS.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Duobair Magnums and Regents, 95s. to 100s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	15 0	Evergreens, in var., per dozen	6 0	24 0
Azalea, per dozen	30	42 0	Ficus elastica, each	1 6	7 0
Bouvardia, per dozen	9 0	12 0	Foliage plants, vari		
Chrysanthemums, per dozen	12	0	— ciss., each	2 0	10 0
Cyclamen, per dozen	12	0	Hyacinths, doz.	9 0	12 0
Cyperus, per dozen	4 0	12 0	Lily of Valley, 12 pts.	18	0
Dracena terminalis, per dozen	30	0	Marguerites, doz.	9 0	12 0
— viridis, per doz.	9 0	24 0	Myrtles, per dozen	6 0	12 0
Epiphyllum, doz.	12	0	Palms, in var., each	2 6	21 0
Ericas, various, doz.	9 0	18 0	Pelargoniums, scar-		
Eucalyptus, in var., per dozen	6 0	13 0	— let, per dozen	3 0	6 0
Ferns, in var., doz.	4 0	18 0	Polioetia, doz.	12	0
			Primula sinensis, doz.	4 0	6 0
			Solanum, per dozen	9 0	12 0
			Tulips (pots of), doz.	8 0	9 0

OCT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilons, 12 bun ... 3 0-6 0	Narciss., paper white, ... 6 0-12 0
Arum Lilies, 12 blms. 6 0-9 0	Fr., 12 bunches ... 6 0-12 0
Azaleas, 12 sprays ... 1 0-1 6	Pelargoniums, 12 spr. 1 0-1 6
Bouvardias, per bun. 0 6-1 0	— scarlet, 12 spr. ... 0 8-1 0
Camellias, 12 blms. ... 3 0-8 0	Primulas, double, 12 ... 1 0-1 6
Carnations, 12 blms. 1 0-3 0	sprays ... 1 0-1 6
Chrysanth., 12 bun. 12 0-30 0	— single, 12 bun. ... 4 0-6 0
— large, 12 blooms 2 0-6 0	Roses, Tea, per doz. 1 8-4 0
Cyclamens, 12 blms. 0 6-1 0	— coloured, dozen. 2 0-4 0
Eucharis, per dozen 5 0-6 0	— red, per dozen ... 2 0-3 0
Gardenias, 12 blooms 0 0-15 0	— Safrano, dozen ... 1 6-3 0
Holotrope, 12 spr. 0 6-1 0	Tuberose, 12 blms. ... 0 9-1 6
Helibore, or Christ- ... 0 9-2 0	Tulips, 12 blooms ... 0 9-1 6
Moss, Rose, 12 blms. 0 9-2 0	Violets, 12 bunches ... 1 0-1 6
Hyacin., Rom., 12 spr. 0 6-1 0	— French, bunch. ... 1 6-3 6
Lily of Valley, 12 spr. 0 9-1 6	— Fr. Parme, bun. 5 0-7 0
Marguerites, 12 bun. 3 0-6 0	White Lilac, French, ... 6 0-7 0
Mignonette, 12 bun. 3 0-6 0	per bunch ... 6 0-7 0
Poinsettia, 12 blms. 6 0-9 0	

SEEDS.

LONDON: January 4.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report more disposition to purchase Clover seeds. Prices being now low, and stocks generally exceedingly moderate, the outlook of the approaching spring business is regarded as extremely healthy. Clover seeds all round are this week without quotable variation. Higher rates are demanded for Alsike. Full prices are obtained for Italian Rye grass on account of the lightness of stocks. There is no change to be noted in Canary seed. Hemp seed continues in favour at firmer figures. More money is wanted for Haricot Beans. The Blue Pea trade is slow. Feeding Linseed tends upwards.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended December 31, 1887:—Wheat, 30s. 9d.; Barley, 29s. 3d.; Oats, 16s. 1d. For the corresponding week in 1886:—Wheat, 36s.; Barley, 25s. 11d.; Oats, 17s. 9d.

FRUIT AND VEGETABLES.

COLUMBIA: January 4.—Moderate supplies of all kinds of fresh vegetables. Trade steady; prices fair. The Potato trade still languid. Quotations:—Cauliflowers, 2s. to 6s. per dozen; Savoy, 3s. to 4s. do.; Brussels Sprouts, 3s. 6d. to 4s. per half-sieve; Spinach, 2s. per sieve; Sprouting Broccoli, 2s. to 2s. 6d. do.; Parsnips, 1s. to 1s. 6d. per score; Celery, 9d. to 1s. per bundle; Seakale, 1s. do.; Greens, 3s. to 4s. per dozen bunches; Turnips, 2s. to 2s. 6d. do.; Carrots, 2s. to 3s. 6d. do.; Beetroots, 1s. 9d. to 2s. do.; Horseradish, 1s. 6d. to 2s. per bundle; Onions (English), 8s. to 9s. per cwt.; foreign, do., 7s. to 8s. per bag of 110 lb.; English cooking Apples, 3s. 6d. to 5s. 6d. per bushel; do. dessert, 4s. 6d. to 7s. 6d. do.; American Apples, 9s. to 16s. per barrel.

STRATFORD: January 3.—Good supplies of all kinds, and fair trade at the following quotations:—Cabbages, 6s. to 8s. per tally; Savoy, 7s. to 9s. do.; Greens, 2s. 6d. to 4s. do.; Turnips, 3s. per dozen bunches; do., 50s. to 50s. per ton; Carrots, household, 35s. to 40s. do.; do., 3s. 6d. per dozen bunches; Parsnips, 6d. to 1s. per score; Mangels, 20s. to 22s. per ton; Swedes, 20s. to 22s. do.; Onions, English, 8s. to 9s. per case; do., Spanish, 8s. to 9s. per case; Apples, English, 3s. to 5s. per bushel; do., American, 15s. per barrel; Brussels Sprouts, 3s. 6d. per sieve; Celery, 6s. to 8s. per dozen rolls; Oranges, 7s. to 9s. per case.

POTATOS.

BOROUGH AND SPITALFIELDS: January 3.—Moderate supply; dull. Quotations:—Regents, 70s. to 110s.; Magnum Bonums, 80s. to 100s.; Hebrons, 80s. to 110s.; Champions, 60s. to 70s. per ton.

COLUMBIA (East London): January 4.—Quotations:—Beauty of Hebron, 80s. to 100s.; Regents, 55s. to 75s.; Magnums, 60s. to 75s.; Champions, 55s. to 65s.; Victorias, 55s. to 70s. per ton.

STRATFORD: January 3.—Quotations:—Magnums, 50s. to 80s.; Regents, 70s. to 100s. per ton.

Imports.—The imports into London last week consisted of 3061 bags from Harlingen, 20 Brussels, 385 Hamburg, 158 boxes Cadiz.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 80s. to 98s.; inferior, 65s. to 82s.; hay, prime, 70s. to 91s.; inferior, 45s. to 75s.; and straw, 27s. to 40s. per load.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

JENSEN'S FISH-POTASH GUANO.

Every grain fertilizes because the Guano is perfectly pure. It is most economical, one part of Manure to 100 parts of soil being ample for garden use.

FISH-POTASH contains Ammonia, Phosphates and Potash in large proportions, which are the principal elements of fertilization.

GUANO—2-lb. Tins, 1s.; in Bags, 7 lbs., 2s.; 14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d.; 1 cwt., 16s.; 2 cwt., 30s. Special terms for larger quantities. Analysis guaranteed.

J. JENSEN & CO. LIMITED.
109, Fenchurch Street, London, E.C.

PEAT and SAND.—Light Brown PEAT for Nursery and Greenhouse Work, in four-ton trucks of 10 yards each, at 10s. per yard. In bags at 2s. 6d. per bag. Rhododendron and American Plant Beds, at 15s. per ton. Orchid Peat, 5s. per bag. Fresh SPHAGNUM, 7s. 6d. per bag. SILVER SAND, coarse or fine, 13s. per ton. WALKER AND CO., Farnboro' Station, Hants.

ECONOMY IN THE GARDEN

WOOD & SON
WOOD GREEN

A Sterling Novelty for 1888.

"FERTILIZING MOSS."

Intelligent Plant Growers will find this medium for Plant Culture to be eminently useful.

It suits both Soft and Hard-wooded Plants, Ferns, ORCHIDS, and Succulents.

(Of a totally different character to the "Dunesil" Fertilized Moss.)

This is the quality so successfully used by Mr. Roberts at Gunnersbury for Bouvardias and Gloxinias; see *Gardeners' Chronicle*, December 31 and November 12, 1887. Seed for full particulars, testimonials, and prices to the Sole Manufacturers.

W. WOOD & SON, Wood Green,
LONDON, N. ESTABLISHED 1850.

GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d.
PEAT, best black fibrous ... 4s. 6d. ... 5 sacks for 20s.
PEAT, extra selected Orchid ... 7s. 6d. ... 5 sacks for 30s.
LOAM, PREPARED COMPOST } 1s. per bush, 5s. per sack
LEAF, or PEAT MOULD ... (sacks included)
SILVER SAND, coarse, 1s. 6d. per bush, 14s. half-ton, 24s. ton.
RAFFIA FIERE, best only ... 1s. per lb.
TOBACCO CLOTH, or PAPER ... 8d. lb.; 28 lb., 18s.
SPHAGNUM MOSS, all selected, 3s. per bush, 15s. per sack.
CHUBB'S "PERFECT" FERTILIZER ... IN BAGS.

TILISER (the Best Food for all kinds of Plants, Flowers, &c. (Tins. 7lb. 14lb. 28lb. 56lb. 1cwt. Fruits, Vegetables, &c. ... 1/6 3/- 5/- 8/- 14/- 22/-)

CRUSHED BONES, or Bone Dust 1/2 2/- 3/6 6/- 12/-

VIRGIN CORK (Best Quality only) — 3/- 5/6 10/6 17/-

RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE OF SODA, HORTICULTURAL CHARCOAL, &c.

PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, 2s. per ton. Extra large Sample Bales, 6s. each.

COCO-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 3d. each; 10 sacks, 11s.; 15 sacks, 15s.; 20 sacks, 18s.; 30 sacks, 25s.; 40 sacks, 30s.; Truck-load, loose, free on rail, 28s. Limited quantities of G., special quality granulated, in sacks only, 2s. each. Terms, strictly Cash with order. (Bankers, Union Bank of London.)

CHUBB, ROUND & CO.,
WEST FERRY ROAD, MILWALL, LONDON, E.

CARSON'S PAINT

Patronised by 18,000 of the Nobility, Gentry, and Clergy, for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations. Non-Poisonous Paints for Inside Work, Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C.
BACHELOR'S WALK, DUBLIN.—Discount for Cash.

Bonea—Bonea—Bonea!
CRUSHED BONES in all sizes for Vine Borders, Lawns, Potting, Grass Lands, &c.; also BONE MEAL for Poultry Feeding, Garden GUANO, dissolved BONES, and special MANURES for all purposes. For prices, apply to HARRISON, BARBER, AND CO. (Limited), Garratt Lane, Wandsworth, Surrey, S.W.

GARDEN REQUISITES,

of best quality, as supplied to the Royal Gardens, &c.
BEST COCOA-NUT FIBRE REFUSE, 10 sacks for 10s., 15 for 14s., 20 for 18s., 30 for 25s.; two ton truck, 28s. Free on rail.
RUSSIA MATS, from 12s. to 18s. per dozen.
FINEST ORCHID PEAT, 7s. per sack.
BEST BROWN FIBROUS PEAT, 5s. per sack, 5 for 22s. 6d.
BEST BLACK FIBROUS PEAT, 4s. 6d. per sack, 5 for 20s.
COARSE SILVER SAND, 1s. 6d. per bushel; 14s. 4-ton.
PURE LEAF-MOULD, 6s. per sack. [25s. per ton.]
YELLOW FIBROUS LOAM 3s. per sack.
BEST MUSHROOM SPAWN, 4s. per bushel.
RAFFIA, LABELS, STICKS, BAMBOO CANES, VIRGIN CORK, CHEMICAL MANURES, &c.
SPHAGNUM MOSS, 6s. per sack. CHARCOAL, 8s. per sack.
SPECIALIST TOBACCO PAPER and CLOTH, each 8d. per lb.
28 lb. for 18s. Price List free by post.
W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

PEAT for ORCHIDS,

AZALEAS, HEATHS, FERNS, RHODODENDRONS, and other choice Plants.
The Best in the World.
A. JOHNSON AND CO., 23, Leadenhall Street, London, E.C., continue to receive the highest testimonials (unsolicited) from large Orchid Growers, stating the ORCHID PEAT supplied by A. J. & Co. is by far the best they have ever used. Samples can be seen at above address, or forwarded on application, free of charge.
A. JOHNSON AND CO. have NO Authorised Agents representing their Peat Estates.

EPPS'S SELECTED PEAT ORCHID PEAT SPECIAL

PEAT FOR AZALEAS, HEATHS, FERNS, RHODODENDRONS, &c.
For general purposes. Loam, Sand, Leaf-Mould, Sphagnum, Cocoa-Nut Fibre, Charcoal, and all kinds of Nursery Stock, at the old-established Horticultural Sundries Depot and Nurseries, Ringwood, Hants. For Price List apply EPPS & CO.

TREPHO FOR ORCHIDS.

For Potting, Rafts, Blocks, &c. To be obtained only from BENJAMIN FIELD, F.R.B.S., F.R.H.S., 75A, QUEEN VICTORIA STREET, E.C.; and SWAN PLACE, OLD KENT ROAD, S.E.

CATALOGUE of all HORTICULTURAL REQUISITES post-free. POTTERY of all descriptions.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 18 ounces as winter dressing for Vines and Orchard-house Trees; and in later from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

CHEAP HORTICULTURAL GLASS.

Packages and packing free, and delivered to any London Station. 100 squares of Glass, quality guaranteed.

15 oz. 21 oz.
13½ by 8½ for 10/- for 14/-
12 " 9 " 10/- " 14/- or 300 squares 15 ounce, 8 by 6,
12 " 10 " 11/- " 15/6 or 250 squares 8½ by 6½, or 220
14 " 10 " 13/- " 19/- squares, 9½ by 6½, or 170 squares,
14 " 12 " 17/6 " 24/- 9 by 7½, or 150 squares, 10 by 8,
12 " 12 " 13/- " 20/- for 10s. Carriage paid for all orders
18 " 12 " 21/- " 31/- over £3.
20 " 12 " 24/- " 35/-

Glass cut to any size at the above proportionate prices. Best LINSEED-OIL PUTTY. PAINTS, ready mixed for use, in tins of 1 lb. to 14 lb., at 5d. per pound. Special quotations given for large quantities.

J. B. ROBINSON,
WHOLESALE LEAD AND GLASS WAREHOUSE,
14, Moor Lane, Cripplegate, London, E.C.

To Nurserymen, Seedmen, and Florists.
W. PETERS AND SONS, 44, Tenter St., South, Goodman's Fields, London, E., are now selling, at extremely Low Prices, New Season's best quality heavy full-size Archangel Mats; also St. Petersburg MATS, Packing MATS, and RAFFIA. Prices on application to above address.

Hyacinths in Pots.
POTS made expressly for HYACINTHS can be supplied by J. MATTHEWS, Royal Pottery, Weston-super-Mare. Price List free.

Rhubarb and Seakale Forcing.
STRONG, well-made POTS for the above can be supplied by J. MATTHEWS, Royal Pottery, Weston-super-Mare. Price List free.



THOMAS GREEN & SON, LIMITED,

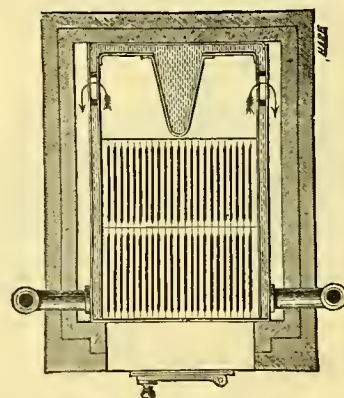
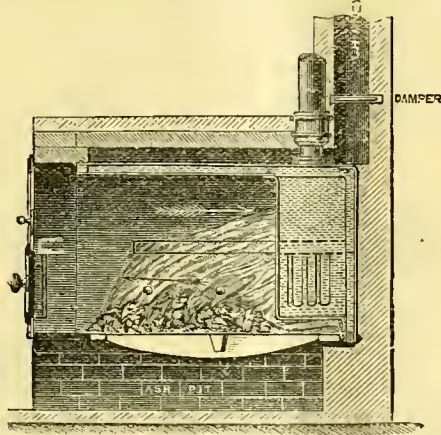
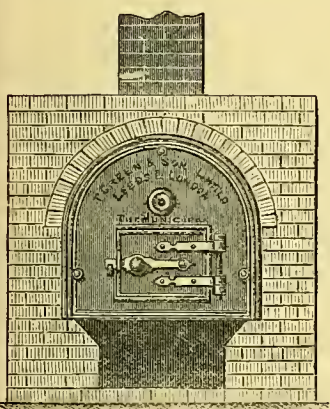
SMITHFIELD IRONWORKS, LEEDS, AND SURREY WORKS, BLACKFRIARS ROAD, LONDON, S.E.,
 HORTICULTURAL ENGINEERS to HER MAJESTY THE QUEEN, call Special Attention to their
**PATENT WROUGHT-IRON MUNICIPAL OR ANGULAR CHAMBERED AND TUBULAR
 HOT-WATER BOILERS,**

And others with **SHELVES**, and **Hollow or Ordinary Cast-iron GRATE BARS.**

SADDLE BOILERS, With **WATERWAY BACKS** and **WELDED BOILERS**, any of which are specially adapted for Heating Greenhouses, Conservatories, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c. They are the neatest, cheapest, most effective, and durable of any extant.

The **MUNICIPAL** and **TUBULAR** ones are remarkable for their great heating power, slow combustion, and the length of time the fire will burn without requiring attention.

These Patterns secured the **FIRST** and **HIGHEST PRIZE** a **SILVER MEDAL**, at the Royal Horticultural Society's Exhibition, South Kensington, London, June 1, 1881.



The longitudinal section gives a view of the fire-box, water space, flues, &c.

The cross section gives a view of the fire-box, water space and V-shaped back.

The front elevation shows it set in brickwork, which is necessary for this class of boiler.

SIZES AND PRICES.

	3 ft. 2 in. long	by 2 ft. 0 in. wide	by 2 ft. 0 in. deep		1000 ft.	Price £15 0 0
M B 1	4 0	by 2 0	by 2 0	Calculated to heat 4-in. piping as follows:—	1280	21 0 0
M B 2	5 0	by 2 3	by 2 6		2200	32 0 0
M B 3	6 6	by 3 0	by 3 0		4000	60 0 0
M B 4	8 6	by 4 0	by 3 9		7000	85 0 0
M B 5						

TESTIMONIALS.

MESSRS. THOS. GREEN AND SON, LTD., NORTH STREET, LEEDS.

Re HEATING APPARATUS.

Borough Engineer's Office, Municipal Buildings, Leeds, January 9, 1886.

GENTLEMEN,—I have great pleasure in bearing testimony to the efficiency and satisfactory working of the Hot-water Heating Apparatus you erected in these public buildings. The buildings are four storeys high, and we have a total length of about 28,000 feet of piping in them, varying in size from 1½ in. to 6 in. diameter, with their connections, &c. The several offices and rooms can all be in operation at one time or separately, and the heat regulated by means of the valves to the temperature required, even in the coldest weather.

Two of your Patent Municipal Pattern Boilers, No. 4, work the whole of this piping easily, although we have three of them fixed. They are very powerful and economical in the consumption of fuel, and I am pleased to be able to report of them and the apparatus so favourably.

I am, Gentlemen, yours truly, THOS. HEWSON, Borough Engineer.

GENTLEMEN,—The large Municipal Boiler which you sent me last year is doing its work satisfactorily; it is heating 5,000 feet of 4-inch. pipe in one of my vicarages, and I am quite sure that it has power to work a much greater length, while in cost of fuel it compares favourably with my other Boilers.

I have now five of your Boilers in use, and I cannot speak too well of their heating powers, or their comparatively small consumption of fuel.

Yours faithfully, (Signed) G. W. BASHFORD.

AND HUNDREDS OF OTHER REFERENCES CAN BE GIVEN IF REQUIRED.

CONTRACTORS TO HER MAJESTY'S WAR DEPARTMENT.

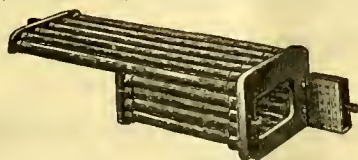
THE THAMES BANK IRON COMPANY,

UPPER GROUND STREET, LONDON, S.E.

(Telegraphic Address—"Hot Water," London; Telephone, No. 4763), have the Largest and Most Complete Stock in the Trade.

THE NEW HORIZONTAL TUBULAR BOILER.

This Boiler is made in several sizes from 6 feet 6 in. long, and is fitted with Water Bars, as shown in the illustration. The Furnace Door being hung upon the front of Boiler is complete in itself, thus ensuring the same of simplicity in fixing.



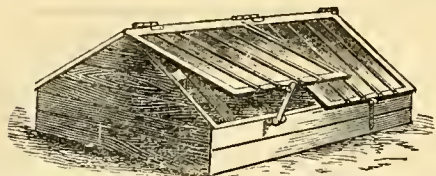
Illustrated CATALOGUE, Price 1s.
 Price LIST on application, free.

CAST-IRON SADDLE BOILER, WITH WATERWAY END,

and every other Boiler of known merit, kept in Stock.

HOT-WATER PIPES, CONNECTIONS, and all Castings for Horticultural Purposes.

HOT-WATER and HOT-AIR APPARATUS Erected Complete, or the Materials supplied.



PORTABLE PLANT FRAMES.

The above are without exception the most useful kind of Frame for Plant Growing, and every one with a garden should possess one. The sashes turn right over one-on to the other, and the boxes are put together with wedges, and can be taken apart in a few minutes. Sizes and prices, carriage paid to any station in England, ready glazed and painted:—

6 feet long, 4 feet wide, packing cases free	£2 15 0
12 feet long, 4 feet wide, " " "	4 15 0
6 feet long, 5 feet wide, " " "	3 15 0
12 feet long, 5 feet wide, " " "	6 10 0

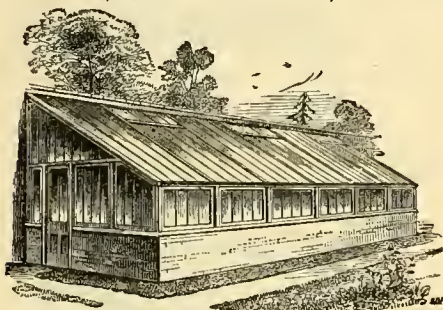
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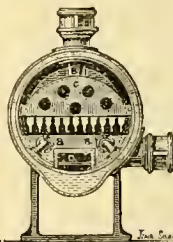
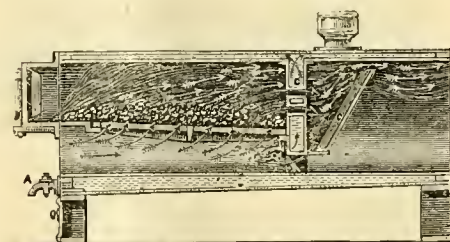
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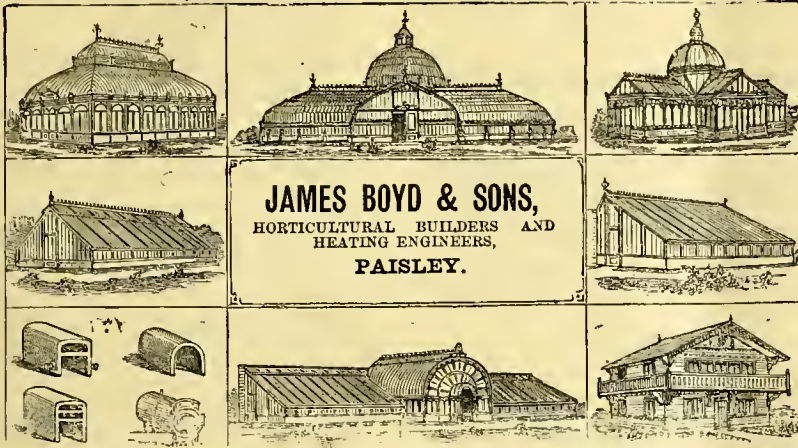
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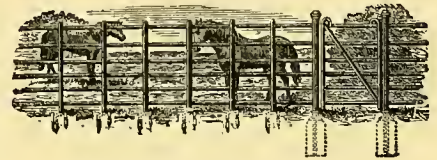
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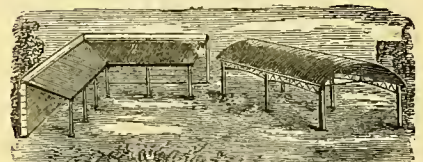
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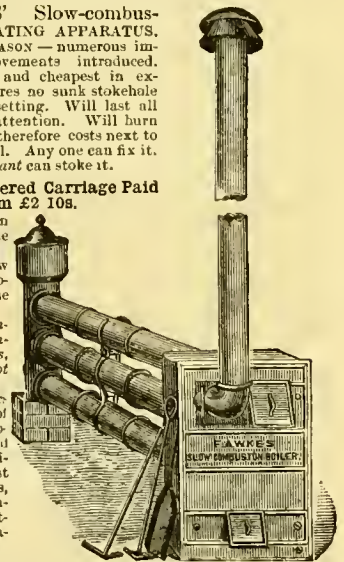
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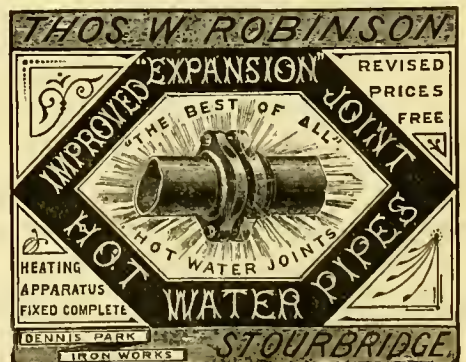
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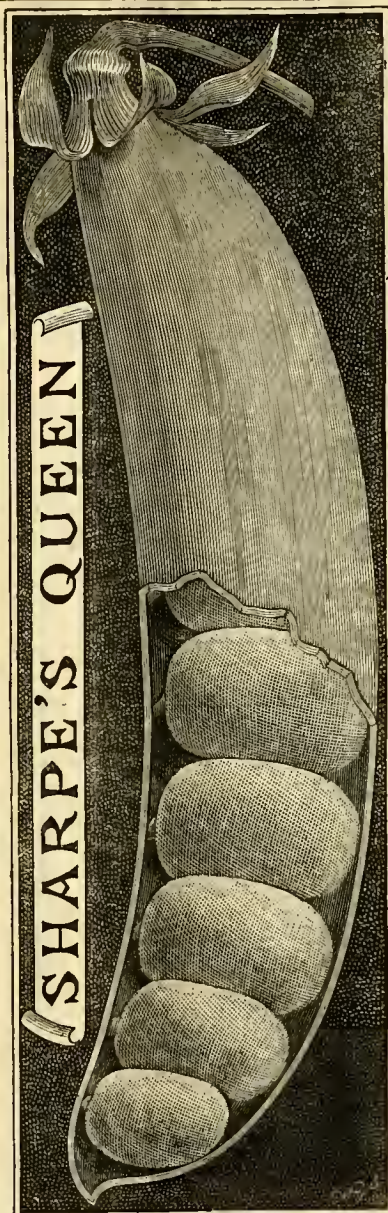
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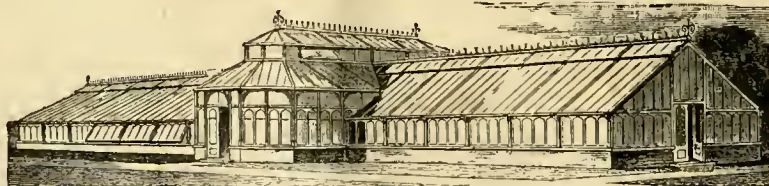
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ESTABLISHED 1841.
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Monday Next.—(Sale No. 7598.)

IMMENSE IMPORTATIONS from JAPAN, &c.
20,000 Grand Bulbs of LILIUUM AURATUM, lotted to suit large and small buyers (some in cases received); LILIUUM SPECIOSUM ROSEUM, CYCAD trunks, 7000 NARCISSUS, DRIED GRASS, &c., from Japan, received direct; also a fine lot of Home-grown LILIES, including many of the leading varieties; LILY of the VALLEY in Clumps and Crowns; SPIRÆA JAPONICA, DIELYTRAS, GLADIOLI, and other BULBS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden W.C., on MONDAY NEXT, January 16, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

Several hundred choice named Standard and Dwarf ROSES, Pyramid and Dwarf-trained FRUIT TREES of sorts, ORNAMENTAL SHRUBS, CONIFERS, a fine lot of Hardy BORDERS, LILY of the VALLEY, clumps and crowns; SPIRÆA, LILIUUMS, GLADIOLI, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, January 18 and 21, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7601.)

Special Sale of ORCHIDS in Flower and Bud.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 19, instead of WEDNESDAY, January 18, as previously announced, at half-past 12 o'clock precisely, a choice Collection of ORCHIDS in Flower and Bud, including a splendid plant of Veitch's celebrated long-leaved variety of Cattleya exoniensis, fine pieces of Cypripedium Laccanum superbum, Oncidium macranthum, Phalenopsis Stuebeliana, P. Sanderiana, Cypripedium Domatius, &c.; also 300 strong Odontoglossums, mostly unflowered; 50 fine Dendrobies, Aerides, 3 cases of Araucaria excelsa as received, &c.

On view morning of Sale, and Catalogues had;

Wednesday Next.

8000 LILIUUM AURATUM, splendid Bulbs, 1500 LILIUUM SPECIOSUM RUBRUM and ALBUM, just received in unusually fine condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, January 18.

On view mornings of Sale, and Catalogues had.

Wednesday and Saturday Next.

SALES of Standard and Dwarf ROSES, GREENHOUSE PLANTS, PALMS, a consignment of CAMELLIAS, AZALEAS, and other plants from Belgium; LILIUUM AURATUM from Japan, an extensive assortment of English-grown LILIES, including most of the principal varieties, JONQUILS, DAFFODILS, LILY of the VALLEY, TUBEROSES, and Dutch BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, January 18 and 21, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Friday Next.

DENDROBIUM FRIDRICKSIANUM, new species. For full description, see *Gardeners' Chronicle*, Nov. 28 last. A few plants of this new Dendrobium collected and sent home alive, by Mr. C. Rothele, and being the only plants received alive.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on FRIDAY NEXT, January 20, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Friday Next.

ODONTOGLOSSUM HARRYANUM,

specially fine lot.

VANDA CŒRULEA

CŒLOGYNE OCELLATA,

ZYGOPETALUM MACKAYI, fine masses.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 20, at half-past 12 o'clock precisely, a quantity of the beautiful ODONTOGLOSSUM HARRYANUM, in fine health; the rare and large blue-flowered VANDA CŒRULEA, with sound foliage and healthy roots. Also fine importations of CŒLOGYNE OCELLATA, comprising masses of unusual size, and in the best order. ZYGOPETALUM MACKAYI, fine masses, well furnished with breaks; Pleione Wallichianum, P. humilis, large masses of Cymbidium giganteum, a very fine lot of C. Mastersii, with sound green leaves; Dendrobium densiflorum, Aerides cylindricum, Miltonia Clowesi, large masses; Colax jugosus, the rare and extremely beautiful Oncidium curtum, fine healthy plants of Lælia cinnabarina, Scuticaria Hardweni, Cattleya Dormaniana, Ionopsis paniculata, Stanhopea oculata, Cattleya crispata, fine importations from the Roraima Mountains, and many other ORCHIDS. Also splendid plants of the rare Utricularia nelumbifolia and U. Krameriana.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 20, at half-past 12 o'clock precisely, a quantity of the beautiful LÆLIA ELEGANS, several plants of CATTLEYA SCHILLERIANA, and also a fine new CATTLEYA, a natural Hybrid, found in Santa Catharina, and a cross between Cattleya Leopoldi and C. intermedia. The plant has been seen in bloom by Mr. O'Brien, and a description of the flowers will appear in the Catalogue.

On view morning of Sale, and Catalogues had.

Friday Next.

About 40 choice lots of ESTABLISHED ORCHIDS, including unique specimens, the property of an Amateur.

MESSRS. PROTHEROE AND MORRIS will include the above in their ORCHID SALE on FRIDAY NEXT, January 20.

On view morning of Sale, and Catalogues had.

Friday Next.

UTRICULARIA NELUMBIFOLIA.

KRAMERIANA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to include the above in their SALE by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 20, 1888, splendid healthy plants of the rare blue-flowered U. NELUMBIFOLIA. This beautiful species produces large flowers of great substance on stout erect spikes, and are very handsome. Also the large-flowered U. KRAMERIANA; its blossoms are over 3 inches across, and of the purest white, and from eight to twelve produced on an erect spike.

On view morning of Sale, and Catalogues had.

Friday Next.

Without reserve. Thirteen cases of CATTLEYA TRIANÆ, just received by steamship *Orinoco* in splendid condition, and including numerous very large masses.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 20.

Flowering Orchids.—Special Sale, January 31.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place as above, for which they will be glad to receive notice of Entries as early as possible.

Eltham.—Expiration of Lease.

Important CLEARANCE SALE of General NURSERY STOCK, extending over upwards of 30 Acres of Ground.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, Todman's Nursery, Eltham, Kent, about the MIDDLE of FEBRUARY NEXT, the First Portion of the extensive stock of EVERGREEN CONIFERS and DECIDUOUS SHRUBS, FRUIT, ORNAMENTAL, and FOREST TREES, particulars of which will shortly appear.

Messrs. William Maule & Son's Nurseries,

Stapleton Road and Stoke Gifford, Bristol.

MR. EDWARD T. PARKER has been favoured with instructions to SELL by PRIVATE TREATY, the valuable Goodwill, Possession, and Stock of this GENUINE BUSINESS, which is one of the best known in the West of England, having been successfully carried on by the late Mr. Maule and his predecessor for the last 117 years.

Very easy terms of payment can be arranged if desired.

For further particulars apply to EDWARD T. PARKER, Auctioneer and Valuer, Bristol.

TO BE SOLD, a Long LEASEHOLD NURSERY, nearly 80 years' Lease. Ground Rent £14 per annum. Ten Glasshouses and Pits, well stocked. Price £1500. Apply at St. Mary's Road, Harlesden, near Willesden Junction.

To Nurserymen, Market Growers, and Others, FOR SALE, LAND, in large or small quantities suitable for Nurseries or Market Growing. Near Railway Stations. H. J. E. BRAKE, Farnborough, Hants.

TO LET, a Small FLORIST BUSINESS, near Richmond. House and Shop. First-class position. Walled-in Ground with Glass in rear. Long Lease. A. B., Hennwood Road, Gomm Road, Southwark Park, S.E.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by PULHAM AND SON, BROXBORNE.

ORCHIDS.

An immense Stock.

Thousands Showing for Bloom.

NEW CATALOGUE

OF

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Free on application to

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES,

GARSTON, near LIVERPOOL.

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LAING'S BEGONIA SEED.—Awarded Four Gold Medals. From Prize Plants. Unequalled quality. Choice mixed. Single or Double varieties, 1s., 2s., 8d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 8 ditto, 3s. Order direct from us, to procure the genuine seed.

JOHN LAING AND SONS, Seedsman, Forest Hill, S.E.

STRAWBERRIES.

Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100; ditto in large pots, 25s. per 100. Descriptive LIST free. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SPECIAL CULTURE OF FRUIT TREES AND ROSES.

A Large and Select Stock is now offered for Sale. The Illustrated and Descriptive Catalogue of Fruits post-free.

The Descriptive Catalogue of Roses post-free.

THOMAS RIVERS & SON, THE NURSERIES, SAWBRIDGWORTH, HERTS.

ROSES and FRUIT TREES.

ROSES, Dwarf H.P., all the best varieties, our selection, 35s. per 100, 50 for 20s., 12 sent free by post for 8s.

ROSES, Dwarf Tea, from open ground, including Gloire de Dijon, Maréchal Niel, and other good varieties, 9s. per dozen.

APPLE TREES, Standards for Orchards, 18s. and 24s. per doz.

" " Bushes, 6s. per dozen, 45s. per 100.

" " Pyramids, 12s., 18s., and 24s. per dozen.

FRUIT TREES, 12 assorted Dwarf-trained, 30s. per dozen.

APPLE and PEAR TREES, 12 assorted Pyramid, 18s. per doz.

CURRENT TREES, assorted, Black, Red, and White, 2s. 6d. per dozen, 18s. per 100.

GOOSEBERRIES, Warrington and other best named sorts, 2s. 6d. per dozen, 18s. per 100.

VINES, strong planting Canes, Black Hamburgh and Muscat of Alexandria, and others, 4s. each.

Terms cash. CATALOGUES on application.

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ROSES IN POTS;

all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

RICHARD SMITH & CO., WORCESTER.

A 92-Page

CATALOGUE,

embellished with

109 ENGRAVINGS,

(many of which, like the flowers they illustrate, are original), consisting exclusively of

FLOWER SEEDS.

I have much pleasure in announcing that my New CATALOGUE of Flower Seeds is now ready, and has been Posted to all Customers, who will doubtless welcome it as a valuable Catalogue for reference, and to whom, I am sure, it will prove especially instructive and attractive. Considering that its pages are devoted to Flower Seeds only, it is perhaps not too much to claim, that it is the LARGEST CATALOGUE of these ever published, and includes in its varied columns very many species and varieties, which can be procured from Tottenham only; and while desirous to introduce a large amount of stuff not generally known, I have—as is my wont—had due and proper regard to the fact, that as a rule buyers do not care for specialties unless they are distinct and effective. All the novelties and varieties appearing in this Catalogue claim such a distinction.

Copies may be had Gratis and Post-free upon application.

Kindly mention this Paper when writing for Catalogue.

THOMAS S. WARE, Hale Farm Nurseries, TOTTENHAM, LONDON.

FOREST TREES, &c.—Ash, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Beech, 1½ to 2 feet, 14s. per 1000; ditto, 2 to 3 feet, 18s. per 1000. Birch, 1 to 1½ foot, 18s. per 1000. Elm, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 14s. per 1000; ditto, 3 to 4 feet, 17s. per 1000. Larch, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000; ditto, 3 to 4 feet, 18s. 6d. per 1000; ditto, 4 to 5 feet, 20s. per 1000. Spruce Fir, 1 to 1½ foot, 8s. per 1000; ditto, 1½ to 2 feet, 10s. per 1000; ditto, 2 to 3 feet, 12s. per 1000. Scotch Fir, 2 to 3 feet, 12s. per 1000. Oak, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Pinus austriaca, 2 years transplanted, fine, 18s. per 1000. Oval Privet, 2 to 3 feet, 26s. per 1000; ditto, 3 feet, 6s. per 300. Sycamore, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Thorns, 1 to 1½ foot, 12s. per 1000; ditto, 1½ to 2 feet, 15s. per 1000; ditto, 2 to 3 feet, 17s. 6d. per 1000. Special offers for extra quantities.

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BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen. Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

JOHN LAING AND SONS, The Nurseries, Forest Hill, S.E.

CHRYSANTHEMUMS, 600 varieties, best and newest, strong Cuttings from general collection, now ready, 1s. 6d. per dozen, 10s. per 100; plants in January, 2s. 6d. per dozen, 16s. per 100. W. E.'s selection cheaper. Many of the best prizes in the country have been taken from plants and cuttings supplied by me. Mons. Delaux's grand set of 100 sorts, and other new varieties, at reasonable prices. See CATALOGUE, with Essay on Culture, 2 stamps.

WM. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

NOTICE.—SEED CATALOGUE for 1888, just published, with everything priced, containing many Novelties of sterling merit both in Vegetable and Flower Seeds. Post-free on application to

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants and Seeds, 536, King's Road, Chelsea, London, S.W.

Clearance Sale.

BULBS for Spring and Summer Blooming. All in fine condition. Prices greatly reduced. Price LIST free on application.

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The New Raspberry.

LORD BEACONSFIELD. (A Seedling.)

The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883.

Strong Canes, £3 per 100; 9s. per dozen. Smaller Canes, 6s. per dozen.

Trade supplied. Cash with order.

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CREEPERS FOR WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Descriptive LIST and advice free.

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John Perkins and Son offer strong transplanted:—

BLACKTHORN, 1½ to 2 feet, and 2 to 3 feet.

PRUNUS MYROBOLANA, 1½ to 2 feet, and 2 to 3 feet.

LAURELS, Common, 1½ to 2 feet, and 2 to 3 feet.

PRIVETS, Evergreen, 1½ to 2 feet, and 2 to 3 feet.

At very low prices.

Billing Road Nursery, Northampton.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

ASPARAGUS, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.

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To Gentlemen, Nurserymen, Builders, and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMS, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and an inspection solicited. CATALOGUES free on application.

The Nurseries, Trinity Road, Wandsworth Common, S.W.

SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the best possible quality.

EVERGREEN HEDGES. ARBOR-VITÆ, American, 3 to 4 feet, 40s. per 100; do., 4 to 5 feet, 60s. per 100.

HOLLIES, Green, 1½ to 2 feet, 40s. per 100; do., 2 to 2½ feet, 85s. per 100.

YEWES, English, 1½ to 2 feet, 35s. per 100; do., 2 to 2½ feet, 60s. per 100.

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J. CHARLESWORTH, THE GARDENERS' ORPHAN FUND.

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Also of last year's set—PURITAN, THOMAS CARTLEGE, ROBERT CRAIG, MRS. WANAMAKER, ALFRED WARNE. Price, 2s. each.

I claim to have distributed all the following:—Moonlight, Gorgeous, Mrs. Wheeler, Maggie Mitchell, President Arthur, Glorioso, J. Collins, &c.—H. WATERER. The finest white in cultivation is Mrs. Bullock, sent out by me in 1880. 1s. each.

For LIST apply to

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FRUIT TREES, SEVENTY-FOUR ACRES.

APPLES, PEARS, PLUMS, CHERRIES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarfs, Pyramids, Bushes, Cordons, and Trained Trees, in great variety.

VINES, excellent Canes, 3s. 6d. to 7s. 6d. Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c., from 5s. FIGS from 3s. 6d.

DESCRIPTIVE LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass, also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

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Dahlia Roots for Immediate Propagation.

We have the largest and most complete collection in the world. Catalogue with full particulars sent post-free.

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We have many thousands of fine plants. They are the choicest of all strains. In 60's, 4s. per dozen; in 5-inch pots, 9s. dozen.

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EWING'S CATALOGUE contains short and plain Cultural Notes, besides Descriptions and Prices of the best Roses; and in addition 23 pages are devoted to Ornamental Trees, Shrubs, Fruit Trees, Climbing Plants, Horticultural Requisites, &c. It is forwarded post-free to applicants on receipt of three penny stamps, or Gratis to Customers.

Abridged LIST of low priced carriage and package free collections of high-class Roses, gratis and post-free.

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TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE Free on application.

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SMALL SHRUBS and CONIFERÆ.—

Arancaria imbricata, 8 to 9 inches, 40s. per 100. Abies orientalis, 8 to 9 inch, 12s. per 100. American Arbor-vitæ, 10 to 12 inches, 50s. per 1000. Cupressus Lawsonii, 12 to 15 inches, 60s. per 1000. Cupressus erecta viridis, 8 to 8 inches, 40s. per 1000; ditto, 1½ foot, extra, 12s. per 100. Cupressus stricta, 6 to 8 inches, 40s. per 1000; ditto, 1½ foot, 14s. per 100. Pinus insignis, 1 year, 4s. per 100. Pinus Cembra, 2 years, 10s. per 1000. Pinus Nordmanni, 2 years, 6s. per 100. Pinus excelsa, 1 year, 4s. per 100. Pinus canariensis, 1 year, 5s. per 100. Retinospora plumosa, 10 to 12 inches, 10s. per 100. Retinospora squarrosa, 6 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. Thuja Lobbi, 10 to 15 inches, 40s. per 1000. Thuopsis dolabrata, 6 to 8 inches, 4s. per 100; ditto, 12 inches, 6s. 12s. per 100. Yew, English, 8 to 9 inches, 6s. per 100. Laurel, Portugal, 8 to 9 inches, 6s. per 100. Common Laurel, 12 to 14 inches, 35s. per 1000. Rhododendron ponticum, 4 to 6 inches, 50s. per 1000; ditto, 2 to 3 inches, 30s. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, potted into 5½-inch pots, 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PALMS.—A few hundreds, well-grown, strong and healthy.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Latania borbonica, Seaforthia elegans, Phoenix reclinata, and Corypha australis, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, Entrepodium, and Arecia lutescens, 3 feet 6 inches to 3 feet high, 3s. to 5s. each.

Fine feathery-foliaged Seaforthia elegans, 4 feet high, 15s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

PEARL TUBEROSES.

FINE GOOD SAMPLE.

Consignment expected in a few days.

Special Prices upon application.

THOMAS S. WARE,

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TOTTENHAM, LONDON.NOW READY,
CARTERS'Send One Shilling for a Catalogue, and deduct
this sum when ordering.

ROYAL SEEDSMEN BY SEALED WARRANTS.

237
238 HIGH HOLBORN, LONDON.

WHOLESALE SEED CATALOGUE.

WE HAVE NOW PUBLISHED OUR
WHOLESALE CATALOGUE
OF VEGETABLE AND FLOWER SEEDS,Containing also all the best Novelties of the Season. May be
had on application. Any of our Customers not having received
one by Post will oblige us by letting us know, when another
shall at once be Posted.

WATKINS & SIMPSON,

Seed and Bulb Merchants,
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Seed and Trial Grounds: Feltham and Twickenham, Middlesex.

TO PLANTERS
STOCK UNIQUE
& UNEQUALLED.
 NURSERIES over 200 ACRES
 MOST MODERATE PRICES.
 TRUCK LOADS Carriage Free.
 CATALOGUES GRATIS.
F&A. DICKSON & SONS
 THE QUEEN'S NURSERYMEN,
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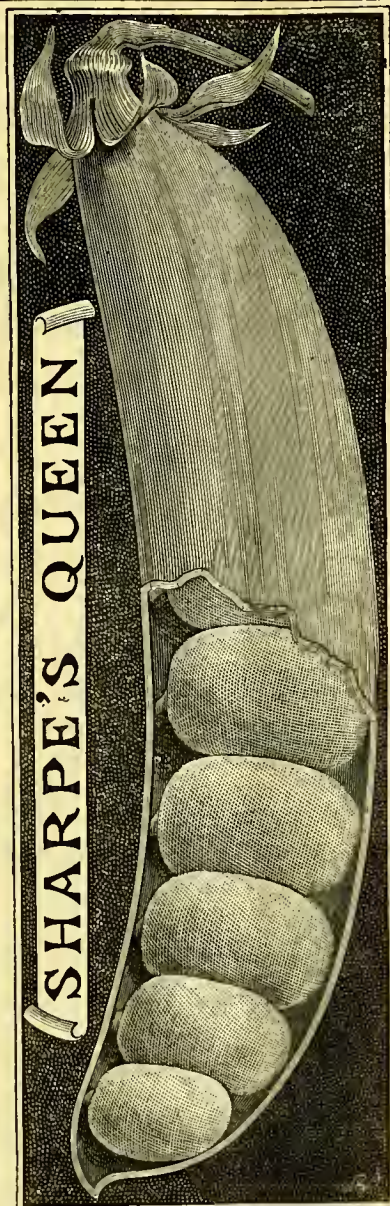
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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 14, 1888.

NASH COURT.

[SEE SUPPLEMENTARY SHEET.]

BY the side of the old road leading from London to Dover, about three miles beyond the little town of Faversham in the direction of Canterbury, is situated Nash Court. Looking from the hall door across the lawn, the visitor gets a delightful prospect over the neighbouring village of Boughton—over fields and copses and Hop gardens, with square-towered churches interspersed, till the vision is stopped by a fine wood-clad range of hills, stretching horizontally directly in front of the observer, sloping down to the sparkling sea near Whitstable on the one side, and trending inland in the other direction.

This range is of London clay, capped in places by more recent tertiary sands, and itself resting on sands overlying the chalk, which is the bed of this part of Kent, however much it be overlain by other deposits. To the left, not far off, are salt marshes bordering the creek—muddy, certainly, at low water, but offering a perfect paradise for the botanist, and, indeed, for the naturalist generally. Our business lies not in that quarter, however, nor is it concerned with Chaucer, although, standing on the garden terrace looking on to the Blean Woods, and with that long white strip of a road which mounts over Boughton Hill straight in front, we cannot avoid a passing thought of the merry, motley company that Chaucer makes to pass over that very hill, if not by that very road,

"—to wher ther stont a litel toun,
Which that cleped is Bob-up-and-down,
Under the Bile in Caunterbury way."

that "litel toun" being the present Harbledown, from the last of whose many hills must have burst upon their view the Cathedral towers of Canterbury, the shrine of the martyred bishop—

the goal of their wanderings. There was no such straight road then; there were no Hop gardens; the square-towered churches did not exist—at least in their present form; and the Cathedral must have worn a very different aspect from that which now delights the traveller. Wild animals, including two-footed ones, lurked in the woods of Ble in those days; the road was steep and toilsome; even now the railway engineers have evaded the difficulty of surmounting the hill or tunneling through it, and swerved to the right some miles out of the direct line in order to reach the old city.

Who was the lord of Nash Court in those days we do not know; certainly the present red-brick mansion, now occupied by Mrs. Lade, is many centuries younger, and yet the general features of the country—the hills, the woods, the marshes, the glistening sea—cannot have altered greatly in appearance, and those who stood where Nash Court now is must have seen the same beautiful prospect as we do now, though they probably did not appreciate it as we do. Times have changed, and we have the advantage of a keener sense of appreciation of the beauties of Nature. On the lawn and its belting shrubberies are specimen Conifers, and Hollies, and Rhododendrons, and representatives of the manifold wealth of tree and shrub of which we have the benefit, but which were not dreamed of by our forefathers. True there is an avenue of goarled, deep furrowed Sweet Chestnuts; but old as they are—and they count their years by centuries—they can hardly have been gazed on by the Canterbury pilgrims of Chaucer's time. To-day (January 6) the distant woods are all aglow in the sunshine. We are not near enough to see what are the trees (probably Oaks) which are so resplendent; but as we turn from the one side, where are the deciduous trees with their winter beauty made glorious by the sun, to the rich greens, shining bronzes and golden yellows of the evergreens on the other, we begin to think that our forefathers were after all not so very badly off, provided they had—as no doubt they had—the occasional enjoyment of sunny days even in mid-winter.

Shelter is needed at Nash Court. Not far off, as has been said, is the sea, but the fiercest winds come from the opposite quarter, and so we find provided belts of Black Austrian Pines, deep green in colour, with silvery buds projecting from the tips of their branches—dense and massive is their foliage, rich their colour and warm their shelter. Of all the Pines this is perhaps the most useful as a shelter, for none is so hardy. What value its timber may have, we do not know, but if it be as good as that of its near relative the Corsican, there cannot be much to complain of.

Protected by these comfortable-looking Pines is a selection of the best of the Californian Conifers—the Japanese, which are quite as hardy, if not harder, have not reached these regions yet. *Pinus insignis* is of as lovely a shade of green here as it always is, and *Cupressus macrocarpa* is not far behind it. Were it not for these sheltering Pines it is doubtful whether these two species could so long have survived the Kentish winters, which are not gentle just here, *Abies Pinsapo* does well, and *A. lasiocarpa* is represented by several thriving specimens, one with very pendulous branches. There is a prejudice in certain quarters against golden Conifers, but no one, we venture to say, who could have seen on this bright day the brilliant colours of the golden Lawson's Cypress, or the rich bronze of *Biota elegantissima*, backed up and framed by dark evergreens, but would have had his prejudices shaken, and would at least have admitted that the golden Hollies had worthy rivals. Specimen Conifers of large size are dotted about on the lawn and pleasure-ground, but they have been mauled by the wind, and were suffering in consequence, when it occurred to Mr. Humphreys, the gardener, to allow sheep to graze under them, and the rich food so obtained has benefited the trees at root as well as at top, though their graceful form has been spoilt beyond recovery. An avenue

of *Araucarias* is also very striking; the trees have done well, and grown symmetrically, as if they were well chosen in the beginning, and, better still, planted with sufficient care. Roses occupy a post of honour on the lawn—a herbaceous border between two sheltering hedges, flower-beds and carpet-beds, all these are to be seen at Nash Court, but the present is not the time to see them. It is curious to note how easy it is to conjure up these things, and to frame a picture of what the garden must be in the full glow of summer—what richness of floral colouring the sea air must give, and so forth. It is not quite so easy to reconstruct in imagination the other features of a garden. A true and accurate picture of the garden with its summer occupants can be called up on the instant, but when it comes to things with more individuality and character, showing traces of their history in their features, and giving evidence of the changeable circumstances against which they have had to contend, then a considerably greater draft on the bank of taste and knowledge is demanded to secure a faithful image.

In an establishment like this flowers are in demand the year through, and what the outer air denies must be furnished by the gardener with the aids and appliances at his command, and so we find here a *Eucharis-house* well filled with fine samples of the chaste flowers of this lovely Amazonian bulb. In company with them are numerous plants of the double white *Bouvardia* Alfred Neuner—excellent for cutting. In other houses are *Poinsettias*, *Gardenias*, in pots, fine plants, though less than two years old; *Cinerarias*, already showing for bloom; *Azaleas*, *Cyclamens*, *Libonias*, a *Vallota*, of which we shall have more to say later on; decorative plants, such as *Anthuriums*, *Dracaenas*, and *Crotons*, and a few *Orchids*. Besides, there are Pine-stoves and *Pine-pits*, *Peach-houses*, and *vineries*, of which there is not much to be said at this season.

The conservatory is a light square structure forming the centre of a range. In the centre is a fine *Latania*, flanked on one side by a *Kentia Mooreana*, said to be one of the two only existent in the country, and on the other by another specimen of the same genus. *Camellias* occupy the side borders, and both leaves and flowers testify to their careful culture. *Lapagerias*, white and rose, trained on trellises, yield a profusion of blossom, pre-eminent in this respect being the large-flowered, large-leaved variety, known as the Nash Court variety, which was certificated at South Kensington on October 14, 1884, and whose good qualities have made the name of Nash Court familiar to many to whom it was previously unknown. A peep down into the dim recesses of the stokehole reveals two *Trentham* boilers, one in full work, the other a reserve in case of need. The sight is satisfactory and suggestive, but not exactly æsthetic—for that you must look elsewhere. A few steps, and we come to an ordinary-looking door in an ordinary-looking wall; the door is opened suddenly, the subtle gardener has prepared a surprise—and a surprise it is in the beginning of January to see such a picture of verdure, such a wealth of elegant form—so much stateliness of aspect combined with so much elegance of "habit"—as are comprised within the fernery into which we are now ushered. It is an oblong structure, some 80 by 33 feet, and 19 feet high, with a ridge-and-furrow roof, shaded in summer by a composition of the nature of "Summer Cloud." The back wall is wholly of brick, while the other walls are of brick for half or more of their height, and then of glass. Graceful pendants of *Nephrolepis* hang from the walls, and as if the ferns themselves did not furnish sufficient covering a background of *Ficus repens* is provided. Pillars of iron support the roof at intervals, each pillar a support for climbing *Asparagus* and *Lygodium*. Pockets hung on to the pillars serve to grow endless smaller ferns. A lakelet, edged with *Selaginella apoda*, winds a sinuous, but still too formal, course through the building, and is crossed about the centre by a rustic arch densely clothed with *Adiantums*. Headlands and peninsulas of rock thickly draped with ferns jut out into the house, and on their slopes big

Cyatheas, *Alsophilas* and *Dicksonias*, as well as Palms like *Seaforthias*, rear their feathery plumes above a tangled undergrowth amid which are sunk pockets for the reception of foliage *Begonias*, *Dracaenas*, *Caladiums*, and other plants, which serve to vary the monotony of aspect which ferns alone might have and ensure a variety in colour lacking in ferns by themselves. To mention the ferns in this rich collection would be to write a catalogue. In addition to the handsome Tree Ferns already alluded to, there are fine clumps of the crested variety of that most graceful fern, *Microlepia hirsuta*. There is a profusion of species of *Adiantum*, comprising *cuneatum*, *capillus veneris*, *tenerum gracillimum*, while *A. Williamsi* and *A. Flemingi*, a variety of *concinnum*, are highly spoken of; but we will not begin enumeration, or we should soon weary our readers. Let it suffice to say that the collection is very rich in species and varieties, and, better still, they are in admirable health. Though scarcely a vacant space or uncovered piece of rock is to be seen, the plants are not unduly crowded; each looks well developed, as if it had room to expand without interfering with its neighbour's right, and the whole house has the appearance which good cultivation and judicious management alone can give.

It is always satisfactory to be able to cite confirmatory evidence of one's statements, and we think no slight confirmation is given by the supplementary illustration in our present issue. An inspection of that photograph will, we believe, ensure credence to our statement, that not only the fernery, but that the whole place does credit to the gardener to whom its charge is entrusted.

VANDA CÆRULEA.

THE subject of our illustration (see p. 41) is certainly one of the most beautiful of Orchids, its lovely flowers exhibit such charming shades of blue, rendered the more clear and bright by reason of their being displayed on the white ground of the flower, that it is difficult to conceive a worthier example of a plant for general cultivation; but it must be said that while a few growers cultivate it successfully for a number of years, others succeed in getting it to thrive for a time when "spot" and other evidences of degeneration step in; while a third class of growers never succeed in growing or flowering it at all satisfactorily. The fact that *V. cærulea* is of free growth with some, points to the fact that its bad condition in the hands of others is from no peculiarity of its own, but is due to a want of proper treatment.

Generally speaking, too much heat, too much sunlight, too little air, and drying off during a portion of the year, are the sources of ill-health with this plant. Most of those who grow it well keep it in a rather cool temperature (50°–60° Fahr.), suspended near the glass of the roof in a well-ventilated position, but out of reach of cold currents of air from any of the ventilators; and more than one who had failed with it under warm treatment have succeeded with it on removal to the cool-house.

Sir J. D. Hooker records the plant in the Khasian Mountains, at an altitude of 3000–4000 feet, and Griffiths found it on trees of *Gordonia* in Oak and Pine forests at a height of 2500 feet; it will therefore readily be seen that *V. cærulea* cannot be a hothouse plant. Further, it is known of it that the plants are sheltered by the growth of the trees they are attached to, the points only and flower-stems peering through, generally apeaking.

The climatal conditions under which this plant grows naturally are well explained in an interesting communication from Mr. C. B. Clarke in our number for January 15, 1887, p. 77. Fog, wet, and night frosts, with at no time a very high temperature, are what this plant endures. This is not exactly the regime to which it is subjected here, nevertheless, Mr. Kimball, as shown in our woodcut, evidently contrives to do it well.

NEW OR NOTEWORTHY PLANTS.

LÆLIA GOULDIANA, n. sp. or n. hyb.?

Finis coronat opus! The last Orchid of the year 1887 was this. It opened its grand flowers on both sides of the Atlantic at once. I got remarkably fresh, fine inflorescences (one of two, one of five flowers) from Mr. Sander, and two three-flowered ones from Messrs. Siebrecht & Wadley, New York. Our American correspondents desired that the plant

purple, and exceedingly difficult to match on paper. The lip is trifid. The side-lacinia are very long, blunt, antrorse, the mid-lacinia cuneato-obovate retuse; with an apiculus in the centre. The three lamellæ of the disc are continued on the superior part of the mid-lacinia. The side-lacinia are white with light purple edges; the mid-lacinia is of the darkest, warmest purple, only white at the base, with fine, strong purple nerves and spots extrorse on the disc. Keels spotted with purple, and with similar lines. Column white, with numerous purple spots.

grand colours. It might be luckier to avoid the parentage of *L. albida* since the flowers are as large in our plant as in a good *L. autumnalis*. Those fine lineaments at the base of the side of the disc are usually found in the last mentioned species, though not so fine by far. This makes us think of *L. anceps*.

And why is it not a species, when the nearest allies have such very slight characters? And as a species may have a very wide area, perhaps this *L. Gouldiana* may be a variety of *L. Crawshayana*.



FIG. 8.—GROUP OF *VANDA CŒRULEA* AT MR. W. S. KIMBALL'S, ROCHESTER, N.Y. (SEE P. 40.)

might be dedicated to their celebrity, Mr. Jay Gould, and that has accordingly been done.

The bulbs are two-leaved, fusiform, nearly 4 inches long, markedly furrowed, and costate. Leaves cuneate, ligulate, acute, very strong, nearly a foot long, but sometimes much shorter. The slender purple peduncle exceeds a foot in length. There are a few distant sheaths, and the spathaceous bracts attain nearly to half the length of the stalked ovaries. Those organs are shining, full of asperities, and a few furfuraceous, blackish masses stand on the base of the outside of the sepals. Both sepals, and the much broader petals, have a curious character by their being more strongly acuminate than is the case in any of the species near it. The colour is wonderfully warm

It is very near Mr. De Crawshay's *Lælia*. The ovaries are distinct, the side lacinia of the lip much longer, the keels are distinct, and the just named plant lacks the retuse apex of the lip. It might be the inverted hybrid. It is also very near *Lælia autumnalis* itself, but the shape of the sepals, petals, and lip, and the colours are remarkably distinct. Usually, indeed, *Lælia autumnalis* has much broader leaves and much shorter bracts. Yet it occurs with narrow leaves and I have a fine raceme with similar long bracts in my herbarium of *L. autumnalis* "tip-top."

If it is a hybrid, as *L. Crawshayana* may also be, you must think of *L. autumnalis*, and perhaps, of *L. anceps* as possible parents; by reason of the

After all—it is very easy to conjecture but very difficult, nay, impossible, to give evidence what it is. Let us give up scientific guessing, and admire the beauty. *Finis coronat opum*. H. G. Richb. f.

BONATEA SPECIOSA.

A plant of this remarkable and most interesting Orchid is now flowering in the Kew collection. The species is frequently mentioned by Darwin in his book on the *Fertilisation of Orchids*, and he writes at p. 334, "I should doubt whether any member of the orchidean order has been more profoundly modified in its whole structure than *Bonatea speciosa*." The genus, which is South African and nearly allied to *Habenaria*, contains but two or three species. The

one under notice was introduced in 1820. Its flowers measure $1\frac{1}{2}$ inch in depth and somewhat less in diameter; and although by no means showy, as we now regard Orchids, they attract attention by their singular shape. The arrangement of the parts of the flower is so different from that of most Orchids that it requires careful dissection to understand it. The sepals are green, the two lateral ones subfalcate and acuminate, while the upper one, which covers and is apparently intended to protect the pollinia, assumes the shape of a hood or helmet. The petals are bipartite, the green inner segments standing erect within the helmet-shaped sepal, and the outer segments, which are linear in shape, and white with green points, are united for a short distance to the upper surface of the lip, and take a direction almost at right angles to the other half. The labellum itself is divided into three long, narrow segments, and develops a spur about $1\frac{1}{2}$ inch in length. Just within the outer portions of the petals are two white, petaloid, cylindrical processes, half-an-inch in length, at the apices of which are the bright and viscid stigmatic surfaces.

A remarkable provision to secure the removal of the pollinia by an insect in search of nectar is pointed out by Mr. Trimen in a note on this species in vol. ix. of the *Journal of the Linnean Society*. There is placed in the centre of the labellum, just in front of the opening of the nectary (spur) a little projection about one-eighth of an inch in length; this compels the insect to thrust in its proboscis from either side, and the discs of the pollinia are so placed that by doing so the attachment of one or the other is secured. Mr. Trimen observes that he found no nectar in the flowers of the plant he inspected; it may therefore be interesting to state, that on examining the plant at Kew the spurs were found to be half filled.

The flower is remarkable also for the unusual cohesion of its parts to the labellum. The outer segments of the petals, the stigmatic processes mentioned above, and the two lower sepals (although belonging, morphologically, to another whorl) are all united to the labellum.

The flowers are arranged in an erect spike, which terminates a stem from 1 to 2 feet high, clothed almost to the base with dark green, glabrous, oblong leaves. The culture of the plant is easy; it grows with great freedom if potted in sandy loam and peat, its large fleshy tubers filling the bottom of the pot. It may be grown during summer in the cool-house, but when showing its flowers it should be removed to a warmer position. *W. B.*

CYPRIPEDIUM PITCHERIANUM, *Manda*, n. sp.—Philip pine Islands.

"Roots thick, dark, and downy; leaves acute, 5 inches long and $2\frac{1}{2}$ inch wide, coriaceous, green tessellated with irregular darker spots, smooth on both sides but slightly incised at the edges; scape over a foot high, purplish and downy; bract 1 inch long, green; ovary $1\frac{3}{4}$ inch long, green and grooved, remarkably bent downwards. The dorsal sepal is over 2 inches long and nearly 2 wide, acuminate, slightly revolute, whitish with bright green veins, and beset with many black and dark purple spots, some running in lines, while others are scattered irregularly, covering nearly the whole sepal; the lower sepal is $1\frac{1}{2}$ inch long and $\frac{3}{4}$ inch wide, whitish with broader green veins; petals deflexed, $2\frac{1}{2}$ inches long by $\frac{3}{4}$ inch wide, whitish changing to purple towards the ends, and with several bright green veins running through; both edges are beset with black warts and hairs, while the inner part is covered with many large and smaller black spots; the lip is 2 inches long and uniformly $\frac{3}{4}$ inch broad, roundish, light purple with darker veins, and the underside is whitish green, while the inside is most beautifully studded with dark purple on a yellowish ground; the staminode is purplish, horseshoe shaped, with points incurved inside nearly touching each other, differing thus from the rest of the barbatus group, in which this plant may be classed.

"The distinct features of this plant are the upper

sepal spotted and the curious ovary that bends downward, on which the flower is suspended, giving it thus quite a novel appearance, by which it is easily recognised. It is certainly one of the most beautiful Cyripeds, and flowering at this time of the year, it will be a welcome addition to the already many existing kinds. Unfortunately this is an unique plant at present, I having received it among other plants coming from the East Indies. The plant is growing well in a warm house with plenty of light and moisture, potted in peat, sphagnum and potsherds. It gives me great pleasure to name this plant after James R. Pitcher, Esq., of Short Hills, N.J., who is a great lover of this genus, and the happy owner of one of the finest collections of this class of plants." *W. A. Manda*, in "*American Florist*."

ROSES.

SOME NEGLECTED ROSES.

THE MOSS ROSE.—There are two extremes into which persons are liable in these days to run with regard to the Rose—one is to look at every Rose in the light of the exhibition table and carefully to discard from the garden every flower that does not come up to the exhibition standard, as, in the height of the bedding-out mania, persons were wont when a new plant was advertised to inquire, Will it do for bedding?—the other extreme is to go into ecstasies over those "dear old-fashioned Roses in which we used to delight in our young days. We don't want those great Marie Baumanns, or Charles Lefebvre; so stiff and formal; let us have the dear old Roses"—although, put them in the witness-box and ask them what they mean, it is a great chance if you get beyond "Oh! that delicious Cabbage Rose, you know"—it goes generally no further.

It is well to avoid extremes in this as in other things—to remember that the best of our exhibition Roses are often the best for the decoration of the garden, and that the time of beauty for the neglected Roses is after all a brief one, and so disappointment arising from exaggerated hopes will be avoided. I have lived a good many years in the world, and have been fond of flowers ever since I can remember (perhaps I inherited it from my Huguenot forefathers), but I never until the other day met with any one who did not admire a Moss Rose—in the bud, of course; but I did meet one, and that a lady, who told me that she saw no beauty in it. To me there is nothing more exquisitely beautiful than a bud of the common, or, perhaps, in a slight degree more lovely, the white Moss; and yet how often do we vainly look for it in some of the best Rose gardens?

One of the best ways of growing it that I remember to have met with was in the garden of that enthusiastic florist, the late Mr. Charles J. Perry, of West Bromwich, near Birmingham; he had a large bed of it, the plants in which were pegged down, and then from every eye a shoot started, and as they were planted tolerably close the bed in the flowering season was one mass of bloom. It is a very good plan where this idea is adopted, to plant some bulbs of *Gladiolus brechenleyensis* among them, and then, when the Rose bloom is over, and the dead leaves cut off, the bed will be gay with the brilliant flowers of the *Gladiolus*.

The Moss Rose is undoubtedly a "Provins" Rose; but how, where, or when it originated we have no record. But here is the true old Cabbage shooting forth in a new direction, but having, at any rate, one distinctive mark, its delicious perfume; but in the opinion of that wise old teacher, the late Mr. Rivers, it originated in Italy, and it would certainly be interesting to know how it came into existence. The French have been busy with this as with other classes of Roses, and especially in endeavouring to obtain perpetual or autumnal blooming Moss Roses; in this they have not been very successful. "Salet" bears this character, but it has not been extensively grown in this country—some of the most remarkable varieties seem to be like the common Moss, "sports" rather than seedlings.

In culture the Moss Rose presents but little difficulty, except in the case of Unique, which it is not easy to keep in good shape; some of the varieties are more robust than others, but all, with this exception, are amenable to culture. Like a good many things, they will endure hard treatment, but thrive best when their wants are well and properly attended to. In light soils they will thrive well on their own roots, and this is the most usual way of growing them; where they are grown in beds this is certainly the preferable plan, as there is no danger of large suckers springing up being mistaken for Moss Rose shoots, and thus usurping a place to which they have no right. Where the soil is stiff they do very well worked on either the seedling Brier or other dwarf stocks. With regard to pruning, there has been a difference of opinion, and sometimes very good authorities on each side have endeavoured to steer a middle course between hard and gentle pruning. This is a mistake; it should either be one or the other, and I believe that hard pruning is the better plan to adopt. Like other Roses they will be all the better for a good mulching in the autumn, to be taken off in spring, while the shorter portion of it may be forked in, the litter being removed.

There are many varieties of the Moss Rose, but we cannot do better in selecting than follow the lines of the National Rose Society, which in its catalogue of garden Roses has included nine Moss Roses. Three of these are the so-called Perpetual Moss, and therefore the number of Moss Roses of the ordinary type is six, although in this is not included the Crested Moss, as it is sometimes called, nor a new one which I believe ought to be more generally grown.

Baron de Wassenar, raised by Victor Verdier, and sent out by him in 1854, is a vigorous grower, flowering in clusters.

Common or Old Moss.—This is too much known to need any description, and its origin is unknown, although supposed to have been introduced into England nearly three centuries ago.

Comtesse de Murinais, raised by Vibert in 1843, is a vigorous-growing white Moss Rose, very free, but not equal in beauty to our *Unique*.

Gloire de Mousseuses.—Raised by Vibert in 1852; rosy-blush colour; a large but not so elegant a flower as some of the others.

Lancet.—Raised by Laffay, and introduced in 1846; a large and very double Rose, rosy-crimson in colour, very bright, but it is not so dark as

Celine.—omitted, it is true, from the National Rose Society's catalogue, but certainly deserving of a place on account of its brilliant colour, although the flower is not quite full, but as all the Moss Roses are valuable only in bud, this is not of so much consequence.

White Bath.—This was found in a garden near Clifton, and sent out in 1810. It is very pretty, but I think not so much so as

Unique, which is often classed simply as a Provins Rose, but I do not see why the distinction should be made: they are all Provins Roses. This I think the most beautiful of all the white Moss Roses, the bud is more elegantly shaped and the moss longer, so as to give it a more graceful appearance. I know nothing more pretty than a bud of this, showing the white between the segments of the calyx.

Blanche Moreau.—This is a new introduction by Moreau, and is both vigorous in growth and free in blooming, and in these respects it certainly has the advantage over that previously named. It forms a very handsome well furnished bush, and all who admire this class ought certainly to grow it.

Crested Moss or Crested Provins.—This also is put amongst the Provins and not in the Mosses. It is very curious, more so indeed than elegant; but as a curiosity it is well worth growing.

Rose de Meaux.—A charming little Rose, a mossed variety of the beautiful *Rose de Meaux*, so sweet and double in itself, but if possible made more charming by the mossy addition. Said to have been found by Mr. Sweet in a garden near Taunton.

Little Gem.—This, an introduction of Messrs. W. Paul & Son, is an improvement on the preceding, being more beautifully mossed, and altogether a most delightful little Rose.

Crimson or Tinwell Moss or Damask Moss.—This is omitted in the National Rose Society's catalogue, but seems to be a very desirable Moss. It was raised at Tinwell, in Rutlandshire, and was so highly thought of that it was sent out at a guinea a plant.

I hope that this attempt to draw the attention of lovers of flowers to a beautiful but neglected tribe of Roses may not be without result. *Wild Rose*.

REPLANTING ROSES.

Some persons may ask, Why write about Roses in mid-winter? Their time is not yet! I must beg pardon of those who think or write in this strain, and beg to differ from them. It is because we are now busy replanting our beds of Roses, and planting out those that have been bought in, that it occurred to me to write about them. I was told the other day, by a man who thought he knew everything about gardening, that there was no need to trench the ground—he could not see any use in it. Probably there are many more wiseacres who can see no use in trenching; I will therefore explain that we trench the ground 18 inches or 2 feet deep, to allow the roots to grow freely into it, and we place a good layer of manure at the bottom of the trenches and half-way down, to supply the plants with nourishment during their season of root-activity. No fine Rose blooms can be obtained unless the ground be trenched and heavily manured. We are now replanting a bed of Tea Roses. I maintain that a Rose bed should be lifted and replanted every second or third year; and this for two reasons. The first and most important is that in some soils the quality of the flowers rapidly degenerates after the third year, even when the Rose beds have a good mulching of decayed manure annually. Probably because the roots work into an unsuitable subsoil. The second reason is that, whether the Roses are Teas, hybrid perpetuals, or others, the plants make an unequal growth. By this I mean that some varieties will make strong vigorous shoots while some will grow but little, and even in the minor struggle for existence in a bed of Roses the weaklings sometimes succumb to the strong. This may all be set right if the plants be taken up and replanted in the months of November or December, and in some bad soils it would be better for them if the replanting took place every second year, by this means increasing the number of the root feeders. A Rose bush which has stood more than three or four years without transplantation has few feeding roots, and these are at the distant main root extremities, the fibrous roots going further afield year by year, unless occasionally transplanted. I would like to add here that I am writing about the culture of Roses in the garden only, and not for exhibitors of Roses. Such growers will have to bud their Roses, and depend for the best blooms upon what are termed "cutbacks," that is, established plants of two years old. It may be added that exhibitors work on different lines altogether to the grower of merely garden Roses, and that the highest positions at the principal exhibitions can be reached only by long experience.

The soil of our garden is heavy and the subsoil wet, but it has been ameliorated by draining, and we have added to the depth of natural soil by raising the beds about 12 inches above the surrounding level. This is in addition to trenching the ground from the original level to the depth of 20 inches, the added foot of soil being made up with loam of good quality. Manure was dug in, and the sloping sides of the bed were made up with a turf edging, the grass being kept short by the shears.

The Roses do very well treated in this way, their vigour being remarkable. The ground is now being retrenched, and as the work proceeds the Roses are taken up and replanted. In doing this the workman must not injure the roots, and the Roses can be easily taken up without injury as the work of

trenching proceeds. The replanting affords an opportunity for removing root-suckers, which should be cut out with a knife close back to the point from whence they sprang, neglect of this precaution leading to the early appearance of fresh growths, and they will be even more numerous.

Damaged roots should be cut back to a sound part, and as the work of trenching proceeds so also should the work of re-planting. In case the latter cannot be done at the time, the plants ought to be laid in by the heels. When the replanting is finished the surface of the soil should be mulched with manures. I use the peat stable litter, which is also an excellent protector against frost and heat alike. In very severe frosts the Tea Roses are killed to the level of the manure, and if no manure or other protecting material were used, the Roses might be killed altogether. Where the dried fronds of native Fern can be obtained, it is excellent material to lay over the manure, or to use in its stead.

It is still, perhaps, a moot question as to which is the best stock for Roses. I find in our soil that nothing answers so well as the seedling Brier—it answering, if anything, better for Tea Roses than for hybrid perpetuals. Of course the Manetti is a good stock for Roses, and I have nothing to say against it. It is a good stock for light soils; and yet, notwithstanding the distinct looking leaves and growths, it may sometimes be seen, like the cuckoo in the hedge-sparrow's nest, in entire possession of the place, and the Roses conspicuous by their absence.

After the preparation of the ground, planting and mulching, the work is finished until pruning time—an operation depending upon the weather, for if frosts be severe in February and March it must be delayed until the weather has become mild. February, when the weather is kindly, is a good month in which to prune. After pruning is over, the first insect pest to attack the Roses must be looked for in the bud worm—being the earliest, and a very destructive one it is, getting into the young growths when they are an inch long, and eating the central substance out of them, and oft-times before it is observed. Be watchful early in the month of April, and with a needle make short work of them. The bud-worms destroyed, the Roses will grow freely as soon as mild weather sets in; but that mildness brings greenfly, a destroyer which increases with amazing rapidity. For their destruction aphid brushes are used, or syringing with tobacco or soft-soapy water. At last the flower will come to reward the gardener for all his patient care. Tea and hybrid perpetual Roses blooming in the autumn as well as in the summer, the plants need to be kept clear of mildew—a great plague to the Rose grower and always present, committing great damage unless destroyed by timely dusting with flowers of sulphur. Mildew and the Rose aphid together sometimes attack the young shoots at the late time of blooming, in which case sulphur thoroughly diffused in warm rain-water should be syringed over the plants. As to the best varieties to cultivate I have to say that the best varieties are cheap, because they are plentiful and well known. I am quite ready to admit that some good Roses are sent out every year, but there are a good many inferior ones. For my part I have most faith in English raised Roses, because the growers send them—at least sorts fitted for exhibition—to the exhibitions before they are sent out, and thus give the public an opportunity to see them before they purchase. *J. Douglas, Great Gearies.*

A CURIOUS DISCOVERY.—In the tartar of teeth from skeletons of the stone age, Mr. Charles White, of the Odontological Society of Great Britain, has found specimens of the food eaten by our prehistoric ancestors 3000 years or more ago. The fragments identified include portions of corn husks, spiral vessels from vegetables, starch husks, fruit cells, the point of a fish's tooth, and bits of wool, feathers and cartilage.

EXHIBITIONS OF CHRYSANTHEMUMS.

THESE are now so numerous that every town of importance has its show, and many places also of lesser pretensions. The flower-loving public appear to be attracted much more to autumn than they do to spring exhibitions, and it is probably owing to this fact that the Chrysanthemum is so generally popular. But there is after all a great deal of monotony about these constantly recurring exhibitions of what has been termed the queen of autumn flowers. One sees the very same style of group at all of them, varying only in size and in the quality of bloom found upon the plants; the trained specimens are also alike, and far too many of them presented in a flat and unattractive fashion. There are lines of stands of blooms of the most formal character, without a leaf to vary the parallelograms of cones of varying colour marshalled upon the painted green stands with such severe military precision; and there is now present in the mind of the observer the suspicion that the dresser-out has quite as much to do with the prominence given to this or that stand by the judges as the skill of the cultivator. Those who regard correct form as expressive of the truest lines of beauty see in these formal-looking incurved blooms the highest triumph of the florist's art. Others are conscious only of a tedious formality, repellent rather than attractive.

The great popularity enjoyed by the Chrysanthemum may be accepted as indicative that Chrysanthemum exhibitions will increase rather than diminish in number. With this certainty before us, is it unreasonable to require that, in order to prevent the obvious sameness seen more or less in all shows of this kind, and still more because this very feature is in danger of causing something like a revulsion in the public mind—is it, we say, too much to ask that novel features should be introduced to exhibitions? We have seen stands of blooms shown with 4 or 6 inches of stem and foliage, and this seems to indicate one direction in which a little agreeable change might be secured. The difficulty appears to be to ensure the flower-stems being in an erect and properly regulated position, so that the eye be not offended by an appearance of confusion and want of harmony. Bunches of pompon Chrysanthemums shown in this way have been seen at some exhibitions for a few years past, and have always commanded admiration.

At some important shows we have seen vases of Chrysanthemum blooms—some on a large scale for entrance halls and such places, and some on a smaller scale for table use, admirably arranged and shown in excellent taste. At a recent exhibition at Reading, although the vases were restricted to 5 inches in diameter, yet the space admitted of a large bunch of blooms being arranged in the most admirable manner. Epergnes and bouquets of Chrysanthemums should be encouraged also; the long-keeping qualities of the Chrysanthemum in a cut state fits it for room decoration at this season of the year.

The method generally adopted for showing the blooms of the fine and varied Japanese Chrysanthemums is one that seems to rob the blossoms of half their beauty. The fact that many of their blooms can be grown to a large size, from 9 to 15 inches in diameter, requires a stand of a different character to that usually employed to display Chrysanthemum flowers to the best advantage. They are not only too much crowded, but they are placed too low on the boards, which imparts to otherwise attractive blooms a flat and squat appearance. The main drawback to elevating the blossoms of the finely formed incurved varieties is, that the base of a flower will droop, and the symmetry is destroyed. The very opposite holds good in the case of the Japanese varieties. They gain in beauty when their basal florets can droop elegantly below the level of the involucre, and this also imparts an appearance of depth and solidity to the blossoms. What is wanted are stands in which the flowers can be placed wider

apart, and some method is necessary by which the blossoms can be also placed at a greater elevation.

These suggestions might appropriately enough engage the attention of the supporters of the National Chrysanthemum Society. Country societies are found looking to it as an executive qualified to legislate in the interest of this popular flower; and anything that can enhance its value, either as an exhibition or decorative agent, should be the concern of what we may regard as the leading organisation, whose main object it is to extend the usefulness of the Chrysanthemum. *R. D.*

ORCHID NOTES AND GLEANINGS.

OLDFIELD, BICKLEY.

THE *Phalenopsis* here—always an interesting feature—were many of them either in bloom, or showing forward spikes of bloom; *P. Stuartiana* had several blooms fully open, showing the brilliant red of the lip conspicuously. This is still a very scarce species. Of *P. grandiflora* were very fine pieces, and *P. Sanderiana* was beginning to disclose the colour in its buds of bloom. The foliage resembles that of *P. amabilis*, but is silvery-grey above, and the marbling like that found on *P. Schilleriana*. Many plants, healthy and dark green as to foliage, and the spikes large and long, were observed of *P. amabilis*. The plants of *P. Schilleriana* are going to flower well at a later date. This is a most beautiful species, and finds here a good cultivator in Mr. Heims. *P. speciosa* and many another were only just pushing up their spikes, and we were therefore not rewarded with a sight of their flowers.

Growing under apparently similar conditions to the *Phalenopsis* were plants of *Angraecum citratum*, with flower-spikes in a forward state, and the gorgeous *Vanda Sanderiana*.

In the house once used as an experimental-house, and where Orchids used to be hung up to the roof and exposed to full sunshine, we found a collection of *Odontoglossums*, and of those noted in flower, were *O. Alexandræ*, *O. Pescatorei*, showing flower quite generally; *O. aspersum* (a supposed hybrid between *O. maculatum* and *O. Rossi*) was just indicating the colour in its buds, and *O. Harryaunum* appeared to be progressing under the treatment afforded, the home-made pseudobulbs on the lately imported plants being every bit as good as those that were made in its distant habitat.

Of *Masdevallias* a few were ornamented sparsely with flowers, viz., *lilacina*, *igneæ*, *Shuttleworthi*; the white with yellow tailed *Polysticta*, very small and curious; *Oethodes*, a pretty companion to the last-named—the flowers yellow; *Fraseri*, a Veitchian hybrid, and resembling *Veitchiana* in habit and bright colours; the showy *splendida*, also of Chelsonian origin, was showing colour. The *Cattleyas* promise for fine bloom, especially *C. Percivaliana*, which is to flower here for the first time this year; the *Trianae* section, *C. Warneri*, *C. Reineckiana*, *C. Mendelii* *superba*, *C. Backhousianam*. The *Oldfield Cattleyas* would not perhaps please those who prefer fine dark green immaculate foliage, and would be deemed unsightly; but of their flowering capabilities there can be but one opinion. The houses here are fully exposed the whole day, and get more sunlight, and as a consequence ventilation, than do others; hence the lighter colour and shortness of the leaves.

The *Cattleya*-house contains other species besides those: noticeable were good forms of *Odontoglossum Rossi*, many large pieces of *Cælogyne cristata* in variety, *C. Lemoinei*, *Angraecum eburneum* with several of its fine spikes of white and green flowers in fine order. *Vandas* and *Saccolabium giganteum*, the last-named a small plant bearing a raceme of pinkish-purple and white flowers. The spike is comparatively puny in point of size, but the foliage is larger than that of other *Saccolabiums*.

A goodly number of *Cypripediums* were observed in flower, and especially fine was the true *C. insigne* Maulei, a flower paler in colour than the type, and

perhaps always of a smaller size in all its parts: *C. i. albo marginata* is rather larger than Maulei, but is finely marked; *C. violaceum* and *C. Chantini*, varieties with handsome markings, were full of flowers. Several forms of *Lælia anceps* brightened the house with their showy spikes of flower; we remarked *L. a. Barkeri*, *L. a. Morada*, both with a lip of remarkable brilliancy and depth of colour: and *L. a. Hilliana*, the softer tints of whose flowers formed an excellent contrast to the other forms of *L. anceps*. The fine white *L. a. Stella* was found making good growth on a raft suspended near the roof. *Lycaste Skinneri* *alba*, a still uncommon variety, was bearing a few blooms. In all respects this collection of choice and rare Orchids keeps up its old reputation, and is well looked after by Mr. Heims.

THE SATYRIUMS.

These are very handsome when well grown, but our cool Orchid-house is too damp for them. If any one has a spare shelf near the glass in a light airy greenhouse, these and many other Cape plants would fill it better and give a better return for the care bestowed on them than most plants. I have flowered some very handsome *Satyriums*, and recently having seen a grand inflorescence of *S. carneum* at Mr. A. H. Smee's, at The Grange, Hackbridge, and knowing his skill, it occurred to me to ask him to describe his culture of these plants, and he says:—

"The *Satyrium carneum* has succeeded well, potted in rough fibrous peat and yellow loam in equal quantities, with a good sprinkling of coarse silver, sand and well drained pots. They were grown in the open air from July till the middle of September, in a shady position. The greatest care is necessary in watering, as the thick fleshy leaves cover the surface of the pot, and if one gets slightly injured the whole leaf ultimately decays. Before the flower-spike appears the centre of the plant resembles *Hæmanthus coccineus* and is unfortunately a convenient place for water to lodge, which, if allowed to remain, very soon causes the plant to rot. When water is required, the best way is to immerse the pots in a pail of water and keep the plants under cover during rain. After the plants have bloomed they are gradually dried off, and when at rest the pots are stored in a dry airy part of the cool-house and require no further attention until they commence to grow again." Harrow.

DENDROBIUM TETRAGONUM.

Like the majority of Australian *Dendrobes* this species is by no means of easy culture—a fact which perhaps accounts for its comparative rarity, notwithstanding the quaint and singular appearance of its flowers. Both in habit and in flower it is very different from any *Dendrobium* in cultivation. The pseudobulbs are four-angled, 6 to 10 inches in length, tapering towards the top and bottom. The sepals are about 2 inches in length, and produced into long tapering points; they are greenish-yellow in colour, with a few chocolate-coloured blotches; the petals are similar in shape, but shorter, and without blotches; the lip is creamy-white, marked with bars of pale rose. Minus the two petals, the general aspect of the flower would not be unlike that of a *Chimæroid Masdevallia*. It is figured in the *Botanical Magazine*, t. 5236, but apparently from a poor variety; a better and more distinctly marked form is now in flower at Kew. The plant requires stove treatment, and should occupy the lightest position in the house. *W. B.*

SOBRALIA SESSILIS.

This species, which in habit is one of the dwarfest of the genus, was introduced from British Guiana about 1840, but it has not at any time been common in cultivation, and exists at the present time in only few collections. Its flowers, like those of *S. macrantha*, are individually rather fugacious, but while they last they are extremely chaste and pretty. The sepals and petals are white, faintly tinged with rose, ovate in shape, and form a full open flower 2 inches across. The lip is of a pale purplish colour, suffused with yellow; the sides turn up and meet over the column. The flowers are produced from the top of slender stems 1–2 feet high, which con-

tinue sending up flowers singly for several months. A plant in the warm Orchid-house at Kew has now been flowering at irregular intervals since early summer. According to accounts published at the time of its introduction, it is found growing in hot, dry situations. If this be correct, it shows the advantages which are sometimes the result of departing from natural conditions; for the plant mentioned above, which is in vigorous health, is kept very moist throughout the year. As the roots mostly develop in a horizontal direction, a rather shallow pan is best to grow it in. *W. B., Royal Gardens, Kew.*

BRASSAVOLA CUCULLATA VAR. CUSPIDATA.

A species as beautiful in its flowers as it is curious. The leaves are pendent, green, but quill-like, with a sharp point at the extremity. The white star-like flowers are at the end of long slender stalks, each is about 5 inches in the long diameter, with narrow, lanceolate, acuminate, spreading segments, and a lip of similar form but lacinate at the edges near the base, and hollowed out in front of the short white column. *Lindenia*, t. 111.

AGANISIA CYANEA.

A Brazilian species, with creeping rhizome, fusiform pseudobulbs, lanceolate leaves, tapering at the base into a short stalk, and basal, many-flowered racemes. Each flower measures about 2 inches in its largest diameter, is of oblong outline, with obovate spatulate segments of a bluish colour, a lip narrow at the base, dilated into a trowel-shaped rosy-lilac lip, with stripes of a deeper tint. The column is white, with two rosy-lilac wings. This plant, which is very rare in cultivation, flowered last autumn in the Orchid-houses of the "Horticulture Internationale." It requires a damp warm atmosphere during the growing period, and to be shaded from the direct rays of the sun. *Lindenia*.

IONOPSIS PANICULATA VAR. MAXIMA.

An elegant Brazilian species, with lanceolate leaves and long slender flower-stalks, bearing a many-flowered panicle of moth-like flowers, the segments of which are small as compared to the large ($1\frac{1}{2}$ inch in diameter) roundish notched lip, which is white, with a lilac blotch at the base. *Lindenia*, t. 114.

DURANTA PLUMIERI.

How many people nowadays grow this old-fashioned shrub we cannot say, but certainly it has become scarce out of botanic gardens, though its pretty blue flowers, borne in great profusion towards the end of the branches, as Mr. Nicholson describes them in the *Dictionary of Gardening*, render it a suitable plant for the decoration of the stove in autumn. The *Durantas* are very variable—some spiny, others destitute of thorns; some with serrate, others with entire leaves. The variety we are now enabled to figure (fig. 9), owing to the kindness of Mr. Woodrow, has white flowers, and is a great favourite in Indian gardens, not only for its flowers but for its amber-coloured fruit, which is said to remain on the plant for many weeks. The manner in which the calyx-lobes become twisted as the fruit ripens is noteworthy. The species is widely diffused throughout tropical America.

THE CROTON.

Few plants rival *Crotons* for beauty and gracefulness of foliage, and although few plants are less neglected by gardeners, careful attention is necessary if success is to be attained in their culture. As regards their propagation, they can be struck from cuttings at almost any time of the year, the spring being, however, the best time. Healthy, well-coloured points of shoots should be selected for the purpose, and inserted in small pots, with a thick layer of silver-sand on the surface of the soil; the pots should be well drained, and almost any kind of light soil will do until the cuttings have struck root.

A propagating case, or a hand-light with a movable top, is a very good help in striking Crotons; or a bell-glass; failing these aids, potting off should be done as soon as sufficient roots are formed. As the Croton is much employed for table decoration, any that are set apart for the use of pots will not need any larger size than 24's, height and size of plant being governed by requirements. If large specimens are sought for, potting must be strictly attended to, so as to keep the plants growing freely, for if the growth be checked by the plants becoming too much pot-bound, the specimens will be deficient in leaf-

watered regularly, and the water should be at about the same temperature as that of the house. When sufficient roots are formed in the new soil, manure-water may be given in a weak state occasionally until the plant becomes rather pot-bound, when it can be given at greater strength. The drainings from a manure-heap is the best if they can be obtained, and if not, I would strongly recommend Thomson's Vine and Plant Manure to be mixed among the soil used for potting them. Syringing the plants is an operation which, if performed properly, will prevent insects from infesting the plants so as to cause any trouble.

may range from 75° by night to 80° and 90° by day with sun-heat.

All pinching and cutting out of points is best done in the autumn or winter months, and the plants should be tied in of the required shape, which may be either bush or pyramid; the point must be taken well back so as to get a good break of three to four buds below, and the desired shape should be determined on early, and then, if large plants are wanted, a splendid one can be grown from a cutting in about four years.

Thrips, which are partial to the plant, can be destroyed by fumigating, and for white thrips tobacco-water is by far the best insecticide. This variety generally attacks the young leaves, causing them to fall off, and especially is it partial to Croton Hawkeri; but if pure water (soft) be forcibly applied with the syringe, few insects will be found to harbour on the plants, and sponging of the leaves should be done occasionally.

As regards the best varieties to grow, the following may be taken as representing the best:—Warreni, Chelsoni, interruptus aureus, Johannis, Queen Victoria, angustifolius, Weinmanni, superbus, Earl of Derby, and Disraeli—the latter having three-lobed leaves. *Mayflower*.

TRADE NOTICES.

MESSRS. HURST AND SON.

AMONGST the many notable firms which have risen into importance during the last fifty years and which owe their present flourishing condition to the energy and intelligence of the directing mind, the firm of Hurst & Son., of 152 and 153, Houndsditch, London, holds a foremost place. But little is betrayed by outward sign of the amount of business that is transacted within their precincts. Standing before the rather old-fashioned premises, which comprise three wholesale shops, and offices, and roomy warehouses in the rear, there is nothing about its external aspect differing from that of many other similar places in the city of London. A surprise is, however, in store for any one visiting the cleaning, packing, order departments, and warehouses at the rear. The storage space, large as it is, does not contain all the produce, but portions of each, for prompt despatch, the remainder of the bulks being at railway stations, and warehouses in London and other places. This perforce must be so with goods of such large bulk as Beans, Peas, grass seeds, and Mangels, the mere cartage transport of which from the points of arrival, and the costliness of warehouse space in the City, being items of cost which must be taken into consideration at any time, and of extreme importance in these days of keen competition. The tour of inspection lately undertaken by the writer was commenced at the Houndsditch entrance; the first place being a long room, whose windows looked out on Houndsditch at one end, and into the large yard at the rear. Here the wholesale vegetable seeds are put into bags, or packets, ready for requirements, and later for removal to the final packing up, which takes place elsewhere. Here were noticed great bins filled with varieties of Carrots, Spinach, Onions, Beets, Cabbages, Kales, Savoy, Broccoli, &c.

With regard to the quarters whence these seeds come, we were informed that the Turnips and Swedes are chiefly of Bedfordshire and Kentish growth; Cabbage and Broccoli seed is chiefly grown in Essex, and Onion seed comes from the headquarters of Onion culture—Bedfordshire.

In a room off the side were a number of women and girls busy in making up various sized packets in readiness for future orders—a clean feminine employment, not involving either hard labour or grimy persons or clothes. Stepping out-of-doors we entered a building at one end of which is the despatch office, whence no single item sent to customers is allowed to depart till after careful scrutiny. This office contains samples of goods lying at sea-ports, railway stations, canal-wharves, and similar places of storage. Frequently sales are effected from



FIG. 9.—*DURANTA PLUMIERI*, VAR. *ALBA*. (SEE P. 44.)

growth. The early autumn is the best time to pot them, as by so doing the roots get a firm hold of the fresh soil by the springtime.

The best potting material is turfy loam with the fine soil sifted out of it, and a liberal mixture of sand. Artificial manure may be used with advantage, but splendid plants can be grown without any at all. The pots used must be thoroughly clean, and well drained with large pieces of potsherds; no small sherds should be used, a surer and better drainage being thus secured. Watering is of much importance, and on the judicious administration of it depends success.

Crotons are moisture-loving plants, and must be

If scale is troublesome, they must be picked off with a small pointed stick, and the plants afterwards syringed with petroleum at the rate of a wineglassful to four gallons of rather hot water, and kept regularly stirred about while using it. In the summer months forcible syringing must be done every evening, and plenty of atmospheric moisture maintained in the house, which should be closed early to allow the temperature to run up from 85° to 95°, all steaming troughs being kept filled with water, and at times with liquid manure, the plants being kept growing. The most suitable temperature in winter is 65° at night, to 75° by day with sun-heat; the summer temperature

these samples only, the goods never coming to the warehouse in Houndsditch at all.

In the neighbourhood of this happy dispatch office were stacked hundreds of bushels of Beans. There were Beans Broad, Beans French, Beans of Butter (Butter Bohnen)—capital eating these last, but not making much way in our country, because English housewives imagine that the pods of "good" Beans should be green, which these are not, but yellow, like butter.

The warehouse we are now in is on the Church Row side of the range of buildings, into which it has an entrance, and an Otto gas engine working silently affords the means of loading and unloading heavy goods. The warehouse is devoted to the storage of Peas. On all the floors sacks are piled ten sacks high, excepting narrow passages, which bewilder the explorer in the uncertain half light, which run through and around these piles of Peas. Women were sorting Peas at tables running along in front of a row of large windows, other women were sifting out, in small machines consisting of a series of sieves, Peas that were faulty in samples before passing the seed to the women at the table. The sorting done by the latter, consisted of picking out weevil-eaten seeds, and such other inferior or small seeds as the indiscriminating sieve machine had let pass through its meshes. So much Peas is getting monotonous and we long to escape up the steep ladder-like stairs only to find that the Peas have ascended before us, and that the room is as full as the one we have left below. One cannot but be impressed by the immensity of Pea matter on all sides, the produce of 1500—2000 acres of land. These enormous quantities of Peas are grown by farmers and others, who enter into a contract to grow a certain quantity at a price per quarter of 8 bushels; and be the nature of the season what it may, and the yield ever so small, the contract holds good. In a favourable season the early Peas are delivered at the warehouse during August, and the later varieties in succession as harvested. Certain kinds of Peas are in large demand—such are Daniel O'Rourke, Early Prolific, Advancer, Prize-taker, Champion of England, Laxton's Supreme, Ne Plus Ultra, Veitch's Perfection, and British Queen.

It was with a feeling of relief that we again ascended to a floor piled with sacks to the joists as before, not with Peas, but with seeds of Cauliflower, Cabbage, Broccoli, and Onion, in numerous varieties, and the seeds of 1887 growth. Another floor above this one was heavily laden with seeds in sacks, overpiled, of Radishes, long and short, Spinaches, Sweet Peas, and Mignonette.

Fancy, ye retailers and sowers of pinches of Mignonette seed, what labour and cost the 5000 lb. of seed of this perfumed favourite mean in saving and cleaning the same! How many acres of the plant must be grown ere the weight of 2½ tons is obtained, and how much labour was spent in getting it ready for you!

Seed of Mignonette and many other kinds of annual flowering plants come from the county of Essex, although other parts of England and the continent of Europe supply considerable quantities. Of Sweet Peas, in mixed colours, as much as 200 bushels were in stock, and in separate colours about 100 bushels. Another floor near the top of this warehouse, measuring 20 yards in length by 16 yards in width, contained sacks of seed of Parsnip and Carrots; and at the very top were Carrot and Beet seed in bulk; this floor was made practically air-tight, the better to preserve the vitality of the seed deposited therein.

In the busy season of cleaning and despatching seeds, about 150 to 200 women, besides men and boys, are employed in this single warehouse, at rates of wages that vary with the individual's dexterity.

The warehouse for Turnip and Swede seeds is apart from the others, and has a distinct staff of men who execute all orders for these seeds. Screening and sifting the seeds is carried on here by means of cleverly designed machines of the firm's invention. A floor in this warehouse would measure about 12 yards by 18 yards, and the stocks stored at this season are very large, sacks being piled from floor to

ceiling, 8000 sacks being about the quantity then in store. The cleaning is done by means of screens and sieves, the seed falling in some instances from floor to floor, until it appears at last perfectly free from light and weed seeds.

Besides the premises in Houndsditch is another large warehouse in Butler Street, not far from the Jewish quarter of Aldgate. The area on which it stands is about 30 yards by 30 yards, giving floor-space equal to 1 acre. Here were stored hundreds of tons of Clovers—white, red, Alsike, Lucerne, and Cow-grass, predominating.

Natural grasses find a place on some of the floors, and much of the seed was still in the sacks in which it was imported. Here were observed a large bulk of Foxtail-grass from Finland in unwieldy bags of roughly woven material, and feeling like nothing so much as a feather-bed. Cocksfoot and Rye-grass from France, and Dogstail grass from Holland, occupied a large amount of the space on different floors. The mixing of the various natural grasses, for the varied purposes to which they are put in field and garden, is done in this building. Of Timothy and red Clover, and Meadow Fescue and Cocksfoot, very large quantities come from the United States of America and Canada; and we observed English, Scotch, and Irish perennial Rye-grass in enormous bulk.

Natural grasses and Clover are the products of many different parts of Europe and North America, and beside the country before-mentioned, Sweden furnishes Timothy and Alsike, Austria and Germany supply Alsike, white and red Clover, Lucerne; Sainfoin and Italian Rye-grass come from France.

Some varieties of Mangel Wurzel seed were stored here, the quantity of which was very large. Much of the Mangel Wurzel seed is the growth of Kent, Essex, and Cambridgeshire. Where do these enormous stocks of seeds go to? The agricultural seeds, especially those of grasses and Clovers, are largely shipped to Australia, New Zealand, California, Canada, and the United States of America, the two former countries taking seeds of suitable grasses to lay down immense tracts of cleared scrub for pasture purpose: in one instance 100,000 acres were so treated with excellent results. Smaller but increasing consignments of agricultural seeds are made to the Cape and Natal. And not only are mixtures of grasses extensively used for laying down new pasture land, but the preparation of seeds for the improvement of old pastures is an important matter also, and is especially considered by Messrs. Hurst & Son.

The United States is a good customer for flower and vegetable seeds, and considerable quantities are exported to India, China, and Japan—in fact, to whatever habitable part of the globe our wandering race have migrated. Seeds which have to be sent to distant parts of the world, and have therefore to pass through different degrees of temperature are found to travel in the best condition when packed in air-tight tanks. To meet this requirement the firm pack seeds loosely in canvas bags, which are then put into the tanks through the manhole, and being loose it is found possible to pack into the tank a larger quantity of seed, than could be done with firmly made-up packages. When quite full the covering of the manhole is fixed securely, and all in proper condition to withstand the—for seeds—trying journey.

Quite recently an additional space has been secured for the flower seed department by the acquirement of No. 151, Houndsditch. Here is brought together the pictorial seed-packet and German seed-packet business—a branch which is yearly increasing in volume. The flower seeds in bulk and in packets occupy about 1000 drawers in this portion of the premises.

In an establishment of this magnitude a much longer time than that occupied by the writer of this note would be required before an exhaustive inspection could be made, but enough will have been noted to give the reader some insight into the extent and variety of business and the care taken in its management by a large firm like this.

THE ORANGERY.

ORANGE TREES IN POTS.

I WAS pleased to read an account of the successful culture of Orange trees in pots at p. 755 (vol. ii., 3rd ser.). I have for many years advocated the culture of these in pots, and more than once detailed the system of culture I have found best in practice. This is now the season for reaping the fruits of twelve months' labour.

During the months of November, December, and January the Maltese Blood and the St. Michael's varieties continue to produce well-developed, well ripened fruit bursting with juice, indeed there is always a difficulty to prevent the skins bursting with the juice. The best way to prevent this is to keep them short of water at the roots, with a rather dry atmosphere at the same time. This is quite necessary when the fruit is ripe; and at that time there is no great danger of the skin cracking; it is when the fruit is approaching the ripening stage that the danger exists, and that precautions should be taken. The little Tangier variety is the more useful because it produces its delicious fruit in September, and the fruit is scarcely gathered before the blossoms appear for next season's crop. The trees ought to be kept rather cool for a short period, and advantage may be taken of this time of rest to repot any of the trees that require repotting; but this is not required except about once in two years; and the season in which they are not repotted a good surface dressing is desirable. Before applying the surface dressing, a portion of the top soil ought to be removed, but not to the extent of disturbing the roots very much. I remove all the soil down to the point where the fibrous roots are numerous, and pick it out from amongst them to a very limited extent, with the fine of a steel digging fork—one may be broken from a worn out-fork. An appliance of this kind can be laid aside, and is useful for removing the surface soil from any class of pot plants for top-dressing, and also for disentangling the roots before proceeding to repot any of the trees. In this place it is also well to remark that if a fruit tree, or any tree, has to remain in a pot for, say, two or three years, it ought to be placed in it carefully. Let the pots be clean at least inside, and quite dry. If they are new, let them be soaked for a few hours in clean water, and dried before using. Place clean potsherds over the hole in the bottom, in such a position that the water may drain down equally well in every part. Spread over them a layer of fibrous turf from which the clay particles have been shaken out. The compost ought to be ready mixed six weeks or more before using it, and not too dry. The black peaty soil in which Orange trees are potted and sent to this country from the Continent will not do at all for trees intended to produce fruit far superior to the best imported. Good fibrous loam—the tougher the fibre the better, and not too much decayed—is best. Let it be torn up by hand, and mixed with a fifth or sixth part of stable manure; some crushed bones and charcoal broken up into pieces from the size of a hazel-nut to a walnut, an inch or so of the potting compound, may be spread over the fibre, and pressed in firmly; the tree which has been prepared for potting, should have its base resting on this, with the upper part an inch or so below the rim; and a space all round the ball of roots, of 1 inch to 2 inches; fill in all round with the soil, heating it down rather firmly with a wooden rammer. When the trees are treated in this way, they grow with great vigour, and speedily fill the new soil with roots; but in the early stages of their forming roots, care must be taken not to give too much water, as an excess of moisture in the fresh rich soil would cause it to become sour. Orange trees and Pine plants succeed well together, if the trees can be placed in a part not occupied by the Pines. I find they will do no good under the shade of Vines, or in fact anything else; even the necessary light shading required for a hothouse containing plants is inimical to their perfect development: this I have found out in practice. I tried to grow them in a house where Cattleyas did well, but found the fruit was inferior in flavour, and none of it cracked in any way. I therefore advocate free exposure to sunlight, and a high temperature; indeed, during the summer months, the temperature would rise to 90° and 100° in the afternoon, with the sun shining directly on the leaves; but this is what they delight in, and must be very much like the climate where Oranges ripen best; of course, at the time of shutting up the house, the trees are freely syringed with tepid

water, and the moisture arising in the house speedily condenses on the glass, forming a film which, to a certain extent, must intercept the sun's rays. *Jas. Douglas.*

Orange Trees.—At this season, Orange trees grown to supply ripe edible fruit will be in a house whose temperature will range from 55° at night to 65° and 70° by day—the higher point being reached by sun heat and not by firing. With Oranges used to embellish the conservatory, the course to be pursued consists in maintaining the house at a day warmth of 55°–60°, and during the night at 45° or even less.

Watering the Orange trees in tubs in the cool house is a matter requiring much judgment, and should not be deputed to young or inexperienced men, over-watering being especially detrimental to the health of the trees.

If ample drainage be afforded to trees in tubs, once a month will be sufficiently often to give water to plants in tubs of 2½ feet to 3 feet in diameter; smaller sized tubs and pots requiring water perhaps at rather shorter intervals. During the winter months, when bad weather often compels work to be found for the gardeners indoors, the opportunity should be seized to have the plants cleaned of black mould which affects the older foliage; and of white scale and dust. All of these incrust either the foliage or the wood, and are harmful in various degrees to the well-being of the trees.

For scale and blackfungus, petroleum emulsion is excellent; sponging the leaves with a sponge, and scrubbing the bark with a brush.

Aged trees frequently set too large crops of fruit, and if all the fruits are allowed to remain on the tree its energies become proportionately weakened—short growth, small foliage, and a tendency to become affected with the above-mentioned insect, and accretions. It is, therefore, in cases of excessive fruiting necessary to reduce the number of the fruits, as is done with other fruit trees under cultivation. The fruits left will be finer, and therefore more ornamental, and although they will hang on the trees long after they are ripe, the greater portion should be gathered before the opening of the blossoms in the spring.

Fresh tabbing or potting need not engage attention before the end of March. *M. F.*

THE FLOWER GARDEN.

HERBACEOUS BORDERS.—There is an increasing demand for hardy perennial plants, and every probability of its enduring for some considerable time. Although the time for making and arranging beds and borders is now some five or six weeks late it is not yet too late to proceed with the work, providing it be taken in hand in mild weather and completed forthwith, and to be rewarded with a fairly good display during the summer and autumn months, and as doubtless there are some amongst our readers who from various causes were unable to take advantage of the proper season, and are still desirous of not losing a year, we give a few details regarding the arrangement and selection of a fairly representative collection of sufficient variety. In the making of new borders, and where the choice of a piece of ground is free, preference should be given for an open situation and a well-drained soil; but this is not an absolute necessity, as many perennial plants will grow fairly well almost anywhere; however, it is as well to bear in mind that there are places which may be described as bad, the worst being in the immediate vicinity of large trees, whose roots impoverish the borders, and the branches in the summer months unduly shade the plants growing near. There is no objection to having a border in front of dwarf growing shrubs with trees in the background—indeed this is where we most frequently find one in private gardens, neither is there any thing objectionable in their being in close proximity to a fence or a wall having an aspect facing east, west, or south. Having selected and marked out the extent of the intended border, the ground should be trenched, and if out of condition a dressing of decayed manure should be worked in as the digging proceeds. If the soil is of a clayey nature and liable to “bake” on the surface in hot weather, nothing is better than mixing a liberal addition of burnt clay, wood ashes, leaf-mould, and finely-sifted cinder-ash with the staple. The labour involved in this extra work will be compensated for afterwards by the finer growth of the

plants. In planting an open border—let us say 13 feet wide and of any length—the arrangement of plants should be of such a character that the border will present a double face, the tallest plants being put in the centre, and gradually reducing in height down to the outside. For a border of this width seven rows of plants will be ample, and may be arranged as follows:—Central row. Delphiniums of sorts; along with these may be *Pyrethrum uliginosum* and *Helianthus*. The above will average in height from 4½ to 6 feet. The second row should be at a distance of 2 feet from the preceding, and may consist of *Solidago canadense*, *Spiraea aruncus*, *Michaelmas Daisies* of sorts, then *Bocconia japonica*, *Oenothera grandiflora*, *Papaver bracteatum*, *Verbascum nigrum*, *V. niveum*, and *Lilium candidum*. The majority of these will range from 3 to 4 feet. The third row from the centre should be at a distance of 18 inches from the second, suitable plants being *Asphodelus luteus*, *Anemone japonica*, *Achillea ptarmica fl.-plea*, *Aquilegia coerulea*, *A. chrysantha*, *Aster dumosus*, *A. amellus*, *A. grandiflorus*, *A. bes-arabicus*, *Astrantia major*, *Chrysanthemum arcticum*, *Dielytra spectabilis*, *Dictamnus fraxinella*, *Doronicum caucasicum*, *Geum coccineum*, *Hemerocallis flava*, *Iris amœna*, *I. Kœmpferi* and its varieties, *Lobelia fulgens*, *L. syphilitica* and varieties, *Lychnis chalcedonica*, *Oenothera Fraseri*, *Phlox*, florists' varieties; *Rudbeckia Newmaniana* and *Stenactis speciosa*. The next row should be 8 inches from the edge of the borders, and may be planted with *Campanula carpatica*, *C. collina*, *Draccephalum austriacum*, *Gentiana verna*, *Hepatica triloba* and its varieties, *Iberis gibraltarica*, *Tussilago farfara variegata*, *T. fragrans*, *Veronica candida*, *V. reptans*, *Violas* of sorts, *Helleborus niger* and varieties. Instead of scattering herbaceous plants indiscriminately through the border, an attempt should be made to group colonies of plants of one variety, or of one species together; this will add much to the interest felt by the observer, as the same thing, when once seen, will not be met with again in another spot. Before planting has commenced tread the surface of the border down firmly, and as the planting proceeds press down each plant also, and finish off with a top-dressing of decayed manure. In the event of dry weather being experienced at a later period occasional waterings will be necessary and beneficial till the roots have taken a firm hold of the soil. Avoid at all times the common practice of forking over the surface-soil merely for the sake of giving a neat and clean appearance, for on borders planted with subjects of this character, the only garden tools that should be used afterwards are a Dutch hoe, rake, and trowel. *J. Horsfield, Heytesbury.*

PLANTS UNDER GLASS.

THE CONSERVATORY.—This structure in many cases is attached to the mansion, and the general effect externally, or from an architectural point of view, frequently gets more consideration at the time of erection than do the arrangements for the well-being of the future occupants. Now that the *Chrysanthemums* are nearly over, *Salvias* will be found useful, although it is true they are not so useful for cutting as purposes, for intermixing with other plants. Owing to their varied and distinct colours some are very attractive subjects. Amongst the best for conservatory decoration are *S. Bethellii*, with its rosy-crimson flowers and bright-coloured bracts; *S. ianthina*—this is a lovely species, having large deep violet-purple flowers; *S. splendens*, and *S. Bruantii*, both of a vivid scarlet. These are now just at their best, and will soon be over, to be succeeded by *S. coelestina*, a free-flowering sort, of a beautiful shade of blue, telling well amongst other plants; *S. rutilans*—this is one of the best, with its glowing red racemes of flowers—*S. Camertonii*, purple-brown flowers; *S. Steerii*, a strong-growing scarlet; *S. Goudotii*—this species has a dwarf bushy habit, and yields a profusion of its light mauve flowers for a long time; *S. elegans* and *S. gesneriflora* var. *splendens* are two of the best; *elegans* has a free branching drooping habit, forming a perfect pyramid of flowers, and is a good plant to stand in isolated positions.

To have *Salvias* in good condition for winter-flowering it is best to raise a fresh batch of plants annually, and the present is a good time to put in cuttings. Select the points of strong healthy shoots, insert them in threes round the sides of small 60's,

using rather sandy loam. Stand them where they can have a rather close moist atmosphere—about 55°—they will root in about three weeks, and may then be potted on singly in 60's; return them to their former quarters until they begin to grow, afterwards hardening them off, and placing them with the *Chrysanthemum* cuttings, which will now be in process of being potted off.

The Forcing-house.—Continue to introduce fresh batches of plants from the reserve stores. It is always well to err on the safe side by bringing in a few more than you think will actually be required, and should you be fortunate enough to get all your batch to turn out well—a few extra flowers never come amiss. Lily of the Valley will now be coming in freely—do not be in too great a haste to remove the plunging material. If it is uncovered too soon, it is very difficult to get the flowers to open properly afterwards. After the flower-spikes are well up and are showing colour, remove the plants to a cooler house, the foliage will then develop, and this if the pots are to be used for decorative purposes, makes them look much better. *Deutzias* are now coming on rapidly, if they are weakly they may be very much improved, while their racemes are developing, by the application of liquid manure. *Astilbe japonica* (*Spiraea*) is also much improved by this kind of treatment; if the ordinary sources of liquid manure are not available, an ounce of nitrate of soda to the gallon of water will answer—it gives that kind of luxuriance and dark green colour to the foliage which is so much admired. Examine Tulips, Daffodils, *Polyanthus*, *Narcissus*, and *Hyacinths*. The latter may be pushed on rather faster than the others, as they are likely to have more roots; unless there are plenty of roots, hard forcing will only end in abortive flowers. This is especially the case with Tulips. If not already done, lose no time in getting in some Tea Roses, and for the earliest batch we prefer plants that do not require potting, merely removing the loose surface soil from the pots, and putting on a little quantity of any of the concentrated fertilisers, re-surfacing with fresh soil. If it can be managed they are better if started in a temperature of about 50°, until they have broken away. Unless it be urgent, do not keep up an extra high night temperature in the forcing house, say a minimum of 60°—rather allow a considerable rise during the day. *F. Ross, Pendell Court.*

THE HARDY FRUIT GARDEN.

PLANTING.—Where this has been delayed, the change to milder weather will enable it to be proceeded with. Having selected the sites to be planted, proceed to dig the holes, which for standard trees should not be less than 3 feet in diameter, 2 feet in depth, the soil at the bottom of the hole being well broken up. In planting the trees throw in some good sound loam, chopped up with a little well rotted manure added, and for Cherry trees add lime rubble. This may appear unnecessary to many, but fruit trees that have this extra labour expended upon them at the time of planting always grow better and fruit sooner than those planted in the ordinary soil.

Should the holes be wet, drains must be made in connection with the nearest drain to dry the ground. Let the mouth of the drain (which in the neighbourhood of tree roots is best made with rubble) project just inside the hole, then put in a good layer of brick rubbish or any suitable material that may be at hand, and on this place some whole turves, the grass side downwards. After the trees are planted they should be staked and tied loosely to the stake, to prevent wind waving. To prevent the cutting of the bark use haybands or strawbands for ties provisionally, the final fastening being done when the soil has settled. Pyramids and bushes may be planted 8 feet apart, and kept summer pinched, and standards should stand 21 feet apart each way.

For growing as cordons, upright or oblique, and planted 2 feet 6 inches apart, the following Pears are good varieties for the purpose:—Clapp's Favourite, Brockworth Park, Beurré Giffard, Duchesse d'Orleans, Winter Nellis, Marie Louise, Marie Louise d'Ucle, Beurré Hardy, General Todtleben, Maréchal de la Cœur, Doyenné du Comice, Beurré Superfin, Chaumontel, Olivier de Serres, Bergamot d'Esperen. There are a great many more varieties that would succeed as cordons, but the above will be found to bear fine fruit of first-rate flavour. *A. Ward, Stoke Edith Gardens, Hereford.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, JAN. 19—Linnæan Society.

SALES.

MONDAY,	JAN. 16	{ 20,000 Liliun auratum, &c., from Japan, at Stevens' Rooms.
		{ Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.
WEDNESDAY,	JAN. 18	{ 8000 Liliun auratum, Roses, and other Plants, at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 19	{ Collection of Orchids in Flower and Bud, at Stevens' Rooms.
FRIDAY,	JAN. 20	{ Orchids, at Protheroe & Morris' Rooms.
		{ Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.
SATURDAY,	JAN. 21	{ Miscellaneous Plants and Bulbs, at Protheroe & Morris' Rooms.

Tha Royal Horticultural Society. AMID dismal surroundings the first meeting of the year was held on Tuesday last. The conservatory was rendered gay with Primulas from Messrs. CANNELL, Cyclamens from Messrs. H. PAGE & SON. Mr. TAUTZ contributed some Cypripediums, which attracted much attention; Mr. P. SANDER showed an Angrecum, while from Sir GEORGE MACLEAY's garden Mr. ROSS sent some spikes of the lovely Oxera pulchella, a white-flowered Clerodendron-like shrub, of first-rate quality as a decorative plant, and of which we hope to be able shortly to give an illustration. At the Fruit Committee Mr. RIVERS showed how a Quickset hedge may be made to yield bushels of fine Medlars. Mr. ROBERTS, of Charleville, showed bunches of his White Gros Colmar Grape, which had good looks, but which did not find much favour from the experts. The Scientific Committee was very well attended, and numerous interesting communications were made to it, of which we shall give a record in due season; but, after all, the most noteworthy feature was the large attendance of zealous committeemen, and this we look upon as the most hopeful of the signs of the times.

A society which, even in its period of depression, can secure such an attendance of men eminent in their several departments is in anything but a hopeless condition. The wonder is that, given such a splendid army—of which, as it is quite evident, the Society can command the willing service—no organising leader comes to the front to avail himself of such excellent material. We have heard it whispered that the

Society is getting too botanical, but if that really be so whose fault is it? Surely if one section of the community shows some signs of energy, is that not an additional reason why the others should do so too?

Apart from the ordinary business of the three committees the chief interest centred in the proceedings of the special meeting. This was summoned in order to confirm and render legal the proceedings at the preceding meeting, when, as it will be remembered, an outside committee was appointed, or perhaps we had better say re-appointed, to confer with the Council, and offer suggestions upon various matters, such as the necessity or otherwise of obtaining a new charter (the old one being by force of circumstances and effluxion of time obsolete as to a large number of its enactments), the construction of new bye-laws, the appointment of new members of Council, and other matters.

At the special meeting, presided over by Baron SCHRODER, Dr. HOGG read the minutes of the last meeting, which were duly confirmed and legalised. Mr. BARR and Mr. HERBST took the opportunity of urging the necessity of establishing a new grade of Fellows, paying a lower rate of subscription, and who should be entitled, in their degree, to a share in the government of the Society. Representation should, in the opinion of the speakers, follow upon taxation—a sentiment in which we heartily concur. The outside committee, new duly legitimatised, set to work immediately afterwards, but it would not be right to chronicle fully their procedures, which for the time are to be considered in the same light as “unread proofs,” which have not been revised, and have not received the author's sanction as to publication. We shall not, however, violate any confidence when we say that the first step of the new Committee was to add to their numbers so as to secure the representation of various interests, such as those of practical gardeners, representatives of the special societies, like the Rose and the Chrysanthemum, and local horticultural magnates. All these matters were formally taken into consideration, and we believe many gentlemen, selected on these principles, will be asked to join the committee. One difficulty at starting will be found in the circumstance that many of the most suitable men are not fellows of the Society, nor likely to be, so as long as there is no guinea or half-guinea subscription, and so long as the special societies drain away so much that should serve to enrich the old Society. The President, Sir TREVOR LAWRENCE, also asked for suggestions as to the nomination of new members of Council, and this business was proceeded with on the same lines as those regulating the formation of the Committee. It would not be proper to discuss these details in their present inchoate stage, but we do most earnestly beg the Council to pay heed to the earnest desire of practical horticulturists for fuller and more satisfactory representation on the Council. There is a feeling abroad that the botanical element is likely to be too prominent, and while recognising the exceeding value of this section, we nevertheless fully concur in the principle that the practical element, including the commercial section, and more especially the practical gardeners, should be even more fully represented in a horticultural society. At the annual meeting in February, the Fellows at large will have an opportunity of making their wishes on this point heard, and we heartily hope they will not neglect their opportunity, and not tacitly assent to any proposal either of Committee or Council till they are assured

of its propriety. If they do remain silent and sequacious they must not hereafter complain that their interests have been neglected.

The question of site for the reorganised Society has not yet been resolved; it is more than time that it was. Meanwhile it must be remembered that Chiswick is still available, and if no more central site be forthcoming Chiswick would by no means be an undesirable spot, if only it were properly developed. This leads us to the question of officers. Captain BAX, who has been acting as Assistant-Secretary for some time past, has resigned. It is not necessary to enter into the reasons for this. Horticulturists will in any case have a grateful recollection of his unvarying courtesy—never too prominent a feature in the governing body of the Society—and of his willingness to oblige. Mr. BARRON and Mr. DICK still retain office, and they have, and deserve to have, the fullest confidence and respect of the horticulturists. Nevertheless, the necessity of a competent commander-in-chief, invested with full powers, and, as long as things go well unfettered by the Council, is more than ever pressing. Like Sir JOSEPH HOOKER, we do not doubt that such a man might be found. The late Mr. JENKINS, who lived to win hearty recognition from the Royal Agricultural Society for the value of his services, was quite unfamiliar with the duties of his office when he entered on his career, but he speedily made himself acquainted with them, both practical and scientific; and those who scoffed at his appointment are now among the first to admit the exceeding value of his services. We must not expect to meet with such a man ready-made—such a combination of talents as he possessed is always rare, but still there must be many a young man whose business capacity and scientific insight only need the opportunity for development. This is the sort of man the Society wants, this is the sort of man to be trusted, not thwarted, by the Council.

The list of local societies which we publish in the present issue though necessarily incomplete and only professing to be a select list, is, nevertheless, one to make the authorities of the Royal Horticultural Society ponder. Every one of those societies should be not only local, but they should be the provincial representatives of the one great National Society. The union between these local societies and the central one should be close and intimate. Each might be most useful to the other, and we hope to see in due time representatives of the more important of them, either on the Council—which would be the best plan—or, as that would be impracticable while the present charter is in existence, at least on the general committee, supposing that body to have more than an ephemeral existence. But in very truth there is no fundamental difference of opinion as to what the horticulturists want, nor as to what the general future policy of the Society should be. Details may be the subjects of difference of opinion, but we take it there is no substantial difference whatever as to matters of principle. We own that we have not any great faith in the utility of the general committee just appointed, unless the Council heartily co-operates with it. If the Council will not do this, then there is nothing for it but a new charter. If, however, the Council will carry out their part of the bargain there seems to us no absolute necessity for a new charter at present, however desirable it may ultimately prove to be. Earnestness and work are what are demanded from the horticulturists at the present juncture. If they are not forthcoming no Council, were it composed of angels, could effect much good.



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FRANCOIS LACHARME.—We are requested to announce that the French Rose-growers have opened a subscription-list in order that a memorial-stone may be erected over the worthy and renowned Rose grower, FRANCOIS LACHARME, who died last November. LACHARME's name and his productions are well known to all lovers of Roses, who are invited to show their appreciation of his efforts by forwarding subscriptions for the fund to one of the Treasurers—M. A. BENNAIX, 63, Cours Lafayette, Villeurbanne, Lyon; and M. P. COCHET, Grisy-Suisnes (Seine-et-Marne). The Secretarial duties are fulfilled by M. NICHOLAS at Lyons, and M. LÉVÊQUE in Paris. The names of subscribers are to be published in the *Journal des Roses* and in the *Lyon Horticole*.

NATIONAL CHRYSANTHEMUM SOCIETY.—A meeting of the General Committee took place at Anderton's Hotel, Fleet Street, on the 5th inst., Mr. E. SANDERSON, the President, in the chair, there being a large attendance of members. It was resolved that the annual meeting of members should be held at Anderton's Hotel on Tuesday, January 31. The Secretary, Mr. W. HOLMES, announced that Messrs. WEBB & SONS, seed merchants, Wordsley, Stourbridge; Mr. C. FIDLER, seed and Potato merchant, Reading; and Messrs. H. DEVERILL & Co., seedsmen, Banbury, had offered special prizes for competition at the Society's shows at the Royal Aquarium in September and November of the present year; and the same were accepted. It was also stated that M. S. DELAUX would give the sum of 200 francs as special prizes at the November exhibition. Mr. H. CANNELL also offered valuable special prizes, conditional upon the balloting system being employed in awarding the prizes, as last year. It was generally admitted that the system broke down completely last year, and therefore a resolution was passed, almost unanimously, that the productions to be invited in competition for Mr. CANNELL's special prizes should be judged in the ordinary way. Two Fellows and seventeen new members were elected, and the Winchester Horticultural Society was admitted into affiliation. The necessity for revising the Society's catalogue of Chrysanthemums was discussed, it being stated that if it is to become as complete a list as possible of all the varieties that have been sent out from time to time, it would become not only a bulky but an expensive publication. Some were in favour of this course, others for making the catalogue a compilation of the best exhibition varieties only. Eventually the matter was postponed for further discussion.

ROYAL HORTICULTURAL SOCIETY.—At a general meeting of the Society, held on January 10, James Bateman, Esq., F.R.S., in the chair, the following candidates were duly elected Fellows of the Society, viz.:—Alfred G. Beebe, Richard Bradshaw, R. Giles Bradshaw, Henry Brown, Alex. Cheal, Miss R. Debenham, William S. Dent, T. G. H. Eley, Joseph Harris, H. Herbst, John H. Tite, John Mackrell, Frank R. Parker, Charles H. Smith.

BIRMINGHAM GARDENERS' ASSOCIATION.—At the annual meeting of this Society (January 3), in competition for special prizes offered by Mr. Woon, a member of the committee, for a collection of British grasses, to be collected, mounted, and correctly named by the exhibitor, only one collection was staged, by Mr. ALBERT JEFFS, at present groom and gardener at Boldmere, Sutton Coldfield, near Birmingham. At the commencement of 1887 he, as we are told, knew nothing whatever about British Grasses or other plants, but was induced by a friend, who lent him SOUWENY's *British Grasses* and other works, to take up their study, and on this occasion he staged eighty-three varieties, nicely mounted and named, and won well the 1st prize, the gardeners and nurserymen present also marking their sense of his meritorious work by unanimously awarding him also a Certificate of Merit of the Gardeners' Association. This being the general meeting of the Association Mr. W. B. LATHAM was again unanimously elected as chairman of the committee. On December 6 Mr. WILLIAM

SPINKS, the manager of HANS NIEMAND & Co.'s nursery, read a paper on "Narcissi and its Varieties," giving their classification, illustrated by coloured plates. It was a most interesting paper, and led to a spirited discussion afterwards.

"CASSELL'S POPULAR GARDENING."—A new issue of this work, edited by Mr. D. T. FISH, is in course of preparation, of which the first part will be published shortly.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The following statement of the receipts and payments for the year ending December 31, 1887, is that presented at the meeting held on Friday, January 13:—

Dr.	£ s. d.	£ s. d.	£ s. d.
To Balance, 1886	...	...	380 3 10
Annual subscriptions	...	1282 15 0	
Donations at and in consequence of annual dinner	...	866 15 0	
Jubilee collecting cards 677 12 2	...	...	...
	...	1544 7 2	
Advertisements... ..	...	53 18 6	
	...	£2881 0 8	
Dividends on Stock	633 0 0		
Interest on deposits	42 10 3	675 10 3	3556 10 11
			£2936 14 9
Stock in £3 per cent. Consols, £21,100.			
Cr.	£ s. d.	£ s. d.	
By Pensions	...	2124 10 0	
Special Jubilee grant	...	655 0 0	
	...	2779 10 0	
Secretary's salary and honorarium	...	186 5 0	
Printing	...	166 11 6	
Rent of office	...	50 0 0	
Stationery	...	17 14 8	
Advertising	...	1 16 6	
Expense of annual dinner... ..	...	77 6 0	
Postage and travelling expenses	...	93 10 4	
	...	£2372 14 0	
Balances, viz.:—			
With Treasurer at bankers	£318 11 10		
With Secretary	15 8 11	564 0 9	
		£2936 14 9	
Audited, January 9, 1888.	JOHN LEE. JOSEPH F. MESTON. J. WILLARD.		

LINNEAN SOCIETY OF LONDON.—The next meeting will be held on Thursday January 19, at 8 P.M., when papers will be read:—1, "Influence of Light on Protoplasmic Movement" (part II.), by Mr. SPENCER MOORE; 2, "Studies of the Macrochires (Humming-birds and Allies)," by Dr. R. W. SCHUFFELDT; and 3, "New British Plants," by W. H. BEEBY.

AWARDS AT THE NEWCASTLE EXHIBITION.—The committee of the Royal Mining, Engineering, and Industrial Exhibition held in Newcastle last year have awarded to W. J. WARREN, nurseryman and seedsman, Newcastle-on-Tyne, a Silver Medal for a bed of Conifers and hardy shrubs, and a Bronze Medal for a fernery and cabinet combined.

COVENT GARDEN MARKET.—At this time of year, more perhaps than at any other, choice flowers prevail. No observer looking round the market can fail to remark the preponderance of white flowers, which are naturally in great demand just now as sprays, button-holes, &c., for evening wear. There are Camellias, Eucharis amazonica, the paper-white Narcisse, Lily of the Valley, white Roman Hyacinths, Christmas Roses (Hellebores), a few late Chrysanthemums, forced white Lilacs, Azaleas, Arums, light-coloured Roses, red Pelargoniums, Carnations, Lapagerias, Bouvardias (red and white), Violets, and, of course, Orchids in season, such as Cypripediums, Dendrobiums, Lælias, Calanthes, Odontoglossums, Zygopetalums, &c. With the foregoing variety there is plenty to select from, and much with which effective combinations may be made. Arums and Eucharis, with Violets and Lily of the Valley, are greatly used for wreath-making. Of pot-plants, Cinerarias, Primulas, the various bulbous plants, Enonymus, Aucuba, berried Solanums, Ericas in variety, and Poinsettias (which have been very finely lately), form the chief supplies. Fruit consists

mainly of foreign produce, as Oranges, the Tangerine being a favourite; Bananas, Nuts of all sorts, Pomeles, Melons, and such-like; Grapes of both English and foreign growth, and Apples and Peas, most of which are American. The supplies of American Apples have been moderate during the past week or two, and derived chiefly from Nova Scotia prices have naturally ranged high. The imported Apples, especially the better sorts sent from New York (as Newtown Pippins, &c.), have been of indifferent quality throughout the season, with a good deal of maggot present, destroying their keeping powers. Well kept English produce thus realised excellent prices this winter. Vegetables show nothing remarkable; Rhubarb, Asparagus, Celeriac, and saladings, Salsify, Seakale, green vegetables in variety; also new Potatoes, green Peas, French Beans, &c., which are rather expensive luxuries just now.

MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY.—The fortnightly meeting took place on Tuesday, January 3, Mr. TAIT in the chair. The President of the Society, Mr. BRUCE FINLAY, read a paper on the propagation of plants, which at a future time may be reproduced in part in our columns.

NORTH OF SCOTLAND HORTICULTURAL SOCIETY.—The bi-monthly meeting of the members of this Association was held in the Music Hall Buildings, Aberdeen, on Friday evening, the 6th inst., Mr. PETER HARPER, Duthie Public Park, in the absence of the President, presiding. There was a good attendance. The first paper was by Mr. OGG, gardener, Morken, on "The Fuchsia." The next paper was by Mr. SIMPSON, Dalhousie Nurseries, Broughty Ferry, near Dundee, on "Shrubs and Shrubberies."

NOVELTIES OF 1887.

In our previous issue we made some comments upon the novelties among Orchids that appeared in 1887 and now continue our remarks on other classes of plants:—

STOVE AND GREENHOUSE PLANTS.—We must commence with that fine new *Nepenthes Curtisii*, for which Messrs. James Veitch & Son were awarded a First-class Certificate on September 13, and which was described and illustrated in the *Gardeners' Chronicle*, Dec. 3, 1887. It is a grand acquisition; its pitchers large in size, noble in form, and rich in markings. *Opismenus albidus*, of the same firm, will make a neat dwarf plant for decorative purposes; and their new double varieties of greenhouse *Rhododendron* (*R. balsaminæflorum*) are likely to obtain a larger demand than the propagator can supply. In *Amaryllis* it is VEITCH also, their culture of these plants having outstripped all competition either at home or abroad. *Nerine Mansellii* is a charming rose-coloured winter flower, *Boronia heterophylla* (VEITCH) a plant to grow in quantity, and *Bouvardia President Cleveland* the most brilliant of the late *Bouvardias*. Ferns receive a few good additions, chiefly home raised, that successful grower, Mr. H. B. MAX, receiving Certificates for *Pteris tremula flaccida*, with elegantly elongated pinnae; *Pteris Mayii*, and *Adiantum Regiæ*, the latter with massive fronds, approaching *A. Farleyense*; *Pteris claphamensis* is a neat dwarf, and the *Asplenium scandens* of Messrs. James Veitch & Son, elegant and very different from any other species of the genus.

FLORISTS' FLOWERS.

Among such as are to be obtained from seed the year has been marked by a grand strain of double or semi-double *Primulas* of all colours belonging to SUTTON & SONS, of Reading, no less than six of which were justly awarded First-class Certificates at the Royal Horticultural Society on January 11, 1887. The value of these plants for decorative purposes and for cut flowers

at this season cannot be ever-estimated, as they are much more durable than the singles. Messrs. James Carter & Co., Mr. Cannell, and Mr. James have also during the year given evidence of their success with Primulas. The Cyclamens are kept up to their standard by Clark and Odell, the Cinerarias by Mr. James and others; and Carter's strain of Mimulus, Carter's Jubilee, as Certificated at the Royal Horticultural Society on May 20, is wonderfully beautiful and varied.

Of new plants for the open garden, noteworthy are Delphinium Britannia, a charming rosette flower, of pure white and dark blue, and D. Charmant, both of Kelway & Son: who also secured honours for some grand Gladiolus, Pæonies, Gaillardias, and Pyrethrums. Of Japanese Iris, Mr. William Gordon, of Twickenham, whose collection of these and Tree Pæonies is very fine, secured Certificates for two very large and handsome varieties, viz., I. Kämpferi Eclipse and I. K. Exquisite; and with these and Pæonies Messrs. Veitch & Son and Mr. Ware have exhibited many new kinds; and Mr. Ware has done great service to the hardy plant lovers by bringing into notice many fine plants during the past year, which, although not new, being rare, were awarded First-class Certificates. By six First-class Certificates for some grand things in the favourite and large family of Narcissus it will be seen that Mr. Barr still makes them a loving study, pleasant to trade in. The illustration in the *Gardeners' Chronicle* at p. 704, May 28, represents one of the noblest of them—Glory of Leyden.

Chrysanthemum Macaulay, Certificated to Mr. William Holmes, of Frampton Park Nursery, Hackney, commences a new strain, with flowers prettily crested and curled; and C. Lord Eversley is a grand white, not likely to fade off, with a rose tint. Enough has been said to prove that the past year has not been a barren one; let us hope that the present one will be still more fruitful in good and new plants.

FLOWERS IN SEASON.

"SPRING IS YCOMEN."—The outlook from our windows in this foggy weather certainly lends no countenance to this statement, and were it not for other evidence we might be disposed to question it. That other evidence is furnished by a rare batch of varieties of Christmas Rose from Mr. Brockbank, as well as others from Mr. Hartland, and on which we shall make farther comment later on, as the lack of sunshine at present forbids our making the comparative examination which our correspondents desire. Perhaps some readers will say that the Hellebores are late autumn flowers availing themselves of the bottled sunshine of the past summer. We shall not dispute the point in this case, nor in that of the singular and beautiful *Mamamelis arborea*, with its leafless stems and purple and yellow flowers, which are so very striking at this season. This we received from Messrs. Veitch, and an illustration of it was given in our columns for 1881, vol. xv., p. 205. It is a hardy shrub, which we strongly recommend the lovers of beautiful flowering shrubs to plant in their shrubberies.

The vernal character of *Iris stylosa* is more pronounced. This we received from Mr. Hartland, of Cork. This is a charming species, with a thick rootstock, from which are sent up tufts of long linear leaves and long flower-stalks, bearing large sweet-scented pale violet-coloured flowers; the "falls" have a central orange blotch or "flame," from which radiate on each side slim purple streaks, the disc of the fall being of a deep violet. The petals or standards are paler in colour. The specimens before us differ slightly in their markings from that figured in the *Bot. Mag.*, t. 5773 (May,

1869). The plant is a native of the Greek islands and of Algeria, but, nevertheless, flowers in the open at Cork in January.

A series of flowers of seedling Hellebores from Mr. Heinemann, of Erfurt, are obviously very pretty, but neither fog nor gaslight offer adequate facilities for their inspection. We will examine them later on.

AMERICAN NOTES.

AGRICULTURAL COLLEGE OF MICHIGAN.

The last issued *Bulletin* contains the annual report of the Professor of Horticulture, and includes detailed descriptive notices of Tomatos, Peppers (Capsicums), Onions, and Strawberries cultivated in the College grounds, together with a variety of miscellaneous information brought to light in the course of the experimental trials made under the superintendence of Professor Bailey.

THE NATIVE FLOWERS OF THE UNITED STATES.

Professor Meehan's work on this subject, the publication of which was suspended in consequence of the death of the publisher, is about to be resumed. The coloured plates and explanatory text render this a very serviceable book to our cultivators of hardy plants.

"GARDEN AND FOREST."

We understand that Professor Sargent's journal, under this title, is to appear on February 1, and be continued weekly. When the Professor was here, in the course of the last summer, he made arrangements with some of our culturists to furnish him with news from the Old Country.

DR. A. GRAY.

We deeply regret to say that the last accounts received are of the most melancholy character. Dr. Gray, only just prior to his attack, had journeyed from Boston to Washington to take part in the election of Secretary to the Smithsonian Institute, and seemed to his friends upon whom he called in his usual health and spirits.

THE CALIFORNIA FAN PALM.

Our indigenous Palm, one of the most striking native plants of the State, gave the botanists some trouble in classification. First it was a *Prichardia*, then a *Brahea*, and finally it has found botanical rest as *Washingtonia filifera*. Its native area along the Colorado River was thrown open to the public by the building of the Southern Overland Route, and is now a comparatively familiar country. Long ago, however, seeds were brought from this region, and plants were established which have now grown to grand size, while the facts of their introduction have become a matter of tradition. The twin Palms growing within the limits of Los Angeles city are perhaps the oldest and largest cultivated Fan Palms in the State. They are probably upwards of fifty years old. These Palms are a landmark for the tourist, and their photographs are in great request. They are now being encroached upon by the buildings, and may fall before the progress of the day, but we trust they will be spared as long as possible.

The California Palm was widely distributed over the State at quite an early day. It is on record that Louis Prevost, the pioneer San Jose horticulturist, brought seed from the southern desert to San Jose about thirty years ago, and succeeded in growing about fifty plants. These were carried to all the chief points in the northern half of the State. Either from this, or in some cases perhaps from later propagations, came the large Fan Palms which are to be found at points in the Sacramento Valley as far up as Shasta county; also in Calistoga, in Sacramento, Stockton, and elsewhere.

The plant is a rapid and vigorous grower, and quite hardy. It also bears transplantation well. Some years ago the late Governor Latham bought two old Palms at San Jose. They were at the time about 25 feet high, and he is said to have paid 1000

dols. for the pair. These he moved from San Jose to his residence at Menlo Park, where they grew well, and are still standing on the old Latham place. *Pacific Rural Press.*

CULTURAL MEMORANDA.

EUCHARIS AMAZONICA.

This plant will now be sending up its flower-spikes. From the time of the appearance of the flower-spikes up to a few weeks after flowering the plants should have diluted liquid manure at a temperature of from 75° to 80° given them, when water is necessary. After this period water should be given only when the soil has become quite dry, maintaining this treatment till the plants again throw up their flower-stems, when the application of the tepid liquid manure should be resumed. The warm and somewhat dry atmosphere of a conservatory or reception-room will be more congenial to the requirements of the plants when in flower than that of a warm moist stove would be.

RICHARDIA (CALLA) ETHIOPICA.

This gross feeding plant pays well for liberal treatment, especially during its flowering period, from Christmas to Eastertide, during which interval, if the best results obtainable are desired, copious supplies of tepid liquid manure must be given at the roots almost daily. A minimum temperature of 50° should be aimed at, giving sufficient air during favourable weather, to prevent the plants making a weakly growth or becoming infested with aphids; but should this insect attack the plants—which it is almost sure to do—fumigate with tobacco-paper two evenings in succession, and ventilate the house more freely than usual the two following days.

BULBS, HYACINTHS, NARCISSUS, &c.

From the time the flower-spikes have attained a height of 2 or 3 inches until every pip or flower has opened liberal and frequent supplies of weak manure-water, at the same temperature as that of the house or a few degrees warmer, should be given, the soil being kept quite moist. The flower-spikes should have support.

THE FUCHSIA.

This is a useful and showy decorative plant, therefore a small plant or two of the most approved varieties should be put into a forcing-house to supply early cuttings, which they will do in a couple of weeks from the time of putting the plants in heat. These, when they have made 2 inches of growth, should be inserted in 3-inch pots filled with light sandy mould, watered, and the pots plunged in sawdust in a box sufficiently deep to admit of a square of glass being placed over it without coming in contact with the cuttings, placing the box over the front hot-water pipes in a forcing-house or some other suitable place; they will soon take root. They should then be potted off singly into small 60's, using a compost consisting of three parts light loam and one of sifted horse-droppings and leaf-mould with a sprinkling of sand added, returning the plants to a position near the glass in the forcing-house and watered. If the plants be afterwards attended to in the way of watering and pinching, and shifting them into larger pots before the roots get matted, they will make useful fruiting plants by the end of summer. *H. W. W.*

FRUITS UNDER GLASS.

VINERIES.

VINES on which the Grapes are thinned should receive a steady temperature of 65° at night; avoid too liberal sprinklings with water, especially during dull weather, but let sufficient be given to maintain a nice growing atmosphere. The border may require another watering, which should be applied at a temperature of 75°, and the water may just be coloured with guano. See that pot Vines have a sufficiency of water at the root, and light rich top-dressings where thinned, with occasional water-

ings with weak liquid manure, which will be of great advantage. If the fruit be required at an early date a steady night temperature may be kept up of 70° during mild weather, especially if some covering can be put over the lights.

Succession Houses.—These should be started at a temperature of 45° to 50°, a moist atmosphere being maintained by sprinkling the walls, paths, and border. During clear weather the Vines may be syringed morning and afternoon until the buds are all nicely broken. If the canes show a tendency to break irregularly, let them be tied down in a horizontal position along the bottom of the rafters; remove all the weaker shoots as soon as possible where several issue from the same spur.

Prune succession-houses as soon as the Grapes are cut, so as to rest the Vines; cut to a plump bud, making a clean cut with a sharp knife, twelve hours after dressing the wounds with Thomson's Styptic. Unless the Vines are infested with bug do not strip off more of the bark than is loose, or will become detached by passing the hand lightly round the stem.

Scrub the stems and spurs with a spoke-brush, using warm water, a little soft-soap, and a small quantity of petroleum, which will clear them of red-spider. Well wash all the glass and woodwork, whitewash the walls with quicklime and flowers of sulphur, and, if practical, a coat of paint should be given to the inside of the fruit-house every year. This allows of a fresh start, without much danger from insects.

The stems of the Vines may be painted over with soft-soap, sulphur, and tobacco-water, and be thickened with clay to the consistency of paint. If mealy-bug has effected a lodgment, the spurs and stem must be scraped, the wood washed several times with water strongly impregnated with petroleum, and be painted over with coal-tar and water (clear) equal parts thickened with clay: the mixture must be kept constantly stirred while it is being applied else serious injury may be done to the Vines. Remove the top soil down to the roots of the Vines, and well dust with Vine manure, re-surfacing with fresh loam and charred soil. Should there be an absence of lime in the soil, a few pounds of lime may be slaked on the border and the fine powder scattered evenly over, and pricked into the surfacing. A sufficient number of Vine eyes may now be put into small pots or on turves to strike, the latter being the preferable mode, as the roots do not get cramped. The stock of Grapes hanging on the Vines will require frequent looking over and all mouldy berries removed. Maintain a temperature of 40° to 45°, and be careful in admitting air in wet and foggy weather. Those which have been cut from the Vines and are kept in the Grape-room—which should be perfectly dark and kept at an unvarying temperature of 45°—will give little or no trouble, if the Grapes were well finished on the Vines. *W. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

CROPPING.—Arrangements for the principal crops during the ensuing season should now be completed, and the ground should be prepared in accordance with their requirements. A rotation of crops should be, as far as possible, secured; a plan of the garden, with the various plots numbered, is of great service in such matters, and a cropping book with columns ruled for dates of sowing, transplanting, maturity and duration of crops, and space for remarks on the varieties, should also be kept. It is necessary to have the plot for Onions made ready in good time, by having the ground well worked and pulverised before the arrival of sowing time. A more liberal supply of manure is essential for this crop than for some others, and an open position should be afforded it. Root crops should as a rule follow a crop of another character that has been heavily manured, such as Celery, the ground to be deeply worked, but no manure given. A deep and well pulverised soil, tolerably free from large stones, is one of the chief points in root culture. A warm, sheltered position should be reserved for the earliest plot of Potatoes, for which a good dressing of charred refuse, either with or without farmyard manure, will be beneficial.

General Work.—During mild weather all vacant ground should be dug over as soon as possible, laying it up roughly to be disintegrated by frost. Where any ground is intended to be trenched—and a portion of the garden should be done every year—it may be taken in hand during frosty weather if the

manure has been previously spread over the surface; but snow should never be dug into the ground. Fresh plantations of Horse Radish may now be made, trenching the ground 2 feet deep. Make the holes with an iron bar, and push the sets to the bottom. Take advantage of any mild weather to examine outdoor Mushroom beds, returning the covering again as quickly as possible. Continue to collect and prepare material for succession beds, keeping it secure from rain and snow. Replenish stores of Celery, Brussels Sprouts, &c., during mild weather, and take the hearts out of Scotch Kale to throw the strength of the plants into the sprouts. A sufficient quantity of fermenting material should be prepared for forcing Potatoes, Carrots, and Turnips, utilising brick pits with a flow and return hot-water pipes for the earliest crops, or a hole may be dug out deep enough to hold most of the fermenting material necessary, and a frame put on this about 2 feet above the ground level. A sufficient number of Potato sets should be placed in shallow boxes with a little leaf-soil over them, and be put into a temperature of 50° to start into growth. Veitch's Improved Ashleaf, or the old Walnutleaf, are still good varieties for early forcing. All other sets of early Potatoes should by this time be arranged thinly on shelves before growth gets far advanced. *W. H. Divers, Ketton Hall.*

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

NEW VARIETIES OF POTATOS.—In reply to "North Norfolk," p. 23, in the last issue of *Gardeners' Chronicle*, I can very strongly recommend to him the following two kinds, after having given them a three years' trial, as being first-class in every way:—Welford Park is a handsome white main crop variety, with large tubers, a heavy cropper, smooth skinned, and well-formed, with good quality and constitution, and so far it has been free from the disease. It boils of good colour. Miss Fowler is a first-class handsome late white kidney, of medium-size tubers, a heavy cropper, also free from disease, robust in constitution, and cooking well. These two new Potatoes were sent out by Messrs. J. Veitch & Sons, Chelsea. If "North Norfolk" will send me his address I will send him a few of each kind for trial. *Wm. Smythe, The Gardens, Basing Park, Alton, Hants.*

"North Norfolk" (p. 22), will doubtless have plenty of advisers, and possibly be bewildered by the multitude of counsels. It is very difficult to advise fairly in the matter of kinds of Potatoes for diverse soils and districts, because these products are peculiarly sensitive to soil differences; and that fact invariably handicaps advice. None the less I think the enquirer will find satisfaction in such a sterling variety as Prime Minister, which is a robust grower, heavy cropper, tubers white, long, flattish, and of real Regent-like texture; Abundance, flattish round white, very robust and heavy cropper; The Dean, purple round, strong grower, heavy cropper, flesh yellowish, flaky, and fine flavoured; and Chancellor, flattish white kidney, very heavy cropper, stout, erect, woody stalks, and a very fine winter variety. Of these, probably The Dean is the best flavoured, but here all are capital. Still, Middlesex has a good reputation for the production of Potatoes, whilst "Norfolk" may have inferior soil. Would he not be wise to occasionally change the seed of the kinds he has named, or at least of those to be had? There must be in the soil something peculiarly demoralising to Potatoes to render kinds, good elsewhere, so pasty, soft and tasteless. Very likely liberal additions of phosphatic manures, such as kainit and soot, would be very helpful to the soil. Potatoes must find in soils their essential constituents or otherwise they will be of poor quality, irrespective of sort, whilst the blame is laid upon the sort rather than upon the soil. I have great faith in phosphatic compounds as cultural Potato constituents. *Alex. Dean.*

GROWING ORANGES.—I noticed in the *Gardeners' Chronicle* of December 31 a correspondent writing about an Orange tree bearing fifty-six fruits. I send you as a sample four Oranges gathered six weeks ago from a tree, which is carrying seventy-nine

good-sized ripe fruits; in a green state upwards of eighty. The fruit was exhibited in the Oxford market at Christmas, and attracted much attention. Insects do not attack the tree. *J. Mayo, St. Mary's Road Nursery, Oxford.* [The fruits were large and showy, and being the Seville variety, or else a wilding, were very suitable for the making of marmalade. Perfectly good edible kinds are as easily grown as the worst, but to ripen them properly, an intermediate temperature is required. Ed.]

THE ROYAL HORTICULTURAL SOCIETY.—The letter from so eminent and experienced an authority as Sir Joseph Hooker, in your last issue, has such a decided and practical ring about it, that it is my own opinion that no time should be lost by the Council of the Royal Horticultural Society in their efforts to carry out his advice. I am not a Fellow of the Society, but I, as an Associate, take a real and earnest interest in its present condition and future welfare; nor is this keen interest merely an individual one, for I am sure that the majority of gardeners in Great Britain and Ireland would flock to the standard of the Royal Horticultural Society, if a standard-bearer or Secretary worthy of their confidence be found. The general idea now is that the Society should retain its charter, or supplant it by a new one, but that in any case that the garden at Chiswick should be retained. Most of us look upon the Chiswick garden and the Lindley Library as the anchors to which our horticultural *Great Eastern* is at present safely moored. The real *Great Eastern* may be useless and best as broken up, and her available materials employed over again in some useful and profitable way, but we cannot say this of our own good old ship, which is as potent for good work as ever, if only that she be promptly and ably manned. We must really take Sir Joseph Hooker at his word, and the Royal Horticultural Society must revert to her old practice, and be replaced in a position of independence and usefulness. "It is not horticulturists only whose sympathies are enlisted in the present movement, but botanists and agriculturists" as well. No truer words were ever spoken than are these! The modern depression in agriculture and its products, the storm warnings of foreign competition, and the widely extended cultural practice of our neighbours on the Continent all point out to us that the future of profitable farming will be in reality "gardening in the fields." An acre of Violets or of Christmas Roses, on suitable soils, and in well-selected positions, is to-day far more profitable than either corn or meat culture. Even the large market gardens near London and other great towns do not pay so well in proportion to the returns as do the little glasshouse gardens, wherein the choicest of fruits, vegetables, and flowers are grown. I say grown; but the precision with which the specialists develop their crops under a glass roof is so fixed and sure, that one might almost think that manufacture, or "made by hand," a better term. In a word, cheap transit rates by steamers and the cheapness of imported products have struck a death-blow at all rough and ready farming pursuits—the skilful practical gardener can, and often does, step in and succeed on land whereon the farmer has totally failed. When I say that flowers of the best and choicest pay better than cattle or corn culture generally, I of course do not forget the weak point in the illustration, viz., that the corn and cattle actually support and produce a real quantity of human life, while the flowers merely ameliorate and smoothen life's road; still, so long as people need more than bread alone—so long as taste and mind-culture crave the best the vegetable world affords, so long is the success of the real and able gardener fully assured. Chiswick, then, must be retained at all costs, and central and permanent meeting rooms in London are to be and must be, obtained. This much is in reality a foregone conclusion. Then comes the question of a permanent and well-paid Secretary. It is certainly not easy to get botany and business-knowledge combined, and I should suggest Professor Henslow for the botany, and some good business man of experience to manage the Society's affairs. The best investment the Council can ever make is to obtain an official or officials of the kind suggested in Sir Joseph Hooker's letter, and I believe there are now amongst the Kew staff and elsewhere more than one man eminently fitted for such a responsible post. Wherever the Society's rooms and the library may be it is a *sine qua non* that they be open daily from, say, 10 until 4, for the use of Fellows and their friends. It is a question whether either amateurs or nurserymen would entrust their rare plants to the Society's care

on ordinary days; but there might always be cut specimens in fresh water duly labelled, and some fruits and vegetables lend themselves most conveniently to permanent exhibitions of this kind. The Lindley Library would become much enriched by the contributions from authors, or the publishers of horticultural works if it became known as the recognised meeting place, as suggested by Sir Joseph Hooker. In my opinion, and in that of others whom I have consulted in this matter Sir Joseph Hooker's letter has really brought the present necessities of the Society to a focus. I presume he never mentioned the Chiswick garden because of the well-known impression on all sides that it must be retained as a sort of sheet-anchor. I would now beg to suggest that the Council summon a meeting, and that the essential points in the letter be officially confirmed. F. W. Burbidge, F.L.S., A.R.H.S.L., *University Gardens, Dublin*.

The publication of the list of members of the new Fruit and Floral Committees seems to justify my references last week to the necessity of some official explanation of the grounds upon which new appointments are made. Mr. W. Marshall, one of the most efficient chairmen of the Floral Committee that body ever had, must laugh consumedly when he finds himself pitched into a round hole on the Fruit Committee; as also must Mr. J. Wright, the second representative of the *Journal of Horticulture* on that body. On the other hand, Mr. Wildsmith and Mr. Bates, two excellent fruit growers, will feel strangely out of place on the Floral Committee, unless the Orchid men have specially striven to weaken the genuine floral knowledge of the committee, for the former held literally one-half the seats on the committee—rather an excess, when it is remembered that the bulk of these know little and care less about other flowers. Which of the new appointments can, for instance, make good the void created by the loss of Mr. J. Douglas, whose knowledge of other flowers equalled, probably excelled, that of all the other Orchid men put together? The arrangement of appointments seems to be a terribly defective one, which removes such unique knowledge as that of Mr. Douglas in the one case, and Mr. Bunyard in the other, and replaces them by—whom? And echo answers, "Whom?" *Spade*.

THE DUKE OF BEDFORD AND COVENT GARDEN MARKET.—Under this heading Miss Slaymaker, of Covent Garden Market has contributed a letter to the *Weekly Times and Echo*, which sets forth in a striking light the anomalous and uncertain tenure upon which shops in the centre row are held from the Duke of Bedford. She states:—"Forty-three years ago my father became tenant of one of the shops in the Central Avenue, Covent Garden Market, at a weekly rental of 35s., he paying the outgoing tenant £100 for the business of a fruiterer and florist, and spending a large amount in improving the premises. At his death, about fifteen years ago, my mother was accepted as tenant at the same rental. I (her only daughter) have always assisted in the business, and, for some years past, my mother's health failing, I have had the sole responsibility, employing a trustworthy man as manager. On the death of my mother in April last I applied to the Duke's steward for the tenancy of the shop. I was told that even if accepted as tenant, which was doubtful, I should have to pay £4 10s. a-week rent, and should be allowed to use the premises as a fruiterer's only, and also dismiss from my service my manager, who has been with me twelve years. I accepted the shop under protest, but feeling very insecure under such a landlord, I have since taken premises in Catherine Street, opposite Drury Lane Theatre, and am endeavouring to transfer my business from the market there. Is it not hard that the Duke should be thus able to deal with the daughter of a tenant of forty-three years' standing who is working hard to get a living?" From this letter it appears there is no such thing as security of tenure in Covent Garden Market, and that the regulations enforced by the ground landlord appear to be in defiance of the simple rules of equity. In this case it would appear that the ground landlord can do what he likes with his own, and also in what appears on the face of it to be a high-handed and arbitrary fashion. *R. D.*

THE HONEY TRADE.—I wish I could see my way to join in equally cheerful terms with your correspondent, Walter Chitty, on the honey trade. I recently submitted a sample of some of the best comb honey I have ever had in my limited experience, to a certain company founded some few years ago, and the

best price they could offer me was 7s. per dozen 1 lb. sections, delivered free and unbroken in London—practically 6d. per pound; and this is the company that was to find a market for all our amateur beekeepers' produce, and was to be the salvation of the cottager whose industry included beekeeping as a means of making a little extra out of his rural surroundings. If British honey is so much superior, and is being so much appreciated, surely a pound of a good sample should command a little more in the market than the "little bottles of something supposed to be honey" seen in our grocers' windows. Let us hope with Walter Chitty that a brighter future is in store for beekeepers. *An Amateur Beekeeper*.

RAINFALL AT WARWICK.—The following is the report of the rainfall for the past year. Last year was an exceptional one in character, and the rainfall less than usual. The diameter of the funnel of the rain-gauge is 5 inches, the height of the gauge above the ground level is 4 feet 2 inches, and above the sea level 240 feet.

Month.	Total Depth.	Greatest Fall in 24 Hours.		Number of days on which .01 or more fell
	Inches.	Depth.	Date.	
January	1.73	0.50	8th	8
February	0.48	0.26	2nd	3
March	1.06	0.25	23rd	8
April	1.19	0.67	27th	8
May	1.52	0.35	20th	13
June	1.90	0.98	3rd	4
July	0.85	0.30	16th	5
August	1.89	0.50	17th	8
September	2.30	0.45	2nd	11
October	2.14	1.05	30th	7
November	1.68	0.40	6th	11
December	0.98	0.32	13th	7
Total	17.72	6.03		93

R. Greenfield, Priory Gardens, Warwick.

FREESIAS.—Will any one who has had experience with these plants tell me the reason why mine have not grown. The following is the treatment given:—The bulbs were bought in 1886, and I grew them in a greenhouse with a south-eastern aspect, keeping them near to the glass. The compost consisted of loam and leaf-mould with a portion of silver-sand, and they all grew and bloomed to perfection. When they had finished blooming I put them in a cool place, where they were dried off. When the tops were all dead I shook them out and put them into flower-pans, keeping them in a seed cupboard until the beginning of September, when I potted them in the same kind of soil as before and put them in the same place as they were in during the previous year. The bulbs are of good size and perfectly sound, but this year the greater portion of them have not grown. I cannot see why they have not developed. Those that did start are now showing the blossoms. *R. H. L.*

THE BEST TWO GARDEN PEAS.—If all but two of our varieties of Peas were swept away, which should be maintained? I think the two best all-round varieties—good reliable croppers and general favourites—are Veitch's Perfection and Ne Plus Ultra. I am estimating their value as garden Peas, not for exhibition purposes. Both are of high quality and flavour, though Ne Plus Ultra would perhaps gain two or three points over Veitch's Perfection in this respect. There are plenty of exhibition Peas—varieties that can be richly grown, stopped and thinned, in order to have large and showy pods, with a fine bloom upon them; but it is very doubtful if any of them will become standard varieties. If two-thirds of our so-called garden varieties of Peas were swept away, and never seen again, the loss would be a gain rather than a calamity. It will be said, Veitch's Perfection should give place to an earlier variety; but by sowing early Veitch's Perfection can be had much earlier than is generally supposed; and of our first early varieties, who shall name one that will compare with Veitch's Perfection for table quality? *Daring*.

PLANTING TREES AND SHRUBS.—At the outset, and before a commencing with planting work, the first question to be asked is what should be planted?—taking into consideration the soil, climate, and

situation. Where this is done errors of judgment seldom occur. As regards the question what to plant, the best guide will be found by observation of the trees and shrubs of the surrounding district, and to select only those subjects which flourish. It may happen that there is a desire to plant something new, i.e., new in the sense of its not being known to grow in the locality—for the sake of variety; and when this is the case it is advisable to use caution, and plant sparingly at first in diverse situations, and in a few years their adaptability or the reverse may be readily noted. When the soil only is unsuitable to the growth of any kind of tree it may be made of a suitable nature. In the laying out of new grounds all clumps and borders, together with larger areas coming under other designations, should, previous to planting, be well drained where necessary, and trenched over to a depth of not less than 18 inches, and if the ground is in anything like a poor condition a dressing of well decayed manure will be found very advantageous. *J. Horsfield, Heytesbury.*

THE GOOSEBERRY CATERPILLAR AND RED-SPIDER.—I am desirous of finding a substance that will kill red-spider and the caterpillars that infest Gooseberry bushes, without injury to the plants. I grow hardy fruits extensively, and these were so badly infested with red-spider last season that I dread its reappearance this year. I dusted some of the trees with quicklime, which had no effect on the caterpillars. Have any of your numerous correspondents tried superphosphate of lime or rag-dust as a remedy, or any other substance that will destroy spider and caterpillars? If so, the publication of its name would be a great boon to cultivators. As I grow acres of Gooseberries the syringing with soft-soap and tobacco-water is too slow a process to be done in a reasonable time, and when done is not effectual. *William Clarke, Fruit Grower, Hemingford* [It was stated in the *Gardeners' Chronicle*, June 25, 1887, that Mr. Samuel Barlow, Stakehill House, Castleton, Manchester, contributed an interesting paper in the *Agricultural Gazette* on the "Use of Superphosphate of Lime to Destroy Fly on Turnips," which answered the intended purpose admirably; and it was further stated that the application to slugs on other plants was equally effective. The superphosphate used was the ordinary 25—28 soluble. *En.*]

PICEA AJANENSIS.

We have so frequently spoken of this very beautiful and hardy flat-leaved Spruce that we should hardly be justified in alluding to it again, were it not for the opportunity now afforded of figuring a cone which was produced in Mr. Waterer's nursery at Woking, and which differs considerably in the shape of the bract and cone-scales from *P. Alcockiana*, which name it bears in some gardens, though it differs materially from that species. (Fig. 10).

The great features of *P. ajanensis* are its hardness, its dense pyramidal habit, its flattish leaves silvery on the upper surface, as in *Janipers*, rich green on the lower, and its very beautiful orange-crimson male flowers.

This is decidedly one of the very best hardy Conifers introduced into English gardens by the late Mr. J. G. Veitch, and it is surprising that it is not more often met with. Illustrations of this species were given in our columns January 24, 1880, and October 2, 1880.

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, JANUARY 10.

Floral Committee.

Present: G. F. Wilson, Esq., F.R.S., in the chair; and Messrs. W. Wilks, II. Bennett, II. Herbst, W. Bates, G. Nicholson, W. Goldring, R. Dean, J. Dominy, H. M. Pollett, C. Noble, II. Ballantyne, B. Wynne, H. O'Brien, E. Hill, and G. Duffield.

The contribution from Messrs. J. Veitch & Sons, Chelsea, formed the interesting feature of the show on this occasion. Hybrid *Rhododendrons* were represented by plants in flower, and also by cut trusses of bloom. One of these hybrids, named *Primrose* from its colour (the result of *R. Teysmanni* × *R. (hyb.) Maiden's Blush*), was very attractive, and received a Certificate. Eclatant, with rich red coloured flowers, is also effective, and the result of crossing

jasminiflorum with Curtisii is a bright deep red. These hybrids are remarkably pretty, and it is to be regretted that they are not more free in flowering. There also came from the same source *Cypripedium Galatea* ×, a hybrid of uncertain parentage, with a large flower somewhat resembling *C. insigne*, but much paler. The markings on the dorsal sepal were green heavily spotted with red-brown, the spotting extending all over the flower; the ground colour of the lip was yellowish-brown; the colouring of the lateral sepals was divided by the midrib of the sepal, the upper half being dark, the lower of a lighter hue. A hybrid *Phalenopsis* (*amabilis*, Bl. × *intermedia* Portei), named F. L. Ames. The sepals and petals are white, while the lip is attractively coloured, the lower portion of the middle lobe being rose on yellow, the upper portion rose on white. The lateral lobes are white suffused with rose and reticulated with the same colour; at the base there are purple spots. The plant bore several blooms.

A graceful Orchid (*Angraecum Sanderianum*) came from Messrs. F. Sander & Co., St. Albans. The specimen bore two racemes, each bearing about twelve flowers of pure white, and about three-quarters to 1 inch in diam., the tail measuring about 3 inches in length.

A finely flowered large piece of *Cypripedium insigne* was shown by Mr. J. Quarterman, gr. to A. S. Smith, Esq., Cobham. There were about fifty blooms on the specimen.

Four charming *Cypripediums* were shown by F. G. Tautz, Esq., Studley House, Shepherd's Bush (gr., Mr. P. Cowley). They were *C. plumerum*, with the dorsal sepal whitish, marked with very dark green nerves; lateral sepals similar, but with rose suffused, which colour becomes intense at the apex (see *Gardeners' Chronicle*, January 8, 1887, p. 41). *C. Marshallianum*, a peculiar spotted form (illustrated April 16, 1887) creamy-rose ground colour spotted purple. *C. concinnum* and *C. Tautzianum*, which latter is a great acquisition. The entire flower is almost of one colour, viz., rich rosy-crimson. The dorsal sepal is almost triangular, with nerves which are very dark rosy-crimson. The parentage is *C. barbatum* × *C. niveum*.

Messrs. H. Low & Co., Clapton, sent *Angraecum calligerum*, a species with yellowish-white flowers about 1 inch in diameter.

Flowers of *Laelia anceps* *Schroderae* were sent by Baron Schroder, The Dell, Egham (gr., Mr. Ballantyne); it is a very taking form, and brilliantly coloured. The sepals are pale rose, petals darker, with deep purple tips; deep rich crimson lip bearing a yellow crest, and internally marked with purple and yellow stripes.

A. H. Smece, Esq., The Grange, Wallington, Surrey (gr., Mr. Cummins), showed three Orchids—*Laelia anceps* *Protheroianum*, rather deep rose-coloured throughout, and the lip veined with yellow; *Epidendrum polybulbon*, a minute species with pseudobulbs three-quarters of an inch in length; sepals and petals one-third of an inch in length, golden-yellow at the apex, rich brown at the base; the lip white and large—a very pretty little species; also *Odontoglossum Rossi Smeecanum*, differing from the type by not being spotted with brown.

Mr. M. Simpkins, gr. to R. J. Measures, Esq., Flodden Lodge, Camberwell, sent *Cypripedium Salieri* (a fine specimen), *C. apiculatum*, *C. regale*, and *C. Forsterianum*—this is a dwarf form, with the margins of the sepals curled; colour greenish-yellow, spotted brown.

An excellent display of well-grown *Primulas* was that set up by Messrs. H. Cannell & Sons, Swanley; most of the varieties have been observed at exhibitions and in private establishments, but as yet are by no means common—not even the Burghley seedlings, which deserve to be found everywhere. The following are the names of a few of the finest varieties observed:—*White Perfection*, Swaaley Giant, a pale rose coloured flower of fine form; *Cannell's White*, also excellent; the flesh-coloured *Princess of Wales*, *Eva Fish*, a mauve-coloured flower edged with white, semi-double—is sure to be a favourite when known; *King of Purples*, a brighter pink than *Earl of Beaconsfield*, but of similar form, and probably hailing from Burghley. *Marchioness of Exeter* was well shown; it is still one of the best of the white doubles. A Silver-gilt Banksian Medal was awarded.

Mr. J. James Woodside, Farnham Royal, Slough, showed a box of *Primula* blooms of large size and good colours. A large show of *Cyclamens* was made by Messrs. Page & Son, Teddington: the plants were vigorous and well flowered, and the colours pure and bright; some of the dark reds were very fine. The

strain is evidently a good one. A Silver-gilt Banksian Medal was awarded.

Mr. F. Ross, gr. to Sir G. MacLeay, K.C.M.G., Pendell Court, Bletchingly, Surrey, showed a flowering branch of *Oxera pulchella*, a woody climber, native of New Caledonia, and succeeding well in a warm greenhouse. This is evidently a free flowerer, bearing clusters of pale greenish-white flowers producing a pleasing and light effect.

FIRST-CLASS CERTIFICATES.

To Messrs. H. Cannell & Sons, for *Primula* (double) *Miss Eva Fish*.

To Messrs. F. Sander & Co., for *Angraecum Sanderianum*.

To F. G. Tautz, Esq., for *Cypripedium Tautzianum*.

To Baron Schroder, for *Laelia anceps* *Schroderae*.

To Messrs. James Veitch & Sons, for *Phalenopsis* F. L. Ames.

To Messrs. J. Veitch & Sons, for *Rhododendron* *Primrose*.

To Mr. F. Ross, Pendell Court, for *Oxera pulchella*.

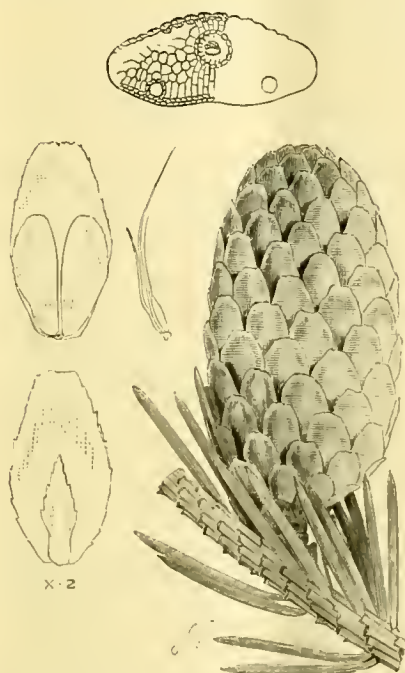


FIG. 10.—*PICEA AJANENSIS*: CONE, BRACT, SEED-SCALE AND LEAF-SECTION, THE LATTER MAGNIFIED.

Fruit Committee.

Present: Dr. R. Hogg, in the chair; and Messrs. W. Marshall, C. Howe, C. Ross, A. H. Pearson, J. Wright, G. T. Miles, G. W. Cummins, J. Cheal, J. Woodbridge, H. J. Veitch, J. Roberts, P. Crowley, T. F. Rivers, J. Lee, R. D. Blackmore, P. Barr, H. Weir, and G. Norman.

The duties of the committee were of the lightest character, the exhibits being very small in number.

Mr. J. Roberts, gr., Charleville, Tullamore, showed two specimen bunches of his white seedling from Gros Colmar, which were small and compact, the berries of a medium size, and the colour greenish-yellow. It was figured in these pages, and our opinion of it has not been modified in the interval.

Seedling Apples were shown by Messrs. J. R. Pearson & Son, Chilwell, Notts; and by Messrs. Barron & Sons, Nurseries, Elvaston, in both cases showy fruits, but not of sufficient merit to be worthy of a certificate.

A dish of the Royal Medlar was sent by Messrs. T. F. Rivers, Sawbridgworth: it is a small fruit of a sweet taste, and is said to be superior to the common forms and to make an excellent preserve.

A curled Kale from Messrs. Hurst & Sons, Houndsditch; and some Tomatos from Mr. E. Newton, Hitchin, completed the exhibits in this division.

FIRST-CLASS CERTIFICATE.

To Messrs. T. Rivers & Son, for Medlar Royal.

THE NATIONAL CHRYSANTHEMUM.

WEDNESDAY AND THURSDAY, JANUARY 11 AND 12.—The midwinter meeting of this Society took place at the Aquarium on the above-mentioned dates, and was productive, for the time of year, of a display of the Chrysanthemum which would not have been thought possible a few years ago. There was nothing of very great merit, but the possibilities of Chrysanthemums in January were made apparent.

The nursery trade was represented by several London and provincial firms, the best show—one of *Primulas* and *Cyclamens*—being made by Messrs. Sutton & Sons, Reading, who covered a great extent of tabling with well-grown and flowered plants. Novelty in this collection consisted of *Primulas* *Picotee*-edged, a pink and white variety, and *Giant Red*; and in *Cyclamens* *White Butterfly* and *Sutton's Queen of Dwarfs*. The *Cyclamens* were in every way wonderful examples.

Messrs. H. Cannell & Sons, Swanley, had a more numerous collection of *Primulas* than they had exhibited at South Kensington on Tuesday, and showed the same new varieties for Certificates. As a recognition of the superiority of this collection a Certificate was awarded, together with a 1st prize.

Messrs. H. Page & Son, Grove Nursery, Teddington, showed a large bank of *Cyclamen*, dwarf and well grown. A Silver Medal was awarded.

Mr. R. Clarke, florist, Twickenham, showed *Cyclamens*, but the plants were sparsely bloomed.

Mr. H. Williams & Son, Fortis Green, exhibited a collection of *Primulas*, and another of forced flowers and foliage plants, both good in their way.

Mr. John May, Gordon Nursery, St. Margarets, Twickenham, had a large number of *Cyclamens*—*May Queen*, a large white and purple flower; and *Black Prince*, an exceedingly dark variety, being the most novel.

Chrysanthemums were shown in collections of cut blooms by Mr. G. Stevens, St. John's Nursery, Putney; Mr. J. Lowe, nursery, Uxbridge; Mr. R. Owen, Floral Nursery, Maidenhead; Mr. J. Walker, nursery, Thame; and Mr. G. Brand, nursery, Winchmore Hill.

In the amateur classes Mr. R. Jameson Hessle, Hull, was 1st for twenty-four Chrysanthemum blooms. Mr. Kipling, gr., Knebworth, Herts, was 1st for twelve blooms. In each of these classes there were six lots shown of varied merit. Mr. Sullivan, gr., Downshire House, Roehampton, was the winner with twenty-four Japanese, and Mr. Kipling was 1st with twelve Japanese.

The small classes were better contested than the larger, and here Messrs. W. & G. Drover, Fareham, took the 1st prize for six Japanese, showing several fair blooms of their novelty—Mr. W. Drover, a very fine and distinct variety, with large full flowers, somewhat incurved, and of a pale fleshy-pink colour.

The best single variety of Chrysanthemum was that of Mr. R. Brocklebank, shown by Mr. J. Winkwork—a flower of medium size and fairly full.

Some exceedingly well berried specimens of *Solanums* were shown by Mr. P. Cornish, gr. to J. Dominy, Esq., The Shrubbery, Enfield.

Of subjects submitted to the committee for examination First-class Certificates of Merit were awarded to Mr. May, St. Margaret's, Twickenham, for *Cyclamen persicum grandiflorum* *May Queen*, a fine light variety of the *persicum* type, with large, stout, and well-formed flowers. To Messrs. W. & G. Drover, nurserymen, Fareham, for Japanese Chrysanthemum *William Drover*. To Mr. T. S. Ware, Hale Farm Nursery, Tottenham, for Governor of Guernsey, a pale golden-yellow variety, something in the way of *Peter the Great*, good habit, and very fine: certificated as a late-flowering decorative Chrysanthemum. To Messrs. Henry Cannell & Sons, nurserymen, Swanley, for *Primula sinensis* *Miss Cannell*; and for double *Primula sinensis* *Eva Fish*. To Messrs. Sutton & Sons, seed merchants, Reading, for *Cyclamen Queen of Dwarfs*, and also to *White Butterfly*, two charming and distinct white varieties; to *Primula sinensis* *fimbriata* *Giant Red*, with large and finely formed reddish-purple flowers; and to P. s. *Picotee*-edged. *Scarlet Fern-leaved*, the first scarlet flowered in the *Fern-leaved* foliage, it is said, was Commended. A white-flowered sport from Chrysanthemum Mrs. C. Carey, named *Christmas Beauty*, sent by Mr. W. R. Strong, Wellington College, was regarded as promising; and a yellow sport from *Meg Merrilies*, from Mr. Kipling, the committee desired to see again.

A LIST OF SOME OF THE PRINCIPAL
HORTICULTURAL SOCIETIES, &c.,
IN THE UNITED KINGDOM;
WITH NAMES AND ADDRESSES OF SECRETARIES.

- ABERDARE HORTICULTURAL**—
Sec., D. P. Davies, 17, Commercial Street, Aberdare.
- ACTON HORTICULTURAL**—
Hon. Sec., W. T. Powell, 15, Mill Hill Road.
- ALNWICK HORTICULTURAL AND BOTANICAL**—
Hon. Secs., G. Simpson and J. Ferguson, Alnwick.
- ASCOT, SUNNINGHILL AND DISTRICT HORTICULTURAL**—
Sec., Geo. Watkins, Hill House, Ascot.
- ATHERSTONE HORTICULTURAL**—
Hon. Sec., Alfred Sale, Atherstone.
- AYLESBURY FLORAL AND HORTICULTURAL**—
Sec., W. Elliott, Aylesbury.
- ALVERSTOKE AND GOSPORT CHRYSANTHEMUM**—
Sec., J. Mitchell, Cemetery Lodge, Aur's Hill, Gosport.
- BAGSHOT AND WINDLESHAM ROSE**—
Sec., T. W. Girdlestone, Sunningdale, Berks.
- BANBURY CHRYSANTHEMUM**—
Hon. Sec., F. G. Day, Banbury.
- BANBURY HORTICULTURAL**—
Sec., A. Westland, jun., Banbury.
- BANFERSHIRE HORTICULTURAL ASSOCIATION**—
Sec., Anthony A. W. Gordon, Banff.
- BASINGSTOKE HORTICULTURAL**—
Hon. Sec., H. Loe, Wote Street, Basingstoke.
- BATH FLORAL FETE AND BAND COMMITTEE**—
Sec., B. Pearson, 14, Milsom Street, Bath.
- BATH AND WEST OF ENGLAND AND SOUTHERN COUNTIES ASSOCIATION**—
Steward, Hon. and Rev. J. T. Boscawen, Lamottar.
- BEDFORD AND BEDFORDSHIRE**—
Hon. Sec., H. Tebbs, Stoneleigh, Bedford.
- BEDFORD CHRYSANTHEMUM**—
Sec., J. Sanders Clarke, 49, Linden Road, Bedford.
- BEDLINGTON HORTICULTURAL**—
Sec., R. Redpath.
- BERMONDSEY ("PIONEER," SOUTH) AMATEUR FLORAL**—
Hon. Sec., W. J. Lashbrooke, 47, Beatrice Road, Southwark Park Road, S.E.
- BILSTON HORTICULTURAL**—
Hon. Sec., C. T. Morell, Swar Bank, Bilston.
- BIRMINGHAM AND MIDLAND COUNTIES CHRYSANTHEMUM**—
Sec., T. Hughes, Northwood Villas, Metchley Lane, Harborne, Birmingham.
- BIRMINGHAM BOTANICAL AND HORTICULTURAL**—
Sec., W. B. Latham, Botanical Gardens, Birmingham.
- BISHOP'S WALTHAM HORTICULTURAL**—
Sec., E. Molyneux, Swanmore Park, Bishop's Waltham.
- BLANTYRE HORTICULTURAL**—
Sec., James Jackson, Old Place, Blantyre.
- BLYTH**—
Sec., R. Tait, Blyth.
- BOROUGH OF TYNEMOUTH HORTICULTURAL**—
Sec., J. F. Spence, jun.
- BOSTON FLORAL AND HORTICULTURAL**—
Hon. Sec., J. G. Killingworth, Boston.
- BOURNEMOUTH AND DISTRICT CHRYSANTHEMUM**—
Hon. Sec., J. A. I. Sola, Deepdale, Surrey Road, Bournemouth.
- BRADFORD CHRYSANTHEMUM**—
Hon. Sec., J. Collier, 10, Mainham Road, Manningham, Bradford.
- BRENTWOOD HORTICULTURAL**—
Hon. Sec., G. P. Charter, Brentwood.
- BRIGHTON AND HOVE CHRYSANTHEMUM**—
Sec., M. Longhurst, 18, Church Road, Hove.
- BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL**—
Sec., E. Carpenter, 96, St. James' Street, Brighton.
- BRISTOL CHRYSANTHEMUM**—
Hon. Sec., Alfred Polkinghorne, 96, Egerton Road, Bishopstone, Bristol.
- BROCKHAM AMATEUR ROSE**—
Hon. Sec., Rev. A. Cheales, Brockham Vicarage, Reigate.
- BROMLEY (KENT) DISTRICT CHRYSANTHEMUM**—
Sec., J. Shortland, Sunnyside, Bickley, Kent.
- BROUGHY FERRY HORTICULTURAL**—
Sec., Thomas Buick, Camphill Cottage, Broughty Ferry.
- BURY ST. EDMUND'S AND WEST SUFFOLK HORTICULTURAL**—
Hon. Sec., P. Grieve, Bury St. Edmunds.
- BUTE HORTICULTURAL, ROTHESEY**—
Sec., Robert Pyfe, Bute.
- CALNE (WILTS) HORTICULTURAL**—
Sec., — Harris, Calne.
- CAMBERWELL AND PECKHAM AMATEUR FLORAL**—
Sec., J. Hall, 18, Camden Grove North, Peckham, S.E.
- CANTERBURY AND KENT ROSE**—
Hon. Sec., Rev. H. B. Biron, Lympe Vicarage, Hythe, Kent.
- CANTERBURY HORTICULTURAL**—
Sec., W. Fricker, Broad Street, Canterbury.
- CARDIFF**—
J. G. Jones, Partridge Road, Roath, Cardiff.
- CARLISLE AND CUMBERLAND HORTICULTURAL**—
Sec., John Morrissey, 14, Warwick Street, Carlisle.
- CARNATION AND PICOTEE UNION**—
Sec., E. S. Dodwell, Stanley Road, Oxford.
- CASTLEROCK HORTICULTURAL**—
Sec., W. Jackson, Castlerock, Co. Tyrone.
- CATERHAM HORTICULTURAL AND COTTAGE GARDENERS**—
Hon. Sec., G. H. Rose, School House, Upper Caterham.
- CHADLE HORTICULTURAL**—
Hon. Sec., Edward D. Stone, The Depleach, Chadle, near Manchester.
- CHELMSFORD HORTICULTURAL**—
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THE AMARYLLIS.

PERHAPS I ought to notice the remarks on this plant at p. 818 of last year's volume by Mr. Culverwell. I recommended the use of 5-inch pots for weakly-constituted varieties. We have plenty of bulbs 5 inches in diameter. These we plant in 8-inch pots. What I was anxious to guard against was over-potting. Inexperienced cultivators are more apt to err on the side of over-potting than in the opposite direction.

Mr. Culverwell must not suppose that bulbs producing two spikes with four flowers on each are extra fine. Our largest bulbs of such noble varieties as *Empress of India* produce three spikes with five and six flowers on each. The largest number of flowers we have had open from one bulb at a time was seventeen, but this is unusual. Every year we can show some with fifteen flowers. I fancy only the more hardy varieties would thrive with the treatment recommended by Mr. Culverwell. The best varieties of the *Amaryllis* have been produced by hybridising *A. Leopoldii* and *A. pardina*. The progeny of these are too tender to be placed out-of-doors, and to be moved into frames when frost comes. On the other hand, there are some species, of which *A. vittata* may be taken as the type, which have produced much more hardy varieties. This species is well figured in the *Botanical Magazine*, and the plant there figured is probably the type form. It is there stated that "it rarely puts forth offsets from the root, but readily produces seeds, by which it is propagated without difficulty." From two to five flowers were stated to be produced on one scape. The figure was taken in 1791. Dean Herbert in 1837 describes *A. vittata* as producing from four to nine flowers. The largest number would probably be the produce of two scapes. From 1791 until the death of Dean Herbert, about fifty years later, the *Amaryllis* was well known in this country. Amongst others of the early varieties *A. Regina* held a leading place. This species was stated to have been grown in a Mr. Fairchild's garden at Hoxton in 1728. Miller, writing in the *Gardeners' Dictionary*, states that "this species, not being so hardy as some others, it must be placed in a warm stove, and if the pots are plunged into a hotbed of tanner's bark, the roots will thrive better, and the flowers will be strong." This species went under the name of the Mexican Lily. There is an excellent plate of it by Sydenham Edwards in *Bot. Mag.*, t. 453. Dean Herbert's work is well known, and those who would like to become acquainted with it will find a very complete record in the "*Amaryllidaceæ*," p. 142.

It is there stated that the first cross was made between the two species I have named by a Mr. Johnson, in Lancashire, in 1810, and by Herbert himself at Mitcham, in 1811, and again at Highclere later. Herbert named it *Regio-vittatum*; and this hybrid is even now in existence—at least, I grew it until quite recently under the name of Johnsoni. Mr. Johnson thought this was a cross between *A. vittata* and *Sprekelia formosissima*. A cross between these comparatively hardy species would produce a progeny that might be hardy in our climate; but

Herbert doubted whether a cross had ever been made with this Jacobean Lily and the *Hippeastrums*. He says no instance had ever come to his knowledge of it bearing seeds in this country. As far as my own knowledge extends, I have never known it to cross with *Hippeastrum*. Herbert tried it with *Hippeastrum* and *Zephyranthus*, but failed. The Jacobean Lily produces pollen abundantly, and it is just possible that others may have been successful with it; in fact, it is distinctly stated that *H. spathaceum* (*Bot. Mag.*, t. 2315) is a *Sprekelia* cross and the coloured plate would certainly lead one to believe that it was a cross from the Jacobean Lily.

H. spathaceum hyb. was flowered by Mr. Joseph Knight, of the Exotic Nursery, Chelsea, in 1822, who stated that they received the bulb from Mr. E. Bearpark, a gardener in Cheshire, who gave particular attention to the culture of this class of plants. Mr. Bearpark's letter to Mr. Knight is worth quoting in part. He says, "that in 1814 he impregnated *Amaryllis vittata* with the pollen of *A. Regina*; the seed produced was sown in 1815, and part of the progeny flowered in 1818. The early flowers were most of them stripped of their pollen, and impregnated with that of *A. formosissima*, and amongst the produce was one different from the rest, bearing its flowers erect, and blooming one at a time in succession." This is evidently the plant figured, although it has two flowers open on the scape. It does seem to me that many of the hybrids raised in those days, and later on, were from the hardy Cape species; but as garden plants they cannot for a moment be compared with the beautiful forms of the present day; in fact, thirteen of Dean Herbert's crosses were either from *H. vittatum* or *H. Johnsoni*. Doubtless many of the beautiful varieties raised at that time have perished; but many of them may yet remain; and by a process of what may be termed natural selection the more tender varieties would disappear, while the hardier would remain to be the parents of those yet to be found in old gardens.

We read of the *Amaryllis* growing freely out-of-doors in some districts; and it is certainly very desirable that such hardy forms should be improved by seeding from other hardy varieties. The Jacobean and *Belladonna* Lilies, for instance, if they really can be crossed with the hardy types of the true *Hippeastrum*, would produce valuable plants for sheltered positions in our hardy flower gardens. Mr. Kelway has, I believe, been conducting experiments with the hardy forms of *Hippeastrum*, and can doubtless give valuable information. Mr. Frank Miles, writing to a contemporary quite recently, states that *A. Ackermanni pulcherrima* is grown quite in the open at Calke Abbey, in Derbyshire, where there is a border 200 feet long of it, and in winter it is only covered with Bracken. This variety is so slow of increase, that I cannot conceive of any one having 200 plants of it, let alone a border out-of-doors 200 feet long. I cannot get any increase from a healthy bulb. I fancy there must be some mistake, and that the border is made up of the Jacobean Lily, which is of the same colour. Mr. Miles' statement can easily be verified if it is correct.

Let it be proven that *A. Ackermanni pulcherrima* will grow in borders out-of-doors, many other supposed tender varieties might also grow with it. Mr. Miles also doubts if the Jacobean Lily has ever been crossed with *Hippeastrum*. Herbert also doubted it; and I must say that, after a determined effort to cross it with *Hippeastrum*, I gave it up. There is yet a large field for the hybridiser in this interesting genus. Suppose *Ackermanni pulcherrima* to be quite hardy, with the protection of Bracken, we have a valuable parent, as it can be crossed with other species, though not very freely. The beautiful varieties *Chelsoni*, *Brilliant*, &c., were obtained in Messrs. Veitch's nursery at Chelsea by crossing it with *A. pardina*. The *Amaryllis* is now so universally cultivated in the best gardens, that it is not too much to suppose, some one may have raised very interesting hybrids; and I am sure any information as to hardiness, or new crosses would be most welcome.

I may add that our largest bulb measured, after the outer layers were cleared off and the bulbs potted, 17 inches, and the second size, 15 inches in girth. *J. Douglas.*

THE WEATHER.

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	Above or below the Mean for the week ending Jan. 9.	TEMPERATURE.				
		ACCUMULATED.				
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.	
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.	
0. SCOTLAND, N. ...	5 above	25	8	+ 20	— 25	
1. SCOTLAND, E. ...	7 above	33	11	+ 29	— 30	
2. ENGLAND, N.E. ...	5 above	24	13	+ 17	— 16	
3. ENGLAND, E. ...	4 above	26	16	+ 16	— 14	
4. MIDLAND COS. ...	5 above	28	14	+ 16	— 15	
5. ENGLAND, S. ...	4 above	23	10	+ 10	— 8	
Principal Grazing, &c., Districts.						
6. SCOTLAND, W. ...	6 above	25	3	+ 16	— 24	
7. ENGLAND, N.W. ...	4 above	24	6	+ 13	— 17	
8. ENGLAND, S.W. ...	3 above	27	4	+ 7	— 6	
9. IRELAND, N. ...	5 above	24	5	+ 19	— 14	
10. IRELAND, S. ...	5 above	36	2	+ 13	— 9	
— CHANNEL ISLANDS	3 above	36	0	+ 9	— 5	

DISTRICTS.	More or less than the Mean for the Week.	RAINFALL.		BRIGHT SUNSHINE.	
		No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1888.
		Tenths of Inch.	Ins.		
Principal Wheat-producing Districts.					
0. SCOTLAND, N. ...	0 (aver.)	6	0.9	7	7
1. SCOTLAND, E. ...	2 less	3	0.3	15	15
2. ENGLAND, N.E. ...	5 less	2	0.1	19	19
3. ENGLAND, E. ...	4 less	3	0.1	29	29
4. MIDLAND COS. ...	5 less	3	0.1	21	21
5. ENGLAND, S. ...	4 less	3	0.2	14	14
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 less	6	2.3	11	11
7. ENGLAND, N.W. ...	4 less	5	0.4	12	12
8. ENGLAND, S.W. ...	6 less	5	0.5	12	12
9. IRELAND, N. ...	5 more	5	1.3	17	17
10. IRELAND, S. ...	12 more	4	2.1	29	29
— CHANNEL ISLANDS	3 less	7	0.5	?	?

THE PAST WEEK.

THE following summary record of the weather for the week ending Jan. 9, is furnished from the Meteorological Office:—

"The weather was in an unsettled and rainy condition during the earlier part of the period, but subsequently became fine and unusually warm for the time of year generally, although, in many parts of England thick local fogs were experienced. The rainfall which occurred over Ireland on the 3rd and 4th was very heavy.

"The temperature has been above the mean in all

districts, the excess ranging from 3° in 'England, S.W.' and the 'Channel Islands,' to 5° in Ireland and some parts of England, to 6° in 'Scotland, W.,' and 7° in 'Scotland, E.' The absolute maxima, which were recorded either on the 8th or 9th, were, in many places, abnormally high for the season. In Ireland and over eastern and central England the thermometer rose to 59°, and in 'England, N.E.' (at Durham) to 63°. In 'England, S.,' and the 'Channel Islands,' however (where the weather was misty or foggy), the highest reading was 53°. The lowest of the minima were registered as the period commenced, when the temperature fell to between 26° and 31° generally, and to 41° in the 'Channel Islands.'

"The rainfall has been more than the mean in Ireland, and about equal to it in 'Scotland, N.' but in all other districts it has been less than the normal. At many of the English stations the fogs were sufficient to produce measurable amounts of water in the gauge.

"Bright sunshine has been very little prevalent, the percentage of the possible amount of duration ranging from 7 to 15 in Scotland, and from 12 to 29 in Ireland and England."

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JAN. 21. (AVERAGE OF FORTY-FOUR YEARS.)

Jan. 15 ...	36°·7	Jan. 19 ...	37°·2
" 16 ...	36°·7	" 20 ...	37°·4
" 17 ...	36°·8	" 21 ...	37°·5
" 18 ...	36°·9	Mean for the week ...	37°·0

ENQUIRIES.

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

Would you kindly inform me—I. What are the best twelve dessert late-keeping Apples to grow in New Zealand, to stand the voyage, and send to the London market? 2. The best twelve late cooking Apples for the same purpose as above? 3. Three of the largest and best baking Pears? I have a friend who is going out to New Zealand, and intends to grow fruit. He would like to know the best sorts suitable for growing out there for the London market. *J. N. Lowless.* [We are not able to give the information. The following sorts are in the greatest demand in the London market:—Kewick Codling, Lord Suffield, Hawthornden, Dr. Harvey, Stone's Pippin, Northern Greening, Alfriston, Peasgood's Nonsuch, Golden Noble, Gloria Mundi, Beauty of Kent, Wellington, Blenheim, Golden Russet, Duchess of Gloucester, Nonsuch, King of the Pippins, Cox's Orange, Ribston, and Sturmer. Ed.]

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

BRUOMANSIA SUAVEOLENS: *F.* This plant was described by London in *Hortus Britannicus*, p. 60. It is there said to be an inmate of the bark, or moist stove.

CORRECTION.—In "Hardy Fruit Garden," last week, p. 15, I omitted to give $\frac{1}{2}$ lb. of soft-soap as one of the ingredients of petroleum emulsion. *A. Ward.*

DRYING FLOWERS *K. A. L.* Use a saturated solution of sulphurous (not sulphuric) acid, which you may procure at the chemist's.

ELÆAGNUS EDULIS: *G. H. M.* We do not know precisely what you mean, but all the species are hardy, not particular as to soil, and if you like you may eat the berries, but you will hardly care to repeat the process.

JUNIPERUS SADINA: *Juniperus.* Yes, decidedly, to both.

NAMES OF FRUIT: *J. N.* Blenheim Orange.—*Clark Brothers & Co.* Apple, Yorkshire Greening.—*Elizabeth C.* 1, Golden Noble; 2, not recognised; 3, Court Pendu-Plat; 4, Sturmer; 5, Golden Pearmain; 6, Court of Wick.—*E. H.* Beurré Rance.

NAMES OF PLANTS: *H. W. D.* *Linum trigynum*, otherwise *Reinwardtia trigyna*.—*Crocker & Sons.* *Arbutus*; perhaps *A. procera*, or else a form of *A. Andrachne*. Leaves insufficient to enable us to determine more definitely.—*S. A. B.* *Brassia verrucosa*.—*E. C.* *Vanda concolor*.—*X. Y. Z.* *Tecoma capensis*.—*J. L. H.* *Epidendrum ciliare*, *J. McP.* *Odontoglossum hebraicum*; the *Cœlogyne* is the Chatsworth variety.—*J. H.* 1, *Begonia* (we do not name these); 2, *Davallia canariense*; 3, *Polystichum angulare*; 4, *Aspidium glabellum*; 5, *Selaginella viticulosa*; 6, *Davallia bullata*.—*J. F. P.* *Clematis indivisa*; 1, *Adiantum Pacotti*; 2, *A. cuneatum* var.; 3, *A. Sancta-Catherinae*; 4, *Pteris cretica*; 5, *Adiantum cuneatum* var.; 6, *A. hispidulum*.

NEW ZEALAND: *E. Spooner.* The article kindly sent was published in our columns September 10 last. The other will appear shortly.

VEGETABLE PALEONTOLOGY: *A. B.* The most complete book is that of Schimper, but it is costly. Unger's *Genera Plant. Fossil.*, Vienna, 1850, is still useful, and so is Brongniart's *Classification et Descript. des Vég. Fossiles*, 1822. There are, of course, very numerous separate memoirs by Mr. Carruthers, Mr. Starkie Gardiner, Prof. Williamson, and others. Application at the Geological Society would secure you full information.

CATALOGUES RECEIVED.

WM. PAUL & SON, Paul's Nurseries, Waltham Cross—Seeds and Sundries.

G. E. ELLIOTT, Huddersfield—Seeds.

THOS. HORSMAN, 102, Godwin Street, Bradford—Garden Seeds.

CHARLES SHARPE & Co., Sleaford, Lincolnshire—Garden and Farm Seeds.

ARTHUR ROBINSON, 8, Lendenball Street, London, E.C.—Vegetable and Flower Seeds, &c.

LITTLE & BALLANTYNE, Carlisle—Vegetable, Flower and Farm Seeds.

F. C. HEINEMANN, Erfurt—General Seed and Plant List.

E. P. DIXON & SONS, Hull—Garden and Farm Seeds.

HAAGE & SCHMIDT, Erfurt—Plant and Seed Lists.

T. LAXTON, Bedford—Seeds and Potatoes.

T. S. WARE, Hale Farm Nurseries, Tottenham—Flower Seeds, Gladioli, and Dahlias.

KENT & BRYDON, Darlington—Seed Guide.

ALFRED LEGGERTON, 5, Aldgate, London, E.—Trade Seed List.

THOMAS KENNEDY & Co., 106 and 108, High Street, Dumfries, N.B.—Vegetable and Flower Seeds.

E. J. JARMAN, Chard, Somersetshire—Vegetable and Flower Seeds.

FISHER, SON & SHURAY, 4, Market Street, Sheffield—Kitchen Garden and Flower Seeds.

COMMUNICATIONS RECEIVED.—Lucien Linden, Brussels.—W. B. H.—Professor Meehan, Philadelphia.—E. C.—E. B.—W. T. D.—W. E. G.—T. B.—M. J. S., Reading.—F. W. B.—W. Brockbank—Colonel Jones (a letter will follow).—W. B. H.—Professor Balfour.—N. E. Br.—Sutton & Sons.—H. M.—F. C. H.—E. Spooner.—F. W. G.—J. C. C.—Pteris.—J. Downie.—R. A. R.—J. J. W.—J. H. W.—B. R. D.—J. H.—A. D.—W. Chitty.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, January 12.

TRADE has been very dull this week, Grapes especially being affected, and, with heavy supplies reaching us, are quite 6d. per lb. lower. Market well supplied with all classes of goods, both home-grown and foreign. Nova Scotian Apples in moderate supply, at full quotations. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, $\frac{1}{2}$ -sieve ...	1 3-3 6	Melons, each ...	0 6-2 0
Grapes, per lb. ...	1 0-2 8	Pears, $\frac{1}{2}$ -sieve ...	2 6-8 0
— Channel Isls., lb. 1 0-1 6		Pine-apples, Eng., lb. 1 0-2 0	
Kent Cobs, 100 lb. ...	50 0-...	— St. Michael, each 2 0-5 0	
Lemons, per case ...	12 0-21 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, p. doz. ... 6 0 ...	Mustard and Cress, punnet ... 0 4 ...
Beet, red, per dozen 1 0-2 0	Onions, per bushel ... 0 6 ...
Brus, Sprouts, lb. ... 0 4 ...	Parsley, per bunch ... 0 6 ...
Carrots, per bunch ... 0 6 ...	Potatoes, per cwt. ... 4 0-5 0
Cauliflowers, each ... 0 6 ...	... kidney, per cwt. ... 4 0-5 0
Celery, per bundle 1 6-2 0	Rhubarb, per bundle 0 6 ...
Cucumbers, each ... 1 0-2 6	Seakale, punnet ... 1 6-2 0
Endive, per dozen ... 2 0 ...	Shallots, per lb. ... 0 6 ...
Green Mint, bunch ... 1 0 ...	Spinach, per bushel ... 3 0 ...
Herbs, per bunch ... 0 4 ...	Spruce, per bundle ... 1 0 ...
Leeks, per bunch ... 0 6 ...	Tomatoes, per lb. ... 1 0-2 0
Lettuce, per dozen ... 1 6 ...	Turnips, per bunch ... 0 8 ...
Mushrooms, punnet 1 0-1 6	

POTATOES.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6-10 0	Evergreens, in var., per dozen ... 6 0-24 0
Azalea, per dozen ... 24 0-42 0	Ficus elastica, each ... 1 6-7 0
Bouvardia, per dozen 9-12 0	Foliage plants, various, each ... 2 0-10 0
Chrysanthemums, per dozen ... 12 0-24 0	Hyacinths, doz. ... 8 0-10 0
Cyclamen, per dozen 12 0-24 0	Lily of Valley, 12 pts. 16 0-24 0
Cyperus, per dozen ... 4 0-12 0	Marguerites, doz. ... 9 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Myrtles, per dozen ... 6 0-12 0
... viridis, per doz. 9-24 0	Palms, in var., each 2 6-21 0
Epiphyllum, doz. ... 12 0-24 0	Pelargoniums, scarlet, per dozen ... 3 0-6 0
Ericas, various, doz. 9 0-16 0	Poinsettias, doz. ... 12 0-18 0
Eucalyptus, in var., per dozen ... 6 0-18 0	Primula sinensis, doz. ... 9 0-12 0
Ferns, in var., doz. 4 0-18 0	Solanum, per dozen ... 9 0-12 0
	Tulips (pots of), doz. 8 0-9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilons, 12 bun. ... 2 0-6 0	Narciss., paper white, Fr., 12 bunches ... 4 0-9 0
Azurea, 12 bunches ... 5 0-8 0	... Various, 12 bun. ... 3 0-6 0
Azaleas, 12 sprays ... 0 9-1 0	Pelargoniums, 12 spr. ... 1 0-1 6
Bouvardias, per bun. 0-6 0	... scarlet, 12 spr. ... 0 8-1 0
Camellias, 12 blms. ... 2 0-5 0	Primulas, double, 12 sprays ... 1 0-1 6
Carnations, 12 blms. 1 0-3 0	... single, 12 bun. ... 4 0-6 0
Chrysanth., 12 bun. 12 0-30 0	Roses, Tea, per doz. ... 1 6-4 0
... large, 12 blooms 2 0-6 0	... coloured, dozen ... 2 0-4 0
Cyclamens, 12 blms. 0 6-1 0	... red, per dozen ... 2 0-3 0
Eucharis, per dozen 4 0-6 0	... Safrano, dozen ... 1 6-3 0
Gardenias, 12 blooms 9 0-15 0	Tuberose, 12 blms. ... 0 9-1 6
Heliotropes, 12 spr. 0 6-1 0	Tulips, 12 blooms ... 0 8-1 0
Hellebore, or Christ-mas Rose, 12 blms. 0 6-2 0	... 10 blms. ... 10 0-1 6
Hyacin., Rom., 12 ap. 0 6-1 0	... French, bunch ... 1 6-3 6
Lily of Valley, 12 spr. 0 9-1 6	... Fr. Parme, bun. 5 0-7 0
Marguerites, 12 bun. 3 0-8 0	White Lilac, French, per bunch ... 6 0-7 6
Mignonette, 12 bun. 3 0-6 0	
Poinsettia, 12 blms. 4 0-6 0	

SEEDS.

LONDON: January 11.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that the heavy and protracted fogs have of late greatly hindered business in seeds. The general outlook of the trade is very promising; stocks all round being moderate and prices, as a rule, standing at a safe low level. For German red Clover seed, 1s. to 2s. per cwt. more money is asked. All other varieties keep exceedingly steady. In Haricots the recent advance is well maintained. There is no change in blue Peas. Canary and Hemp seed move off slowly on former terms. Linseed has become quiet.

FRUIT AND VEGETABLES.

STRATFORD: January 11.—Trade and supply have been good. Quotations:—Cabbages, 5s. to 6s. 6d. per tally; Savoy, 9s. to 10s. do.; Greens, 2s. to 2s. 6d. per dozen bunches; Turnips, 2s. 6d. to 3s. 6d. do.; do., 27s. to 30s. per ton; Carrots, household, 35s. to 40s. do.; Parsnips, 6d. to 1s. per score; Mangels, 20s. to 23s. per ton; Swedes, 20s. to 23s. do.; Onions, English, 7s. to 8s. per cwt; do., Dutch, 4s. to 7s. 3d. per bag; do., German, 3s. 6d. to 2s. per bushel; Apples, English, 3s. 6d. to 10s. do.; do., Baldwins, 18s. to 24s. per barrel.

POTATOS.

BOROUGH AND SPITALFIELDS: January 10.—Trade slow, prices firmer, on light supplies. Regents, 80s. to 105s.; Magnum Bonums, 50s. to 110s.; Hebrons, 80s. to 110s.; Champions, 40s. to 60s. per ton.

COLUMBIA (East London): January 11.—Quotations:—Magnums, 50s. to 70s.; Regents, 55s. to 90s.; Victorias, 50s. to 60s.; Beauty of Hebron, 80s. to 110s. per ton.

STRATFORD: January 11.—Quotations:—Scotch Regents, 75s. to 80s.; English Magnums, best, 60s. to 65s.; fenland, 50s. to 55s. per ton.

Imports.—The imports into London last week consisted of 22 bags from Hamburg and 273 from Ghent.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

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Every grain fertilizes because the Guano is perfectly pure. It is most economical, one part of Manure to 100 parts of soil being ample for garden use.

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FISH-POTASH contains Ammonia, Phosphates and Potash in large proportions, which are the principal elements of fertilization.

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GUANO—2-lb. Tins, 1s.; in Bags, 7 lbs., 2s.; 14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d.; 1 cwt., 16s.; 2 cwt., 30s. Special terms for larger quantities. Analysis guaranteed.

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CHRYSAETHUMS.—Nothing but best varieties grown. Well-rooted Cuttings in any quantity. My Selection, 2s. 6d. per dozen; Purchaser's Selection, 3s.; Cuttings, half-price.

JOHN OLDFIELD, Chirk, Ruabon.

SPECIMEN CONIFERS, TREES for Avenues, EVERGREENS and FOREST TREES in great variety. CATALOGUES Free on application.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

INDIAN LILIES.

L. neilgherrense, L. polyphyllum, L. Wallichianum. In excellent order, fine flowering bulbs in any quantities to suit purchasers. The usual allowance to the Trade. Prices on application. Apply to B. WAKELIN, Alford, Lincolnshire.

White Lilac.

WHITE ENGLISH LILAC, Forced and Sold by K. DROST, Kew Nursery, Richmond, S.W., and 30, Covent Garden Flower Market, W.C. Any quantity to be had at a minute's notice. TELEGRAPHIC ADDRESS—"DROST, RICHMOND, SURREY."

LARGE SHRUBS and CONIFERÆ.

American Arbor-vite, 2 to 2½ feet, 16s. per 100; ditto, 3 to 3½ feet, 20s. per 100. Aucuba japonica, 1½ to 2 feet, 30s. per 100. Berberis aquifolia, 1 to 1½ feet, 50s. per 100. Box Trees, 2 feet, 20s. per 100. Griselinia littoralis, 1½ foot, 30s. per 100. Laurel, Common, 2 to 2½ feet, 10s. per 100. Laurel, Portugal, 1½ to 2 feet, 20s. per 100. Laurel, Colchic, 2 to 3 feet, 16s. per 100; ditto, 3 to 4 feet, 20s. per 100. Laurel, caucasicum, 2 to 3 feet, extra, 20s. per 100. Rhododendron ponticum, 1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100; ditto 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per 100. White and other colours, strong and bushy, 70s. per 100. English Yew, 2 feet, 26s. per 100. Abies Douglasii, 3 to 4 feet, 35s. per 100; ditto, 4 to 5 feet, 45s. per 100. Araucaria imbricata, 1½ to 2 feet, 24s. per dozen; ditto, 2 to 2½ feet, 35s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen. Cupressus macrocarpa, 2 to 3 feet, 50s. per 100. Cupressus Lawsonii, 2 to 3 feet, 20s. per 100. Cupressus erecta viridis, 2 feet, 30s. per 100. Pinus Nordmannii, 2 feet, 35s. per 100; ditto, 3 to 3½ feet, 16s. per dozen. Retinospora plumosa, 1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. Retinospora plumosa aurea, 1 to 1½ foot, 50s. per 100. Retinospora squarrosa, 12 to 18 inches, 20s. per 100; ditto, 2 to 2½ feet, 50s. per 100. Thuia Loblii, 2 to 2½ feet, 20s. per 100; ditto, 4 to 5 feet, 12s. per dozen. Thuiaopsis borealis, 2 to 2½ feet, 50s. per 100. Thuia dolabrata, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3 feet, 30s. per dozen.

GARLIES MITCHELL, Nurseryman, Stranraer.

TWO ARECA LUTESCENS, in 10-in. pots, 8 and 9 leaves each, 4 ft. 6 in. and 5 ft. high, 15s. each; one Allamanda Hendersoni, in 12-in. pot, trained balloon shape, 15s.; one Lomaria gibba, in 11-in. pot, 10s. 6d.; one Hoya carnea, in 10-in. pot, trained balloon, 10s. 6d.; two Araucaria excelsa, in 10-in. pots, 3 ft. 6 in. high, beautiful plants, 21 ls. each. Room wanted. J.S. HEWARD, Arundel Nursery, Littlehampton.

HENDER'S PETUNIAS and BALSAMS ARE THE BEST.

Single PETUNIAS, 1s. and 2s. per packet; Fringed, 2s.; Double Fringed, 2s. and 3s. 6d. Double BALSAMS, 1s. and 2s. 6d. Descriptive CATALOGUE of Choice Vegetable and Flower Seeds Post-free. Prices moderate.

HENDER and SONS, Seedsmen, Plymouth.

CARSON'S PAINT

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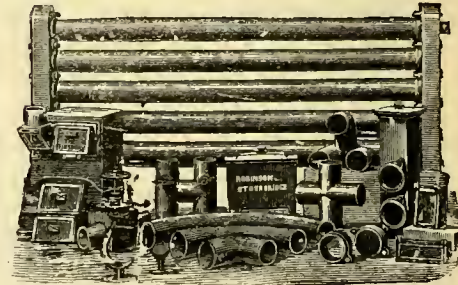
15 oz.	21 oz.
13½ by 8½ for 10/- for 14/-	or 300 squares 15 ounce, 8 by 6,
12 " 9 " 10/- " 14/-	or 250 squares 8½ by 6½, or 220
12 " 10 " 11/- " 15/-	squares, 9½ by 6½, or 170 squares,
14 " 10 " 13/- " 19/-	9 by 7½, or 150 squares, 10 by 8,
14 " 12 " 17/6 " 24/-	or 10s. Carriage paid for all orders
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Full Illustrated Revised Price List on application.

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for Preserving Ironwork, Wood, or Stones.



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An excellent substitute for oil paint, at one-third the cost. Used in all London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

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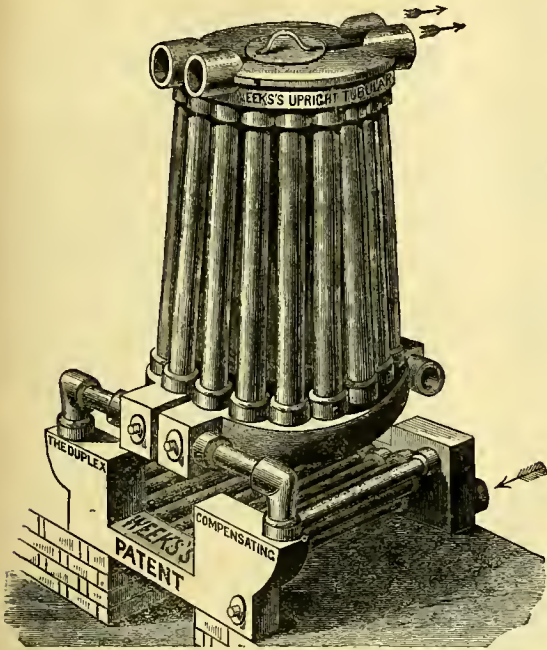
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Pretty FANCY BOXES, suitable for half-dozen or dozens of Handkerchiefs,
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FISH NAPKINS, 2s. 11d. per dozen. Dinner Napkins, 5s. 6d.
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Best Quality Long Cloth, with 4-fold
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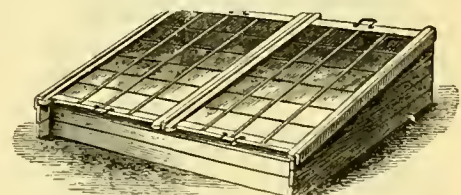
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R. HALLIDAY AND CO. desire to
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of which they always have a large stock, ready glazed and
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Prices delivered to any station in England:—

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2-light frame, 2 feet by 8 feet	3	10	0
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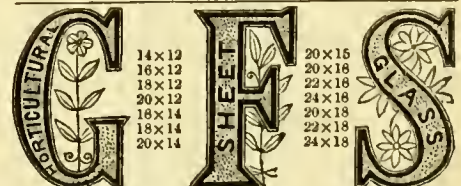
The glass is milled and putted in. Lights and framing for
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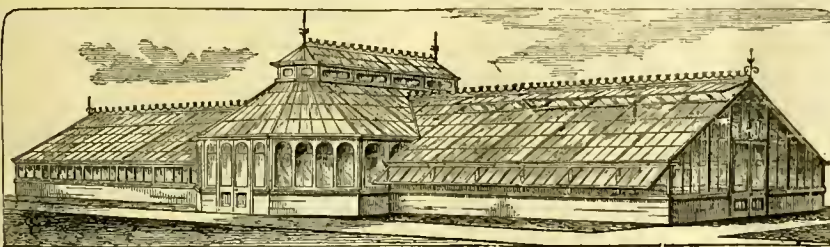
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Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the
perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work,
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CAMOMILE PILLS.

Are confidently recommended as a simple but certain remedy for

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See Testimonial, selected from hundreds:—

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GRATEFUL—COMFORTING.

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MADE WITH BOILING MILK.

Accidents all the Year Round.

Provide against them by Policy of the

RAILWAY PASSENGERS' ASSURANCE

COMPANY, 64, Cornhill, London, E.C.

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Moderate premiums—Favourable conditions—new concessions.

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LAND AGENTS, ESTATE MANAGERS, and all having Farms to Let, would do well to Advertise in

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ADVERTISER, with 1700 feet of Glass, in good suburb, 7 miles from Covent Garden, wishes to MEET WITH A MAN used to Growing Stuff for Market, willing to join him in same at once. £100 required for share. —C. G., 41, Wellington Street, Strand, W.C.

WANTED, an experienced ORCHID COLLECTOR, to proceed to South America.—Address, with particulars, A. MERTON, 50, Parliament Street, S.W.

A GENTLEMAN living in a Southern County, with a larger garden than he requires, wishes to find a professed GARDENER, unmarried, to live at the Lodge, who will undertake to supply the house with Flowers and Fruit, and keep it cultivated in first-rate order. He will be allowed to Sell the Produce instead of wages. The garden is sheltered, productive, and well stocked, with river running through it; orchard, conservatory, with 9 hotbeds. He must have an excellent character for probity and experience.—Address by letter, E. D., May's Advertising Offices, 159, Piccadilly, London, W.

WANTED, AT ONCE, a GARDENER for Single-handed place, twelve miles from London. Must thoroughly understand treatment of Hothouse Plants; Cut Flowers a speciality. Good wages.—Apply, by letter only, to F., 52, Leadenhall Street, London, E.C.

Gardener.

WANTED, a WORKING GARDENER, experienced in the Cultivation of Conifers, Shrubs, Roses, Herbaceous Plants, and Outdoor Fruit. Must be married, without family. Wife to give occasional Assistance in the House. Wages for the two, 26s. a week, and good free house and garden. Assistance is given in the garden.—Apply to A. B., Box 64, Post Office, Whitehaven, giving references, and stating age and particulars of present employment.

WANTED, an UNDER GARDENER, for a Gentleman's establishment; married. Must be thoroughly well up in everything connected with Kitchen and Flower Gardening, and must understand Forcing Vegetables, &c. Wages, 17s. per week, with cottage, garden and milk. First-class character indispensable.—Write full particulars as to qualification, and experience, to B., Messrs. Dawson & Sons, 121, Cannon Street, London, E.C.

WANTED, a young MAN, for the Houses, under the Foreman. Must have good experience in Plant Growing generally, be neat and quick at work, with good recommendation from last situation. Wages, 20s. per week; no hoth.—State full particulars to J. ANDERSON, The Gardens, Streatham Grove, Norwood, S.E.

Gardeners.

WANTED, shortly, a good, trustworthy MAN. Must understand Vines and Cucumbers. Wages, 21s.—P. J. S., St. Mary Cray.

WANTED, a smart young MAN, with thorough knowledge of Houses and Kitchen Gardening and accustomed to Nailg. Wages 18s. per week.—Address, with all particulars, BONNER, 6, Dowgate Hill, London, E.C.

WANTED, a young MAN, to Pot and Tie, used to Market Work. Must be quick.—Apply, stating wages required, to GARAWAY AND CO., Durdham Down, Clifton, Bristol.

WANTED AT ONCE, TWO MEN, quick at Bunching. Also CARMAN, for Market.—FOREMAN, Turnford Hall Nursery, near Broxbourne.

WANTED, an active young MAN, well up in Dispatch of Orders, to Manage a New Business. State age, experience, salary required, references, &c.—A. S. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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WANTED, an efficient, active, sober, steady, and reliable Man as TRAVELLER.—Address, stating age, experience, salary expected, and other particulars, to LEX, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, London, W.C.

WANTED, AT ONCE, for the season, or permanently, ONE or TWO GENERAL CLERKS, men who have been accustomed to the general routine of a Provincial Nursery or Seed Office preferred.—Apply, giving particulars of engagements, where last employed, age, and wages expected to LEX, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, for Branch Seed and Bulb Business, in London suburb, efficient SHOPMAN. Single-handed: proficient in Making-up Wreaths, Crosses, and Bouquets. Wages, 18s. to 20s., according to ability.—State experience to B. C. G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a WAREHOUSEMAN. Must have experience in Farm Root Seeds, Clovers, Grasses, Garden Peas and Beans, and the general routine of a Provincial Seed Warehouse.—Apply with references, which must be of a high character, stating wages required and experience, to W. W. JOHNSON AND SON, Seed Merchants, Boston, Lincolnshire.

WANTED, an ASSISTANT in Seed and Nursery Department.—Preference given to a good Budder and Grafter. Good character indispensable.—Apply, in own handwriting, stating age, experience, and salary expected, to X. Y., Messrs. Hurst & Son, 152, Houndsditch, London, E.

Seed Trade.

WANTED, a young MAN, from 20 to 22 years of age as ASSISTANT.—Apply, with full particulars, to F. WALKER, 4, Upper Parliament Street, Nottingham.

WANTED, an ASSISTANT, in the Retail Seed and Corn Trade. Must be quick Counter-hand, and of good address.—Apply, stating age, experience, and salary expected, to CLARKE AND SON, Seedsman, Cheltenham.

WANTED, a YOUTH, as Junior Assistant in the Garden Seed Department.—Apply, stating age, experience, reference, and wages required, to WEBB AND SONS, The Royal Seed Establishment, Wordsley, Stourbridge.

WANTED, for the Office of an Erfurt Seed and Nursery Establishment, a young MAN, German preferred, thoroughly acquainted with the English language.—Apply, stating experience, wages expected, and reference, to H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, London, W.C.

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WANTED, a YOUTH, with two or three years' experience, for Counter Work, and to Attend Market Stalls.—Apply, in own handwriting, to MILL AND TWEEDIE, Seed Merchants, Truro.

GARDENING APPOINTMENTS.

MR. G. A. BETHELL, formerly Gardener to the Duke of MARLBOROUGH, Blenheim, is engaged as Gardener to the Baronne ADOLPHE DE ROTHSCHILD, Château de Pregny, Geneva.

MR. W. ROUSE, late of Sudbury House Gardens, Hammersmith, has been appointed Gardener at Warwick School, Warwick.

MR. STEPHEN DAVIES, late Head Gardener to Captain DRUMMOND, Enderby Hall, Leicester, has been appointed Head Gardener to C. CHURCHILL, Esq., Weybridge Park, Weybridge, Surrey.

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JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

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—JOHN DOWNIE (of the late firm of Downie & Laird), Seedsman, 144, Princes Street, Edinburgh, has at present on his List a number of SCOTCH GARDENERS, waiting re-engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

RICHARD SMITH AND CO.

beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

GARDENER (HEAD).—Age 36, single; twenty-three years' practical experience in all branches of Gardening. Two and a half years' good character from last place.—J. NICHOLAS, Rossett, Wrexham.

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GARDENER (HEAD).—Age 32; eighteen years' experience in Early and Late Forcing of Fruits, Flowers, and Vegetables, also Flower and Kitchen Gardens. Excellent character and testimonials. Charles Arthur Talley. —Apply Mr. CYPHER, Exotic Nursery, Cheltenham.

GARDENER (HEAD); age 33, married, no family.—W. J. IRELAND, late of Nostell Priory, and previously with the Marquis of Headfort, is open to engage with any Nobleman or Gentleman requiring the services of a thorough trustworthy and competent man. Left at own request. Very highly recommended for character and ability.—Leasgill, Milnthorpe, Westmoreland.

GARDENER (HEAD WORKING).—Middle-aged, married; has a thorough knowledge of his business in all its branches. Land if required. Six and a half years' good character.—W. B., Longhurst Cottage, Bracknell, Berks.

GARDENER (HEAD WORKING); age 34, married, no family.—The Rev. J. A. EWING, Westmill Rectory, Buntingford, wishes strongly to recommend his Gardener to any Lady or Gentleman in want of a thoroughly practical man.—J. K., Westmill Rectory.

GARDENER (HEAD WORKING).—Age 35, married, two children; twenty years' experience in good families in England and Scotland. Nearly five years in present situation, six previous.—JOHN FINLAYSON, The Gardens, Farnham Chase, Slough.

GARDENER (HEAD WORKING).—Married, no family; fifteen years' experience in all branches. Understands the Growing of Orchids, also Forcing Flowers, Fruits, and Vegetables. Good character and testimonials.—A. COLE, Spa Gardens, Larkhall, Bath, Somerset.

GARDENER (WORKING).—Age 30, married; thirteen years' good practical experience in all branches of the profession. Highest testimonials as to character and abilities.—H. GILBERT, Gardener, Boughton Place, Maidstone.

GARDENER (HEAD WORKING), where two or more are kept; age 30, married.—Mr. MUNDELL, Gardener to the Right Hon. Lord Ebury, Moor Park, Rickmansworth, Herts, can with every confidence recommend a practical man as above. Thoroughly honest, sober, and trustworthy, and understands the L. S. D.—Address as above.

GARDENER (HEAD WORKING); age 30.—Mr. WARD, Gardener to the Right Hon. Lord Windsor, Hewell, Bromsgrove, wishes to recommend his Foreman (Arthur Smith) as above, to any Lady or Gentleman requiring the services of a thoroughly experienced Gardener in all branches of the profession. Sixteen years' experience; five years in present situation.—Address as above.

GARDENER (HEAD WORKING).—ADVERTISER wishes to strongly recommend his Gardener, who has lived with him fifteen years, and who is most trustworthy, hard-working, and thoroughly efficient in all branches of gardening; he is especially good in the Cultivation of Roses and Chrysanthemums, having won Gold and Silver Medals, and Fifty odd Prizes for advertiser, who is only parting with C. G. on account of wishing to reduce his establishment, and who will gladly answer all enquiries.—G. G. S., Eastcote, Red Hill, Surrey.

GARDENER (HEAD WORKING), where two or three are kept, or good SINGLE-HANDED.—Age 27; well up in all branches. First-class character.—W. HUTT, The Gardens, Lovel Hill House, Winkfield, Windsor, Berks.

GARDENER (HEAD WORKING, or SINGLE-HANDED).—Married; fifteen years in last situation. Left through death. Understands Gardening in all branches.—CHARLES CAPLING, Redhampton Hill, Havant.

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GARDENER (HEAD, or UNDER).—Scotch; experienced in all departments. Trustworthy, and willing to be useful. Open to engagement end of month. Best references. Teetotaler.—Address, first instance, 12, Montague Place, Shrewsbury.

GARDENER; married.—A GENTLEMAN wishes to recommend his Gardener—a thoroughly competent and most highly respectable man.—J. Q., Clovelly, Freshwater, Isle of Wight.

GARDENER (SINGLE-HANDED).—Age 25; good character. Total abstainer.—A. B., 18, Bedford Road, Ealing Deas.

GARDENER (SINGLE-HANDED, or good SECOND).—Thoroughly experienced in Vines, &c. Four and a half years' good character from last situation.—W. P., Burnside, Exmouth, Devon.

GARDENER (SECOND), in a good Establishment.—Age 25; three and half years' good recommendation from present employer.—State wages and particulars, to W. SKEGGS, The Gardens, Streatham Grove, Norwood, S.E.

GARDENER (SECOND or UNDER).—Age 19; Two and a half years' character. Five years' experience. Well up in House Work.—G. SMITH, The Gardens, Rockville, Cosham, Hants.

GARDENER (SECOND or UNDER).—Age 22; seven and a half years' experience Inside and Out. Three years' good character.—E. RIXON, Normansfield, Hampton Wick, Middlesex.

GARDENER (THIRD), under a Foreman in a Nobleman's or Gentleman's establishment.—Five years' experience. Good character.—G. PIKE, Whitestaunton, near Chard, Somersetshire.

GARDENER (UNDER).—Age 25; good experience. Good references can be had if required.—J. D., Chestnut House, Balham Hill, London, S.W.

GARDENER (UNDER), or to Manage Kitchen Garden and Cows.—Young; seven years' good character.—H. RICHARDS, Market Gardener, Shirley, Southampton.

GARDENER (UNDER).—Age 19; been accustomed to In and Outdoor Work. Eighteen months' good character.—GEO. ROBINS, Cambridge Street, St. Neots, Hants.

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MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 26, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Twickenham.

"SMITH'S" STRAWBERRY GARDENS, of nearly 2 acres, with 19 Greenhouses and Pits. Fine stock of Strawberry Plants, &c., with possession.

MR. CHANCELLOR, Auctioneer, Richmond, will SELL the above by AUCTION on MONDAY NEXT, January 23, at Richmond.

Halstead's Nurseries, Scotforth, Lancaster.

UNRESERVED SALE by the Sheriff.

MR. CHAS. R. COMPSTON will SELL by AUCTION as above, on MONDAY, January 30, and following days (under a Sheriff's execution), the whole of the above extensive NURSERY STOCK, comprising Forest, Fruit, and Ornamental Trees, Thorns, Shrubs, Evergreens, and Roses in great variety.

Catalogues from the Auctioneer, 1, New Road, Lancaster.

Twickenham.

TO BE DISPOSED OF, 4 Acres of MARKET GARDEN and STRAWBERRY GROUNDS, with Residence and Glasshouses, including fine Stock of Strawberry Plants. Lease, 43 years. Rent, £61 per annum. Price, £350. Apply to Mr. CHANCELLOR, Richmond.

FOR SALE, LAND suitable for a Nursery or Market Garden, near a Railway Station in a town where there is a good opening either for a Nursery or Market Garden, or both. Advantageous terms of purchase offered. For full particulars, apply to P., Hammett's Library, Taunton.

To Nurserymen, Market Growers, and Others.

FOR SALE, LAND, in large or small quantities suitable for Nurseries or Market Growing. Near Railway Stations. H. J. E. BRAKE, Farnborough, Hants.

FOR SALE, a Small NURSERY, SEED, and FLORIST'S BUSINESS, in first-rate locality. Price £100. Small stock at valuation.

Apply, E. D. I., Minton Villas, Uxbridge Road, Ealing Dean.

FOR SALE, a Large GREENHOUSE, in good condition, with Side Lights and Ventilating Gearing. For particulars apply to T., Mr. Hanwell, Woodstock, Oxon.

TO LET, a Small FLORIST BUSINESS, near Richmond. House and Shop. First-class position. Walled-in Ground with Glass in rear. Long Lease. A. B., 12, Henwood Road, Gomm Road, Southwark Park, S.E.

To Florists.

TO LET, ON LEASE, Three-quarters of an Acre of LAND, in open locality, with Span-roof House, thoroughly Heated, and New Cottage. Woodlands Nursery, Barnes Common.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so-called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by PULHAM AND SON, BROXBORNE.

ORCHIDS.

An immense Stock.

Thousands Showing for Bloom.

NEW CATALOGUE

OF ORCHIDS AND OTHER PLANTS,

Free on application to

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES,

GARSTON, near LIVERPOOL.

Chrysanthemums.

MESSRS. W. AND G. DROVER are now Booking Names for their NEW JAPANESE W. G. DROVER, 3s. 6d.; Cutting Plants, 5s. Certificated Southampton, Birmingham, National, January 11 and 12. CATALOGUE, 3d. Nurseries, Fareham.

BEGONIA SEED.—Sixpenny Packets, post-free 7d.; all colours, mixed or separate. Finest giant single varieties. Crimson, scarlet, pink, rose, white, yellow, orange, salmon. Larger packets, 1s. The best and cheapest procurable. Sow now.—JOHN R. BOX (for 10 years sole partner with J. LAING), Seedsman and Begonia Grower, Croydon.

The Supplement to

W. THOMPSON'S CATALOGUE of FLOWER SEEDS for the present season is now published, and should be seen by all Amateurs of New and Rare Plants. It includes Seeds not to be found in any other European Catalogue. Post-free.

34, Tavern Street, Ipswich.

NEW PEA, "XL ALL."—"The seed of 'XL ALL' was sown rather late (June 10), but notwithstanding this and the unfavourable season for late Peas, 'XL ALL' proved to be a valuable acquisition. It has a strong and robust constitution and branching habit of growth, coupled with an immense crop of fine large pods, each containing 8 to 9 fine Peas. This tends to prove it a late variety of great value. I think it cannot fail to satisfy the most exacting of Pea-growers. I have this day (October 8) had a dish cooked, and, as a true Marrow, its colour and flavour leave nothing to be desired." 2s. 6d. per sealed Pint Packet, 1s. 6d. per sealed Half-pint Packet. Post-free. To be had from the principal Seed Houses, or direct from KENT AND BRYDON, Seed Merchants, Darlington.

Chrysanthemums.

GEORGE STEVENS' Splendid CHRY-SANTHEMUMS gained more Prizes last season than any other exhibitor. Well-rooted Plants, Incurred and Japanese, in pots supplied by J. Crute, patentee of the celebrated Coccage Flower Pots, 5000 being used in this Nursery for 1500 mugs. Plants, 4s. 6d. per dozen; Cuttings, 2s. per dozen. For prices of new varieties see CATALOGUE sent on application. Join with orders. To ensure success a change in plants and pots is very essential.—14, Knightbridge Street, London, E.C.

ASPHAGNUS, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Fox Coverts.—Game Coverts.

JOHN PERKINS AND SON offer stooks transplanted:—

BLACKTHORN, 1½ to 2 feet, and 2 to 3 feet.

PRUNUS MYROBOLANA, 1½ to 2 feet, and 2 to 3 feet.

LAURELS, Common, 1½ to 2 feet, and 2 to 3 feet.

PRIVETS, Evergreen, 1½ to 2 feet, and 2 to 3 feet.

At very low prices.

Billing Road Nurseries, Northampton.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

The New Raspberry.

LORD BEACONSFIELD. (A Seedling.)

The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883.

Strong Canes, £3 per 100; 9s. per dozen. Smaller Canes, 6s. per dozen.

Trade supplied. Cash with order.

A. FAULKNER, Inkipen, Hungerford.

THE NEW LATE GRATE, "WHITE GROS COLMAR."

First-class Certificate of the Royal Horticultural Society of Ireland. Planting Canes, 21s.; Fruiting Canes, 42s. each. Descriptive LIST on application.

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

FREESIA REFRACTA ALBA.

An importation of this beautiful pure white sweet-scented bulb has just come to hand. We are prepared to quote them at extremely low prices on application.

HURST AND SON, Seed Merchants, 152, Houndsditch, London, E.

CATALOGUES.

THE NURSERIES, KING'S ACRE,

HEREFORD.

(Established 1785.)

JOHN CRANSTON & CO.

beg to announce that their Descriptive Catalogues of

ROSES,

FRUIT TREES,

FOREST TREES,

RHODODENDRONS,

CLEMATIS,

and other HARDY TREES and SHRUBS, are now published; and which they will be pleased to forward on application.

Special Offers will be made for Large Contracts.

PALMS.—A few hundreds, well-grown, strong and healthy.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Latania borbonica, Seaforthia elegans, Phoenix reclinata, and Cerypha australis, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, Enterpe edulis, and Areca Intescens, 2 feet 6 inches to 3 feet high, 3s. to 5s. each.

Fine feathery-foliated Seaforthia elegans, 4 feet high, 15s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 54-inch pots, 2s. 6d. each. Descriptive LIST on application.—**RICHARD SMITH AND CO.**, Nurserymen and Seed Merchants, Worcester.

SMALL SHRUBS and CONIFERÆ.—

Arancaria imbricata, 8 to 9 inches, 40s. per 100. Abies orientalis, 8 to 9 inch, 12s. per 100. American Arbor-vitæ, 10 to 12 inches, 50s. per 1000. Cupressus Lawsoni, 12 to 15 inches, 60s. per 1000. Cupressus erecta viridis, 6 to 8 inches, 40s. per 1000; ditto, 1½ foot, extra, 12s. per 100. Cupressus stricta, 6 to 8 inches, 40s. per 1000; ditto, 1½ foot, 14s. per 100. Pinus insignis, 1 year, 4s. per 100. Pinus Cembra, 2 years, 10s. per 1000. Pinus Nordmanni, 2 years, 6s. per 100. Pinus excelsa, 1 year, 4s. per 100. Pinus canariensis, 1 year, 5s. per 100. Retinospora plumosa, 10 to 12 inches, 10s. per 100. Retinospora aquarea, 6 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. Thuia Lobbi, 10 to 15 inches, 40s. per 1000. Thunopsis dolabrata, 6 to 8 inches, 4s. per 100; ditto, 12 inches, fine, 12s. per 100. Yew, English, 8 to 9 inches, 6s. per 100. Laurel, Portugal, 8 to 9 inches, 6s. per 100. Common Laurel, 12 to 14 inches, 35s. per 1000. Rhododendron ponticum, 4 to 6 inches, 50s. per 1000; ditto, 2 to 3 inches, 30s. per 1000.

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TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE Free on application.

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SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious MUSHROOMS. See Seed LIST, Free.

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EWING'S CATALOGUE contains short and plain Cultural Notes, besides Descriptions and Prices of the best Roses; and in addition 28 pages are devoted to Ornamental Trees, Shrubs, Fruit Trees, Climbing Plants, Horticultural Requisites, &c. It is forwarded post-free to applicants on receipt of three penny stamps, or Gratis to Customers.

Abridged LIST of low priced carriage and package free collections of high-class Roses, gratis and post-free.

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CHRYSANTHEMUMS, 600 varieties, best and newest, strong Cuttings from general collection, now ready, 1s. 6d. per dozen, 10s. per 100; plants in January, 2s. 6d. per dozen, 16s. per 100. W. E.'s selection cheaper. Many of the best prizes in the country have been taken from plants and cuttings supplied by me. Mons. Delux's grand set of 100 sorts, and other new varieties, at reasonable prices. See CATALOGUE, with Essay on Cultivation, 2 stamps.

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RED CURRANTS, 2-yr. old, 8s. per 100. Terms Cash.

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50 Choice Roses for a Guinea!
EDWIN HILLIER is now offering the above 50 choice-named varieties, good bushy plants, comprising H. P.'s, Moss, and Teas, for cash only.
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FRUIT TREES, WINTER and SPRING BLOOMING PLANTS.

Of fine quality and immense numbers.

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and other Hardy Ornamental Plants for 1888,

Is now ready, and may be had post-free on application.

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SELECT GARDEN SEEDS, &c.,
Of unsurpassed quality, at most moderate prices.

Vegetable Seeds

SAVED FROM SELECTED STOCKS WITH GREATEST CARE.

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OF CHOICEST STRAINS AND MOST SELECT CHARACTER.

Seed Potatos,

BEST AND NEWEST VARIETIES, CAREFULLY SELECTED, HAND-PICKED.

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Reduced Prices to meet Depression.
DESCRIPTIVE CATALOGUE, comprising fine transplanted FRUIT TREES, ROSES, Hardy CLEMATIS, RHODODENDRONS, CONIFERS, TREES and SHRUBS, CLIMBERS, FOREST TREES, &c., free on application to

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WOKING NURSERY, SURREY.

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ARE THE BEST.

Single PETUNIAS, 1s. and 2s. per packet; Fringed, 2s.; Double Fringed, 2s. and 3s. 6d. Double BALSAMS, 1s. and 2s. 6d. Descriptive CATALOGUE of Choice Vegetable and Flower Seeds Post-free. Prices moderate.

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THE GARDENERS' ROYAL

RENEVOLENT INSTITUTION.

At a General Meeting of the Subscribers to this Institution, held on FRIDAY, the 13th January, 1888, for the purpose of making an Addition to the List of Pensioners, it was resolved "That in consequence of Four Vacancies having occurred in the List of Pensioners since the voting papers were issued, after the Five Pensioners for whom the Election is called have been Elected the Four next highest on the poll shall be declared Elected."

CANDIDATES.

Votes.	Name.	Age.
1141	MATILDA CHARLTON	61
199	STEPHEN EVANS	72
994	JAMES EWING	87
195	THOMAS MORLEY	78
810	HENRY MOXHAM	68
753	MARY NELSON	66
203	JOSEPH NORVAL	62
1025	CHARLES OSMAN (Dead)	65
387	JOHN SLOWE	78
335	ELIZABETH SNOW	73
1815	THOMAS M. WALL	87
807	FRANCIS FULLER	77
981	WILLIAM H. HEAD	74
252	WILLIAM HOLAH	66
832	ELIZABETH HORTON	62
60	WILLIAM JENNINGS	65
748	GEORGE LAMBERT	69
377	HELEN W. LESSELLS	71
543	MARGARET MALCOLM	58
153	JAMES MANDERSON	64
1043	CHARLES PAPWORTH	81
122	ELIZABETH POLLARD	75
669	GEORGE READ	57
252	CHEISTOPHER ROBINSON	76

The Meeting then declared Thomas M. Wall, Matilda Charlton, Charles Papworth, James Ewing, William H. Head, Elizabeth Horton, Henry Moxham, Francis Fuller, and Mary Nelson duly elected Pensioners of this Institution, from 25th December, 1887.

E. ROGER CUTLER, Secretary.

50, Parliament Street, S.W., January 16, 1888.

GARDENERS' ORPHAN FUND.

Donations and Subscriptions promised or sent.

ELEVENTH LIST.

	Donations.	Subscriptions.
	£ s. d.	£ s. d.
Temple, Mrs., Leyswood, Tunbridge Wells		1 1 0
Tucker, R., Faringdon, Berks		0 5 0
Wainwright, G., The Nurseries, Upper Holloway		0 5 0
Walker, J., Whiston		0 10 6
Ward, J., The Gardens, Riddings House, Alfreton		0 5 0
Ware, T. S., The Nurseries, Tottenham		1 0 0
Warren, W., Woolton Gardens, Isleworth	2 2 0	
Watson, J., Nurseryman, St. Albans	0 5 0	
Webb, F. E., The Gardens, Bowden Park, Chippingham		0 5 0
Webber & Co., M., Covent Garden Market		1 1 0
Wort, J., The Nurseries, Upper Holloway		0 5 0

Further Donations and Subscriptions will be thankfully received by

A. F. BARRON, Honorary Secretary,

ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK, LONDON, S.W.

EVERGREEN HEDGES.

ARBOR-VITÆ, American, 3 to 4 feet, 40s. per 100; do., 4 to 5 feet, 60s. per 100.

HOLLIES, Green, 1½ to 2 feet, 40s. per 100; do., 2 to 2½ feet, 85s. per 100.

YEWs, English, 1½ to 2 feet, 35s. per 100; do., 2 to 2½ feet, 60s. per 100.

JNO. JEFFERIES AND SON, Royal Nurseries, Cirencester.

SEEDS.—Richard Smith & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the best possible quality.

To Gentlemen, Nurserymen, Builders and Owners intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMS, CHESTNUTS, EUCALYPTUS, ACACIAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. CATALOGUES free on application.

The Nurseries, Trinity Road, Wandsworth Common, S.W.

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THE SEED CATALOGUEof **HOOPER & CO. (Limited).**

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HOOPER & CO. (Limited), Covent Garden, London, W.C.
BRANCHES—Maida Vale, Twickenham, Paris and New York.

The Crimson-banded Lily of Japan,
LILIAM AURATUM RUBRO VITTATUM.

This variety has a crimson band down the petals instead of a golden one. It is the most superb Lily known. A few native bulbs just arrived. Price 10s. 6d. each, Post-free.

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WHOLESALE SEED CATALOGUE.

WE HAVE NOW PUBLISHED OUR
WHOLESALE CATALOGUE
OF VEGETABLE AND FLOWER SEEDS,

Containing also all the best Novelties of the Season. May be had on application. Any of our Customers not having received one by Post will oblige by letting us know, when another shall at once be Posted.

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Seed and Bulb Merchants,

EXETER STREET, STRAND, LONDON, W.C.

Seed and Trial Grounds: Feltham and Twickenham, Middlesex.

ROSES 20 ACRES.

Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. BUSHES, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100. STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

These World-famed **ROSES** cannot fail to give the greatest satisfaction.

ROSES IN POTS;

all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

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Nurserymen and Seed Merchants,
WORCESTER.

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AN IMMENSE STOCK, in SPLENDID CONDITION.

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FERN NURSERY, SALE, MANCHESTER.

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Vegetable, Flower, and Farm,

Carefully Selected,

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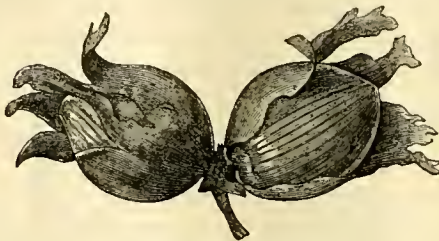
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CALCOT GARDENS, READING, BERKS.

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LARGEST GROWER OF NUT TREES FOR SALE
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**VEGETABLE
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SEEDS**

Seed Potatoes,

TOOLS, &c.

ALL OF FINEST QUALITY.

Carriage Free. Priced Catalogue Post Free.

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Seed Growers &c.
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—Too well known to require description. Price, 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

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JARMAN'S SEEDS,

POST-FREE or CARRIAGE PAID.

Large Illustrated Catalogue sent free on application.

THE PEOPLE'S SEEDSMAN

(REGISTERED).

CHARD, SOMERSETSHIRE.

THE EARLIEST PEA IN THE WORLD

IS
CARTERS' LIGHTNING.

"FOUR DAYS EARLIER THAN RINGLEADER."—Mr. Wilson, Gardener to the Most Noble the Marquis of Hartington.

"TEN DAYS EARLIER THAN FIRST and BEST."—Mr. Rabone, Gardener to the Right Hon. the Earl of Shrewsbury.

EVERY GROWER OF EARLY PEAS SHOULD TRY THIS NOVELTY.

Price in Sealed Packets, 2s. 6d. per pint; post-free, 2s. 10d.

CARTERS,

Royal Seedsmen by Sealed
Warrant.

237
238**HIGH HOLBORN, LONDON.****F. A. Dickson & Sons**

The Queen's Nurserymen
Seedsmen,
Chester.

200 Acres of Nursery Stock.
Quality Unequalled.

Forest & Ornamental Trees
Ex hardy, stout & well-rooted.

Special Plants for Covers.

Fruit Trees 50 Acres:
In all forms: unsurpassed.

Roses, Vines &c.

Prices strictly moderate.

Estimates given.

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GENUINE ONLY FROM
SUTTON & SONS, READING

BURPEE'S SEEDS
AMERICAN

W. ATLEE BURPEE & CO.,

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SPECIAL LIST of AMERICAN SEEDS

FOR 1888

Is Now Ready, and will be forwarded FREE TO ALL on application. It describes RARE NOVELTIES in Vegetables and Flowers of real value, which cannot be obtained elsewhere. All Seeds kept in stock at their LONDON Warehouse, 133, CANNON STREET, and forwarded Free per Parcel Post.

W. ATLEE BURPEE & CO., 133 CANNON ST., LONDON, E.C.

ANDRE LEROY'S Nurseries at Angers,
France, the largest and richest in Europe in Collections
of FRUIT and ORNAMENTAL TREES, SHRUBS, CA-
MELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES,
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Angers to London is very moderate. Medal of Honour at the
Universal Exhibition at Paris 1878.
Orders must be addressed to Messrs. WATSON AND SCULL,
90, Lower Thames Street, London, E.C.

LARGE SHRUBS and CONIFERÆ.—
Americano Arbor-vitæ, 2 to 2½ feet, 16s. per 100; ditto,
3 to 3½ feet, 20s. per 100. Aucuba japonica, 1½ to 2 feet, 30s. per
100. Berberis aquifolia, 1 to 1½ foot, 50s. per 100. Box Trees,
2 feet, 20s. per 100. Griselinia littoralis, 1½ foot, 30s. per 100.
Laurel, Common, 2 to 2½ feet, 10s. per 100. Laurel, Portugal,
1½ to 2 feet, 20s. per 100. Laurel, Colchic, 2 to 3 feet, 16s.
per 100; ditto, 3 to 4 feet, 20s. per 100. Laurel, caucasicum,
2 to 3 feet, extra, 20s. per 100. Rhododendron ponticum,
1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100;
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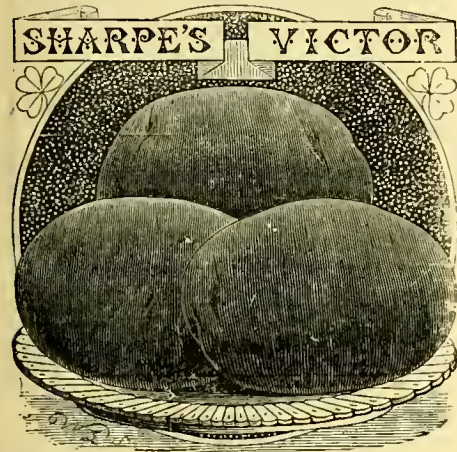
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TO THE
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REPRESENTING
PHAIUS GRANDIFOLIUS
AND
RICHARDIA ÆTHIOPICA,
Grown at Worktop Manor.



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 21, 1888.

TUBERS.*

"WHAT causes determine the position and growth of tubers?" This is the question stated by Dr. Vöchting, now of Tübingen, late of Basle; and it will be conceded by all who examine his attack on this problem that, whether he has brought it within the bounds of solution or not, he has, at any rate, obtained much instructive information about it, and succeeded admirably in conveying the results to his readers.

Tubers are usually regarded as of two chief kinds—stem-tubers and root-tubers. Only the former are dealt with here, and these again fall into two physiological classes; for while some are perennial structures (e.g., Begonia, Cyclamen, Tropæolum), others are developed annually in the autumn, &c., to sprout and pass away the following spring (e.g., Potato, Helianthus tuberosus, Ullucus tuberosa).

The perennial tubers behave differently from the annual ones in several respects; they form at the apical end the leaf-shoot, and at the base (or all over the lower part) roots, the tissue of the tuber acting as a collar or "root-stock" to the plant. This "root-stock" gives up part of its reserve materials to the growing shoot in the spring, but the cells remain living and again fill with reserves in the summer.

The annual tubers referred to produce leaf-shoots, but as a rule no roots; and the parent tuber thus simply brings into existence the young new plant, and then dies off.

In the present work Dr. Vöchting deals with the tubers of the Potato at great length, and with those of Ullucus tuberosa, Helianthus tuberosus, and Begonia more shortly. First we have experiments proving that the influence of the surrounding circumstances profoundly affects the mode of germination (sprouting) of the Potato tuber. If

* On the Development of Tubers. By Dr. H. Vöchting. (Bibliotheca Botanica, H. 4.) Cassel, 1887.

no water is added, the tubers in the light produce short, thick, green sprouts; those in the dark form long, thin, pale outgrowths. Moreover, those in the dark begin to sprout much earlier, and carry on the processes more rapidly. Light alone, then, has a checking action on the growth.

If tubers are allowed to sprout under such circumstances that water is conveyed to the young roots, which develop from the shoots (not from the tubers themselves), the relative behaviour is the same, only the shoots produced from those in the light do not remain short and fat, but the internodes subsequently formed develop, and richly branched leafy shoots are produced. In other words, although the light checks the elongation of the lower internodes, it has no such pronounced action on the later ones if plenty of water be supplied for their growth. Dr. Vöchting takes advantage of these and other properties in devising experiments in what may be called the vivisection of the Potato.

For instance, when he allows the tuber to sprout in the dark, with a minimum supply of water, the reserve substances from the parent tuber collect gradually in the apical and axillary buds of the shoot, and simply form young tubers; in other words, by preventing the tuber from growing out normally, it re-arranges its reserves in a series of young tubers and so delays the growth for the present year, ready to renew it twelve months later. In other cases, the author succeeded in making the tuber, planted half in and half out of the soil, act as a root-stock; tubers were developed on stolons from the base of the planted tuber, the leafy shoots from its exposed apex. The interesting point is that the plastic substances from the leaves, &c., must here have passed through the planted tuber. In other cases the tubers were compelled to develop in the leafy parts exposed to the light and air. By carefully cutting off and removing the tuber and stolons below the surface of the earth, and seeing that only roots were allowed to enter the soil, the author succeeded in keeping the whole of the tuber-forming substances above ground. The result was that the young Potatoes developed in the axils of the ordinary leaves—in fact, the reserve materials from the leaves passed into the axillary buds, which grew larger and larger, and stored them up, thus becoming converted into Potatoes. Dr. Vöchting also developed Potatoes from cuttings, and comes to the conclusion that it is a matter of importance which end of the cutting is planted; he finds that internal causes determine that roots and tubers shall normally be developed at the basal ends, the leafy parts at the apices; nevertheless, experiment shows that it is possible to so arrange matters that the influence of the environment is stronger than the influence of the internal (and inherited) disposition, and he can so arrange matters that tubers spring from the apex. It would require a chapter to itself to enter into the discussion which rages about this conflict between the influence of the present environment and the so-called "internal disposition" of plants, and we must refer readers to the original for further details.

One of the most interesting experiments in the book shows that although under normal conditions the young tubers fill with starch as they grow, it is possible to have them first developing and growing larger and larger by the division of their cells, and then filling with reserve materials later on—in fact, two physiological processes which normally go on simultaneously, were here separated in time.

We must now conclude this notice, however, simply remarking that although enough has been stated to illustrate Dr. Vöchting's chief results, we have by no means given a full abstract of his ingenious experiments.

That the author is doing good work in experimenting thus on the influence of the various factors of the present environment on the working of that complex something which has resulted from the interaction of past environments, and which is called the organisation of the plant, will, no doubt, be willingly conceded; it is true, we cannot agree

with all his theoretical conclusions, but at the same time we feel somewhat strongly that his working hypotheses are likely to lead to better views of some very difficult subjects. *Marshall Ward.*

ADIANTUM CAPILLUS VENERIS VAR. IMBRICATA.

This pretty form of the true Maidenhair Fern (fig. 11) was raised recently by Mr. G. Masters, the gardener to Colonel C. Lee, High Lee, Knutsford, Cheshire. It was described by Mr. Moore, the description having been published since his decease, see *Gardeners' Chronicle*, April 23, 1887, p. 547. The fronds are about 1 foot in length, rather broader at the base than those of the typical *A. Capillus-veneris*, and have a drooping habit, which is in a large degree due to the greater size of the pinnae. The pinnae are larger than those of the parent, and the extreme edges, instead of being plain and entire, are much divided, some of the divisions running up to half the length of the pinnae, whilst the pinna is broadened out at its extremity, and as they are closely set together on the frond, the whole reminds one at first sight very much of a small frond of *A. Farleyense*. This capital sport can be grown cool, in fact to get it to show its true character it must be grown in quite a greenhouse temperature. Here the fronds will be of a deep green colour, and the plants remain vigorous and healthy, which would not be the case if placed in a hothouse. It is a variety which will soon become a general favourite in gardens.

NEW OR NOTEWORTHY PLANTS.

DENDROBIUM STREBLOCERAS (*Rehb. f.*) ROSSIANUM, *n. var.**

A NEW variety of the curious *Dendrobium strebloceras*, introduced by Messrs. Linden (Horticulture Internationale, Brussels), has just flowered. Mons. Lucien Linden expressed the ardent desire that this excellent variety might be dedicated to M. le Commandeur H. T. Ross, of Florence, *Le grand amateur Anglais* of Castagnolo, Lastra a Signa. The plant does not appear to differ in any manner from the typical *Dendrobium strebloceras*. It had lurked amid the stores of that species for years, when it suddenly surprised Messrs. Linden by its unexpected flowers of a whitish colour. After having been a few days in my room, the lip and the tips of the sepals turned a light yellow colour; the neatly twisted petals, however, were light greenish from the beginning. *H. G. Rehb. f.*

PAPHINIA CRISTATA (*Lindl.*) MODIOLIANIANA, *n. var.*

A new introduction from Brazil, kindly sent me by Messrs. Linden, of Brussels (Horticulture Internationale), who shortly before had the most distinct *Paphinia Lindeni* in flower. It has all the most minute characters of the old types, but its flowers are almost whitish, and this is quite extraordinary in such Orchids as have claret or port-wine coloured flowers. Monsieur Lucien Linden proposed its being named in honour of Cavaliere Ludovic Modigliani, of Florence. The old town on both sides of the Arno appears likely to become the unrivalled nucleus of Italian orchidophilia. No doubt, the Commendatore H. T. Ross is to be regarded as the *causa movens* of a success in the wonderful garden of Europe, the possibility of which was firmly denied not very long ago. *H. G. Rehb. f.*

ONCIDIUM CHRYSORHAPIS, *n. sp.†*

This was kindly sent me by Mr. F. Sander, who imported it from St. Catherine, in Brazil. The

* *Dendrobium strebloceras* (*Rehb. f.*) *Rossianum*, *n. var.*—Floribus albis; tepalis viridulis; labello sepalis demum flavescens. Col. exc. Linden. *H. G. Rehb. f.*

† *Oncidium chrysorhapis*, *n. sp.*—Aff. *Oncidium cornigerum*, Lindl.; inflorescentia virgulata, brachyclada, apice racemosa; sepalis latissimis, sepalis impari transverso; sepalis connatis

pseudobulbis are tereti-fusiform, dark green, 3 to 4 inches long. Leaves cuneate, oblong-lanceolate, acute, very dark green, glossy above, 6 to 7 inches long, by 1½ inch wide. The inflorescence is virgulate. The main rachis is brown, with numerous dark green spots. The pedicels are very short, densely three to five-flowered, the top, of course, being racemose. The whole makes a compact mass. Sepals and petals light sulphur-yellow, their disc being nearly covered with dark brown spots. Those form one mass, with extended external processes in the upper sepal and the petals, whereas they are partly separate and biseriate in the connate body. All these organs are very broad. Side-lacinia of the lip linear, lobed at the top, erect. Unguis covered with tumours. Anterior blade reniform, emarginate, very large. The tumours are nearly the same as those of *Oncidium cornigerum*, but they extend into a contiguous mass, full of rough processes at the base of the anterior blade. This is for me the leading point. Let me add, that the genus *Oncidium cornigerum* has the lateral sepals much slit. Column much like that of the above-named species, but the wings are a little lobed at the top, and tabula very strong. *H. G. Rehb. f.*

ÆRANTHUS GRANDIDIERIANUS, *Rehb. f.**

This plant was discovered on the great Comoro Island by Mr. Léon Humbolt, who deigned it named in honour of M. Grandidier, the celebrated traveller in Madagascar. It was described by me in the *Flora*, vol. lxxviii., 1885, July 11, p. 381. I feel very pleased to have it now at hand in a fresh state, Messrs F. Sander & Co. having just flowered it. It is a caulescent species, most probably never producing a tall stem. The leaves are cuneate-oblong, unequally blunt, bilobed, attaining 3 inches in length by 1 in width. The peduncle is few-flowered, and I suspect there are never more than two flowers developed at one time. Well grown flowers reach the dimensions of those of *Angræcum Chailluanum*. The whole flower is yellowish with a greenish hue, and the bases of the sepals and petals are quite green, in those which I have at hand. Sepals ligulate, the lateral ones falcate; tepals spatulate ligulate acute; lip's blade triangular, blunt edged; spurs with a very wide compressed mouth, that passes suddenly into a long filiform acute spur, five times as long as the blade of the lip. It would appear to be variable, as I saw it curved, and also rolled round at the base in a circinate manner. The column, anther, and pollinaria are quite those of *Æranthus*. It is a very interesting plant, nice for students of Orchids, but not an ornamental thing for exhibition orchidists. *H. G. Rehb. f.*

MORMODES PARDINUM VAR. UNICOLOR.

An inflorescence of this handsome and apparently very rare Orchid has just been sent to name, its flowers being of a uniform bright canary-yellow—precisely the form figured in the *Botanical Magazine*, t. 3879. Bateman, who figured the species in his *Orchidaceæ of Mexico and Guatemala*, t. 14, remarks that the plant is a native of Oaxaca, where it was originally discovered by Baroa Kewinsky. It formed a part of a most extensive collection of vegetable treasures which that distinguished traveller had assembled during his researches in New Spain, and which he attempted to bring with him on his return to Europe. Unfortunately, however, the vessel in which he sailed was wrecked on one of the West Indian Islands, and thus by far the greater portion

apice bidentato; labelli lacinia lateralibus curvatis linearibus apice retuso minute lobulatis, ungue basae cuneato, ungue mediano callis tecto, lacinia antica rectiformi biloba transversa, callo maximo, longitudinaliter bifido erecto, crasso, gyroso sulcato tuberculoso, callo altero anteposito subaequali non bifido, in lacinia mediana basin transeunte; columnæ alis linearibus apice lobulosis.—St. Catharina, imp. exc. F. Sander. *H. G. Rehb. f.*

* *Æranthus Grandidierianus*, *Rehb. f.*—Caulescens, foliis cuneato-oblongis apice inaequaliter bilobis; racemo nudi (unc. tri-) floro (tum vix synantho); bracteis triangularibus minutis; sepalis cuneato-oblongis acutis, lateralibus longioribus; tepalis spatulatis apiculatis; sepalis impari æquilongis, calcaris ostio magno compresso; lamina labelli cordato paucurata obtusa, sem cordato triangulari obtusangula, calcaris filiformi ovario pedicellato 2-3 longiori; columna brevissima, pollinariis siccis Æranthi. *H. G. Rehb. f.*

of his collections were consigned to the water. A few, however, survived the disaster, and from one of them, which flowered in 1836, Bateman's figure was prepared. This has flowers of a pale yellow, with numerous claret-coloured spots. He also remarks that a pale self-coloured variety has more recently been introduced by Mr. Barker, by whom specimens were obligingly forwarded in the autumn of 1838. This would appear to have been a paler

CATTELEYA CITRINO-INTERMEDIA (LAMBERHURST
HYNNID, *n. hyb.*)

The occurrence of a hybrid between *Cattleya citrina*, with its pendulous habit and bright yellow flowers, and the erect *C. intermedia*, in which light purple is the prevailing pigment, is certainly a matter of considerable interest. When I heard that such an one had been obtained, and was about to flower,

noticed; thus over six and a half years elapsed from the time of sowing before the plant reached the flowering stage. The above name is given by the special request of Miss Harris. It would hardly be correct to describe the hybrid as intermediate between the two parents, in habit at least, for it could not well accomplish this feat without growing sideways, yet it combines the characters of both in a very remarkable way. The plant is erect, and has fine pseudobulbs; the first ovoid, compressed, and 1 inch long, the others gradually increasing in size, the fifth being $4\frac{1}{2}$ inches long, by 1 inch broad, and 10 lines thick, with a slender attenuate base; thus the dimensions are almost intermediate between the two parents, coupled with the erect habit of *C. intermedia*. The flowering bulb bears three leaves, 7 inches long, by $1\frac{3}{4}$ inch broad, lanceolate linear and sub-obtuse; the others have but two leaves, which are somewhat smaller. Here, too, the dimensions are almost intermediate, but the three-leaved character clearly comes from *C. citrina*. On coming to the inflorescence the habit is precisely that of the male parent, for it arches over from the apex of the pseudobulb, the flower being exactly pendulous, and the segment connivent. The peduncle is $2\frac{1}{2}$ inches long, and bears at its apex five acute, broad-based bracts, $\frac{1}{4}$ inch long. It was originally two-flowered, but fearing the plant might not be sufficiently strong to allow of both flowers being fully developed, one bud was removed at an early stage, the peduncle being carried forward $\frac{1}{4}$ inch above the flower, which is borne in the axil of the next bract. The pedicel is $2\frac{1}{2}$ inches long, thickened and yellowish green above, whitish below, the whole with a few faint purplish markings; the segments narrower and more acute than in *C. citrina*, and of a dull creamy-white, inclining to flesh-white, the petals being a little broader than the sepals. The lip is three-lobed, and equalling the segments in length, the side lobes being large, rounded and obtuse, the colour flesh-tint, becoming pale purple at the apex; the front lobe rounded, nearly truncate and minutely apiculate, the margin crisped, undulate, and the colour pale rosy-purple, a fainter shade of the same extending back along the central keels to near the base. Column flesh-white, yellow in front at the base. Thus the flower has the general habit of *C. citrina*, with the colour approaching that of *C. intermedia*, the shape of the segments and lip being tolerably intermediate between the two. The colours seem to have somewhat neutralised each other, and have not come out as brilliant as could be wished. I would suggest that with *C. labiata* var. *Dowiana*, if the cross could be effected, a more brilliant result might be effected. *C. citrino-intermedia* is the name under which it will stand for botanical purposes. *R. A. Rolfe.*

TINTS IN FERNS.

FERNS are not usually regarded in any other light than that of providing greenery of various shades for associating with flowers and foliage of brighter hues; and as they thrive well in shady nooks it is generally supposed that they require to be grown under thick shading. This, however, is a mistake—at least, so far as many of the species are concerned, for many sorts not only thrive well when exposed to more light and sunshine, but another charm is added (which in most cases is entirely lost where plants are grown under thick shading), viz., the bright tints in the young fronds. It is pretty generally understood that light and sunshine are necessary for the proper development of bright colours in flowers or foliage, and Ferns are no exception to the rule. It would be a surprise to those who have not given this matter consideration, to find that Ferns produce tints almost as bright and varied as are to be found in any other class of foliage plants. In most cases the bright tints fade as the fronds get more matured; but there is a great variety of shades in the fully developed fronds, and some very pretty forms of variegation which are permanent. Of those in which the colouring is confined to the young fronds *Adiantum macrophyllum* is one of the best

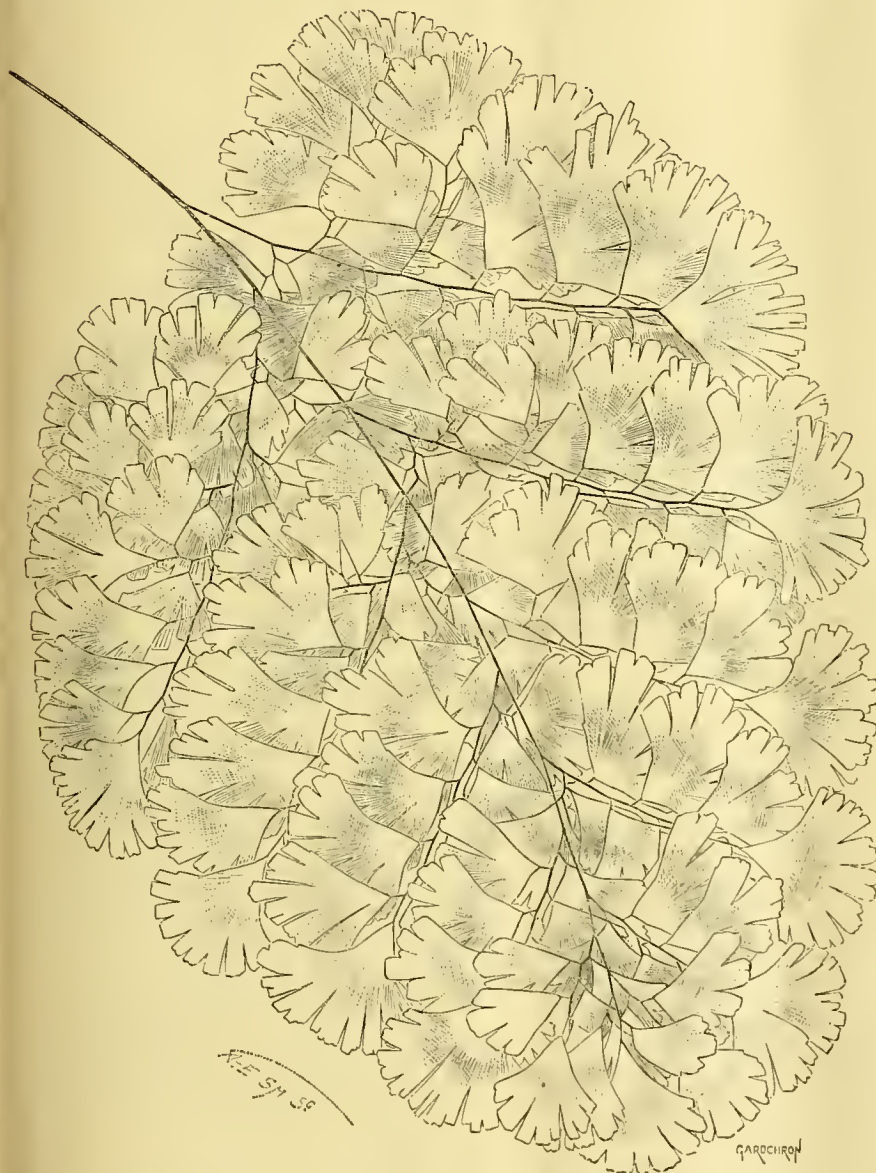


FIG. 11.—*ADIANTUM CAPILLUS-VENERIS* VAR. *IMBRICATUM*. (SEE P. 72.)

variety than the one figured in the *Botanical Magazine*, which is of a bright yellow, like the one received a few days ago. The flowers exhale a powerful and most agreeable odour. It is evidently a fine species, and one which ought to be more common in cultivation, as the racemes may bear eleven or even fourteen of its large and handsome flowers. It is also said to succeed well in cultivation. If the two figures mentioned above be compared they look considerably different in the colouring, yet from the acute segments and especially the remarkable trifid and very characteristic lip, I have little doubt that both are forms of the same species. *R. A. R.*

it became a source of some speculation as to how the diverse characteristics of the parents would be combined in the offspring. It flowered in November last, enabling me to record how the difficulty has been solved. The following particulars have been furnished to me by the Messrs. Veitch, as supplied to them by Miss Harris, daughter of the late Dr. Harris, of Lamberhurst, from whom it was received. *C. intermedia* was the seed parent, and the pollen of *C. citrina* was applied on May 10, 1880. On February 19 of the following year the pod was gathered, and the seed sown on the following day. Exactly four months afterwards (June 20), a few seedlings were

known; under favourable conditions the young fronds have quite a bright crimson hue. *A. Veitchii* is another in which the colouring is very bright. *A. rubellum* and *A. tinetum* under any conditions show a little colouring, but when well exposed the tints are much brighter. In *A. rhodophyllum* the crimson tinted fronds change to a deep green, while the bronzy tints of *A. Victoria* change to a lighter shade of green. *A. bipinnatum*, similar to *A. macrophyllum*, is a very desirable variety. Many more *Adiantums* might be added to the list, even *A. Farleyense* has quite a bright rosy tint when well exposed; and *A. seutum* may also be included. Of *Pteris* with coloured fronds, *P. tricolor* is one of the most distinct. If well exposed the fronds are not so liable to damp, and the colour is much brighter. *P. aspericarinata* is another highly-coloured variety and the dark bronzy-brown tints give a nice contrast to the lighter shades of such sorts as *P. argyrea*, *P. nemoralis variegata*, and *P. cretica albo-lineata*. The dwarf crested form of the latter, *P. Mayi* may also be added to the variegated forms. *Blechnum latifolia* is very pretty in a young state, the bright rosy-tinted fronds being very effective. *Doodia aspera multifida* is also a pretty little Fern, with a bright red tint in the young fronds. *Lastrea erythrosora* adds another distinct shade, the young fronds being of a pale bronzy hue. *Lastrea cristata variegata*, bright lively green, with linear markings of a paler colour, gives another distinct contrast; *Leucostegia immersa* is a very elegant Fern, with pale bronzy-yellow fronds. The *Gymnogrammas* give another distinct form of colouring; of the silver varieties, *G. peruviana argyrophylla* is one of the best; *G. tartarea*, in which the white farina is confined to the back of the fronds; and *G. Wettenthaliana*, a crested form of *G. sulphurea*, are distinct. Of golden varieties, *G. chrysophylla aurea* is one of the best, and *G. Alstoni*, in which the pinules are curled inwards, showing off the golden under-surface to advantage, is a very effective variety. *Phlebodium glaucum* and *P. aureum* give further variety, the pale bluish tint of the former being very attractive. *Polypodium appendiculatum*, *Dictyogramma japonica variegata* and *Lomaria L'Hermanniana* should also be included in the list of coloured Ferns, and many more might be added to the list of Ferns which give various shades of colouring, but those mentioned will be sufficient to produce a very pleasing effect when grouped together. *Pteris*.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT THE DELL, EGHAM.

La crème de la crème finds its way to the well-appointed Orchid-houses in Baron Schroder's model garden on the borders of Windsor Park, and once admitted it must be a difficult subject indeed that would not display itself at its best under the management of Mr. H. Ballantine and his careful assistants. On the Baron's part, in all species into which degrees of comparison in the varieties enter quality is the first consideration and cost a secondary matter. If any price in reason is asked, and hence comes the richness in superb varieties and the absence of poor ones in The Dell collection. An example of this is to be found in the matchless varieties of *Odontoglossum*, comprising the wonderful *O. crispum Veitchianum*, the scarcely less beautiful *O. c. apiatum*, *O. c. Sanderianum*, and *O. c. Ballantini*, *O. Pescatorei Veitchianum*, *O. excellens*, *O. excellens Knoxii*, and others, the best dozen of which must have cost hard on £1000, but which could not be matched at any price; and so on through other variable species. At the present time the white and coloured varieties of

Laelia anceps are making a fine show, one of the original type having over a hundred flowers, and a giant specimen of the true *L. a. Barkeriana*, twenty spikes of three and four flowers each; but after all the newly imported forms, the fine old *L. a. Dawsoni* is still not displaced, as a grandly formed

flower, its pure white broad petals being shown up by the rich purplish-crimson of the fore part of its labellum; of this several strong specimens are in bloom, the best having seven spikes of three flowers each. Following on it in the same way is the handsome *L. a. Sanderiana*, which differs from *Dawsoni* in the lighter rosy-tinted colouring of the lip. This in its turn is closely imitated by *L. a. Schroderiana*, which, however, has extraordinarily long and thin pseudobulbs. *L. a. Stella*, of which there are also several fine specimens in bloom at The Dell, seems to be near to *L. a. Sanderiana*, but without the colour on the labellum, the flowers being pure white, with a few crimson lines on the tube of the labellum. The finest of the pure whites, with only a little chrome-yellow and pale green in the upper part of the lip, is the true *L. a. alba* from Mr. Bull's original plant: this is a very pure white, fine in form and substance. Among other rare kinds in bloom are *L. a. rosea*, *L. a. Hillii* with blush flowers and pink lip, and *L. a. Schroderae*, with pale pink sepals and petals, the latter having a rich crimson feather on the tips and bright purplish-crimson labellum. The last-named has just passed out of flower, but *L. a. Veitchiana*, *L. a. Williamsii*, and others are coming on to take its place. All these are grown in a light comfortable intermediate-house, and are in the highest perfection. The showy reddish-orange *Laelia flammea* is also in bloom in the same house.

Cattleyas.—Among the *Cattleyas* the varieties of *C. Trianae* now make the best show, it being their season. *C. T. Schroderiana* holds its own as the best formed flower, fine at all points. *C. T. Russelliana* is in bloom in several specimens, and each year seems to strengthen its claim to distinction, as in the case of *C. T. Osmanii*, which for the bright velvety-crimson of its labellum is unmatched. *C. T. alba* and other rare kinds are in flower, as well as many of the new hybrid *Cattleyas* and *Laelias* in bud. Among these two plants of *C. exoniensis* in full bloom present attractions which few of the newer arrivals will attain. It will be a long time before *exoniensis* goes down in name.

The Dendrobiums and Cypripediums.—The former, which are so well grown, give great promise of flower on stout, clean growth, many of the *D. superbum*, *D. nobile nobiliss*, *D. n. Cooksoni*, and others, being already prominent in bud. The show in their houses at present depends much on the graceful sprays of *D. bigibbum*, *D. superbiens*, *D. endocharis*, *D. enosmum leucopterum*, *D. aureum*, &c., whose display is supplemented by the varied flowers of the *Cypripediums*, of which *C. Leeanum superbum* ×, *C. vexillarium* ×, *C. Argus*, *C. nitens* ×, many *C. Spicerianum*, *C. Harrisonianum superbum* ×, and *C. cananthum superbum* × are in bloom, the two last-named being excellent flowers, which will be deemed good as long as *Cypripediums* are grown.

In another house, the centre bed of which is occupied by a fine show of *Cologyne cristata*, including good plants of the pure white *C. c. alba*, are the collection of varieties of *Cypripedium insigne*, many of them large plants and all well bloomed.

Calanthes, &c.—In a warm house partly furnished with grand specimens of stove plants, as many of the larger Orchid-houses are at The Dell, the *Calanthes* are now making a fine display here as in other places. *C. Veitchii* makes the groundwork of the show with its cheerful rose-pink flowers, and with them the pure white *C. Cooksoni* ×, the rose and crimson *C. Alexandre* ×, the neat and bright rosy-carmine *C. lentiginosa carminata* ×, and other new hybrids are in bloom, overhead being a fine show of *Phalaenopsis* flowers in great profusion, the pure white *Saccolabium Veitchii*, the equally pretty white *S. Harrisonianum*, with nine spikes, the whole making a very effective display among the tropical foliage plants, of which a specimen of *Alcacia Veitchii* with foliage 4 to 5 feet in length, the plant being about 25 feet in circumference, may be mentioned as an example. Also as an instance of high culture in this house should be noted a large specimen of *Phaius Wallichii* with three growths

with two stout flower-spikes each, and two growths with three each.

The smaller intermediate-houses have in bloom a lot of *Lycaste Skinneri*, other *Lycastes*, and *Odontoglossum Insleayi splendens*, *O. aureum*, fine specimens of *O. pulchellum majas*, *Cologyne barbata*, huge *Cymbidium Lowianum*, throwing up well; *Vandas*, in good health and flowering condition; *Epidendrum xanthinum* (always in bloom); *E. evectum* and other *Epidendrums*; and noteworthy in a cool corner near the glass a fine tuft of the now very rare *Cypripedium Fairrieanum*, which bothhouse treatment has almost exterminated from among us.

Odontoglossums and Masdevallias.—In the cool-houses the *Odontoglossums* are beginning their show for the season, but as yet none of the phenomenal varieties are open; some good *O. Pescatorei*, the pretty, distinct and fragrant *O. Sanderianum*, *O. Andersonianum*, however, are in flower, with some fine *O. crispum*; good bright masses of *Masdevallia ignea*, one of a rich purple, *M. Lindeni grandiflora*, some large *M. macrura*; the pretty *M. polysticta*, and the darker spotted and short tailed *M. p. brevior*, the scarlet *M. racemosa*, *M. hieroglyphica*, *M. amabilis lineata*, with plenty of buds on *M. Shuttleworthii*, *M. leontoglossa* and most of the other *Masdevallias*, while, as unmistakable evidence of good culture, appeared a stout spike, like a head of *Asparagus*, on *Odontoglossum brevifolium*, and a grand and numerous budded inflorescence on the pretty violet *O. Edwardii*, which is, like *Oncidium macranthum*, only manageable for any length of time under strictly cool treatment.

Disas.—The *Disa grandiflora* are another example of fine culture at The Dell. Last year their great vigour was noted, and this year it is still maintained; but even the home-grown plants in the collection are put in the shade by some specimens in 18-inch pans, which had been purchased since last flowering-time from Messrs. James Backhouse & Son, of York, where the plant is largely cultivated in an ordinary greenhouse. The pans at The Dell have each ten or a dozen crowns as thick round as ordinary Leeks, and are, like others still remaining at the York Nurseries, quite a revelation in *Disa* culture; in fact, the plants are grown to a gigantic size, almost beyond recognition. They are potted in turfy, sandy peat, with large lumps of sandstone among it, and are grown as marsh plants. As extra fine and rare in flower should be mentioned *Phaius Sedenianus* ×, a cross between *Calanthe Veitchii* and *Phaius grandifolius*; its yellowish-white sepals and petals are luridly lighted up from the base by a rosy flush, and the labellum, which has much of the form of that of *C. Veitchii*, has also its pleasing pink tint. Another pretty novelty is *Phalaenopsis Boxalli* with a numerously flowered spray of yellow flowers barred with chestnut-brown; and the rare *P. intermedia* has a fine spray of twenty-five flowers. Of *Phaius tuberculatus*, were two well flowered plants. The *Phalaenopsis*-house, too, is brighter by a row of the pretty blue *Eranthemum pulchellum* in thumb-pots, each plant like a little bouquet.

The house of *Imantophyllums* is just showing up flowers; the fine collection of scarlet *Nerines*, which last year showed over 500 spikes, seem likely to beat that record this year; the house of *Nepenthes* is attractive and in good order; the *Camellias* about to make a fine display, and all the other things—fruits, flowers, and vegetables—quite up to the usual high standard set up in this fine garden.

LAELIA CRAWSHAWIANA.

A flower of this very rare *Laelia* has been sent to me by the Messrs. Veitch, of Chelsea, and as they had not seen it at the time of publishing their monograph I may add a few words about it. It is about intermediate in size and general appearance between *L. albida* and *L. autumnalis*, the colour being that of a light-coloured form of the latter. Fortunately, I have been able to compare it with living flowers of both these species, also with those of *L. anceps*, and after doing so I believe it to be a natural hybrid

between the two first-named. *L. anceps* has been suggested as one of the parents; but, as Mr. Kent remarks in the letter accompanying it, there does not appear to be the slightest trace of this species about it. The front lobe of the lip and the keels are almost precisely those of *L. albida*, and there is so much of the general appearance of this species about the plant that I do not think it can possibly be a small-flowered form of *L. autumnalis*. As far as I can tell from a single flower, it appears to be as much intermediate in character as do those hybrids in which the parentage is known. It would be interesting to hybridise these two species together, and note the result. *R. A. R.*

LIPARIS MINUTIFLORA.

This curious little species, of unknown origin, but probably Indian or Malayan, is at present in flower at Kew. The pseudobulbs are $1\frac{1}{2}$ inch in length, leaves 3–6 inches long, habit tufted. The flowers, which are pale green in colour, are only one line in diameter!

ANGRÆCUMS AT THE CLAPTON NURSERIES.

Following the rich display of flowers of *Angræcum sesquipedale* at Messrs. Hugh Low & Co.'s, are fine batches of *A. citratum*, and *A. hyaloides*, profusely furnished with flower-spikes; an occasional plant of the rare *A. fastuosum*, *A. articulatum*, *A. Ellisii*, and some presumably new *Angræcums*, among which the new and fine pure white *A. calligerum* is just going out of bloom. The *Odontoglossum*-houses also have a good sprinkling of the best forms of *O. crispum*, the Clapton form of *O. mulus*, *Wilckeanum*, &c.; and the *Cypripedium* and other houses have some other interesting things in bloom, notably a finely-formed white *Cattleya Trianae* with faint lilac tinge on its well-rounded labellum.

PHALÆNOPSIS SCHILLERIANA VESTALIS.

This extremely rare and chaste variety, which was original described in the *Gardeners' Chronicle*, from a plant which flowered in the fine collection of *Phalænopsis* at Messrs. Hugh Low & Co.'s nurseries at Clapton, has again appeared there. All that need be said of it is, that it is a pure white *Schilleriana*, not showing any trace of the rose tint of the type. The lower halves of the lateral sepals and the labellum have a few yellowish dots, and the base of the labellum a yellow tinge with a few minute brown spots, all of which in no way detract from its qualities as a white flower. It is a fine plant, of the highest merit. Also in bloom are the neat flowered *P. denticulata*, and such of the other *Phalænopsis* of the season as have been able to escape the scathing influence of the London fogs, which, however, never seem to lessen the vigour of the plants themselves. *P. s. vestalis* has foliage identical with that of some of the varieties of the *P. s. Schilleriana* which do not so much display the silver-grey bars generally seen in that species.

THE HERBACEOUS BORDER.

A SELECTION OF HARDY HERBACEOUS PLANTS.

Those who grow these plants should grow, instead of a few old species of Michaelmas Daisies, *Solidagos*, *Columbines*, *Monkswoods*, *Campanulas*, *Veronicas*, selections of the distinct and good subjects which are procurable at any nursery for a trifling outlay, and which are better worth growing than much of the contents of many herbaceous borders. As an assistance to those contemplating the purchase of plants I give a list of the names of subjects obtainable at a small cost.

Achillea millefolium rosenm., a handsome form of the Milfoil, with deep lake-coloured flowers, freely produced even during hot weather during August and September. Height 2 feet. *A. ptarmica flore-pleno*, beautiful very small white flowers, in dense

trusses; it is ordinarily known as the Sneezewort; excellent for cutting, and a very free grower. Height about 1 foot, and flowering in July and August. The stools require transplanting frequently, owing to its habit of pushing forth long underground stolons that soon take possession of the surrounding ground.

Aconitum Napellus bicolor.—This variety and the white-flowered form, *Aconitum Napellus album*, are the best plants of their class, growing to a height of 4 or 5 feet; they are very showy during the months of June and July. The plants thrive well in most soils, but a deep moist loam is the most suitable.

Anemone japonica alba (syn. *Honorine Jobert*) is an ornamental subject, blooming from August to October. The flowers are of the purest white, and are set off by fine bold foliage. The flowers being supported on erect footstalks from 2 feet to 3 feet in height, make a very pleasing display. *A. j. rosea* and the original species, *A. japonica*, with numerous large red flowers, are also very desirable plants, and may be advantageously grown with the other species. They all require a deep, well enriched soil, and to be freely watered in the early autumn. Propagation is effected by division of the stools and roots, every portion of the latter, if placed in sandy soil in the month of October and kept in a sandy pit, will form shoots, and ultimately a plant.

Armeria plantaginea, the Giant or Plantain Thrift, a native of the South of Europe, has large red flowers, growing upon strong footstalks 12 inches in length. It is propagated freely from cuttings, and is a very showy plant for the front row in a bed or border. The flowering time is the month of June.

Bocconia cordata, or Plume Poppy, belonging to the natural order Poppyworts, bears long terminal panicles of inflorescence of a brownish colour. It is one of the most showy of hardy plants, growing to a height of 6 feet. It is suitable as a back row plant, or to grow as a specimen on the lawn, or in prominent niches in front of shrubberies.

Campanula persicifolia alba flore-pleno averages 3 feet in height, has large double flowers, of good substance, and is a valuable subject for cut flowers. *Campanula latifolia macrantha* is a showy variety, 3 feet in height, bearing abundantly large blue flowers.

Campanula urticifolia flore-pleno.—The German Nettle-leaved species of which this is a double form is a desirable acquisition, averages $2\frac{1}{2}$ feet in height, and the flowers are blue.

Delphinium formosum, and the improved *D. formosum* *Belladonna*, the former a rich dark blue, and the latter with bright azure-blue flowers with a white centre, are amongst the best of herbaceous plants, and should be found in every garden, being quite hardy, easily propagated by seeds and by division of roots, and flowering freely. The spikes of bloom appear at the apex of growths averaging 3 to 4 feet in height. Besides the two above-named there are some scores of hybrids, probably the result of hybridising between the above and *D. cashmirianum*, and comprising double and single-flowered varieties. Some of these latter, it may be well to add, sport away from the normal blue colour to rosy-lilac, variously edged with white, &c., thereby affording much greater variety than is generally supposed.

Dictamnus fraxinella, the Ash-like Dictany, or *Fraxinella*, a favourite old herbaceous plant, of which both purple and white-flowered forms exist, is a very hardy plant, a native of Germany. It grows into neat bush-like form, crowned with spikes of flowers, which generally reach 3 feet in height. Both foliage and flowers are ornamental.

Dielytra spectabilis is one of the most beautiful and graceful hardy plants yet introduced into our gardens. The plant has been long heard of, and dried specimens found their way into this country some years before Mr. Fortune sent home living examples from Chinese gardens. The plant has been named "Ladies' Locket-Flower," and "Pig-tooth Flower," from a fancied resemblance the flowers bore to these

objects. The plant possesses Fern-like foliage, is quite hardy, succeeding well in the same spot for many years together when planted in light rich soil in a sunny aspect. It is very easily propagated by division, and by cuttings taken from growing shoots during the summer months. No garden should be without this plant, and it is to be regretted that the prophecy concerning it when first introduced—that it would find its way into every cottage garden—has not long ago been verified.

Erigeron speciosus superbus.—This Californian Composite possesses a multitude of large lilac-purple flowers, and should not fail to be found in any collection of herbaceous plants, however small. Its average height when in bloom is about 3 feet, and the season of flowering from July to September—a time when flowers are getting somewhat scarce. It is readily propagated by division of the plant, and thrives well in ordinary garden soil.

Funkias, both for beauty of foliage and fine Lily-like blooms, are all very desirable plants, more especially such forms as *F. ovata aureo striata*, *F. spathulata foliis variegata*, *F. undulata medio variegata*, and *F. Fortunei foliis variegata*. Introduced from sunny Japan, they require a dry warm situation and porous sandy loam soil.

Gentiana acanthis.—The lovely Welsh *Gentianella* is not nearly so difficult to grow as is generally imagined, and forms neat patches, so that it may be grown as an edging plant in light sandy loams. Its lovely intensely blue flowers, large, compared to the size of the plants which produce them, have a peculiar fascination for most persons.

Genus, allied to *Potentillas*, comprise at least three distinct and highly meritorious species in *G. aureum*, *G. coccineum flore-pleno*, and *G. miniatum*, comprising respectively yellow, scarlet, and brick-red coloured flowers. They all thrive best on a dry warm site, or upon rockwork; the last-named is a strong variety, flowering the whole year through more or less.

Helianthus multiflorus flore-pleno and *H. rigidus* well represent the showy perennial Sunflowers, and are the best to grow; the former is the double-flowered form. Those who prefer showy single flowers should choose *H. multiflorus major*. All are readily propagated by division of the old stools in the early spring months.

Helleborus niger (the true Christmas Rose) and *H. angustifolius* are the best of an interesting genus which bloom about midwinter, and only require a deep, rich, well-drained soil, and partial shelter from the hot sun of summer, to succeed well.

Hypericum calycinum, called by some writers the Rose of Sharon. I do not find it, however, amongst Dr. Tristram's lists of plants recorded as belonging to Palestine. *Hypericum calycinum* is as showy when in bloom as it is hardy and enduring. It will even hold its own upon meadow lands whereon horses habitually graze. As a clump in the herbaceous borders and for edgings it is highly suited. *H. olympicum*, a species from the Levant, is also a fine shrub-like border plant, averaging 3 feet in height, and bearing abundantly yellow flowers about the size of a florin for many weeks from the beginning of August.

Iris germanica in its many varieties is an indispensable plant. *Iris Kämpferi*, the water-loving Japanese species, are also desirable for moist places, whilst for edgings and front-row plants *I. pumila*, the Crimean Iris, and *I. nudicaulis* add interest to any collection of hardy flowers. *W. Earley*.

THE RAINFALL OF 1887.

WE read in the *English Mechanic* of January 14 that Mr. G. J. Symonds has issued his preliminary note on the rainfall of 1887. Taking eleven of the oldest established stations out of 2000 which report to him, he finds that the deficiency of the fall compared with the average for 1870–79 ranged from 15 per cent. at North Shields to 41 per cent. at Seaford, co. Down. It is very unusual, says Mr. Symonds, for the fall of rain to be short of the average by more than one-third; but out of the eleven stations above quoted this has been the case at three, and at another it is within one per cent. of it. While, therefore, at some stations—such, for example, as London, where the fall was, in 1864 only 16.93, and in 1874 only 18.82—the fall has not

been unprecedentedly small, there has apparently been a universal deficiency, and in some localities it has probably been without recorded precedent. It appears from such records as are available that 1787 was also a rather dry year in the South of England; but in the North of England and the South of Scotland the rainfall was above the average.

Mr. H. Southall, writing from The Graig, Ross, Herefordshire, reports a deficiency of 25 per cent. from his thirty years' average. On the other hand, Mr. E. Bailey-Denton, writing from Stevenage, Herts, says the total rainfall of the year 1887 amounted to 21.46 inches, which is 4.11 inches less than the average of the last fifty years; but many will hardly realise the fact, remembering the heat and drought of last summer, that during the last seventeen years there have been several drier seasons in his district. For instance, comparing the local records, he finds that in 1881 there were only 18.68 inches; in 1874 there were 19.50 inches; and in 1870 there fell 20.12 inches, thus showing that the extra inconvenience to which his district was subjected was more owing to the comparatively long consecutive periods during which no rain fell than to the total deficiency of the year. Mr. Bailey-Denton goes on to say that his records should convey a homely lesson to us as a practical nation: for if we had, throughout our rural districts, stored on the surface the rainfall of last April and May when we had a superabundance, instead of allowing it to run to waste, the painful experiences of the latter part of the summer and the earlier part of the autumn would have been avoided, and much unprofitable, though absolutely necessary, expenditure of money incurred in the carting of water would have been saved to farmers and land-owners.

PLANT NOTES.

OVERGORGED SARRACENIAS.

THE collection of *Sarracenia*s cultivated at Kew is made up of large strong specimens of most of the kinds, and they are invariably very well crowded with strong well developed pitchers. Last summer they made exceptional growth and in September the collection was unusually good. But about a month ago the pitchers began to decay, in some cases the decay commencing in the middle, in others near the top of the pitcher and on examining we found that this decay was caused by the putrefying mass of insects, chiefly large blue-bottle flies, which filled the pitchers up to the point where the decay first commenced. A pitcher of *S. Drummondii*, which measured a little over 2 feet in length, was filled to within 5 inches of the mouth with dead flies, and so on through the whole collection, almost every pitcher being well charged with a rotten mass of the remains of insects. The stench caused when the contents of the pitchers were disturbed was very strong, and in the upper part of the mass in some pitchers we found living white maggots, probably the larvae of some of the caught insects, which had hatched in the putrefying bodies of their parents. We have washed out most of the pitchers and hope, that by so doing, we shall save a few till the spring, when new pitchers will be developed. Until this year we have taken the precaution to stuff a little cotton-wool into the mouth of the pitchers, just down far enough to be out of sight, and this has effectually prevented any such disaster as has occurred this year, and without affecting the health of the pitchers. Of course the wool is not required until the pitchers are fully developed, as there are no flies much to bother them till after the bulk of the new growth has matured.

Two ideas have suggested themselves to me as the outcome of this apparent overgorging in *Sarracenia*s—1st, That the secretion found in the pitchers, which is stated to be less than a drachm, is not necessary to the destruction of the insects caught in them. It has been stated that, "without doubt" the secretion found in the tubes of the *Sarracenia* is intoxicating, or anæsthetic, or narcotic, or by what-

ever word you may prefer to indicate that condition to which these insects succumb," (Professor Asa Gray.) The enormous mass of dead insects in the pitchers described above could not have been affected by the few drops of this secretion contained in each pitcher. The second idea is that, whether designedly or purely the result of accident, the pitchers, by entrapping such immense numbers of insects, do collect what must prove a powerful stimulant to the roots of the plants, when, by the decay of the pitchers, their contents is necessarily deposited on the ground directly above where the roots find nourishment. *W. Watson, Kew.*

NEW FORMS OF PHLOX DRUMMONDII.

Two new forms of *Phlox Drummondii* are announced from the Continent; one is named "fimbriata." In this case the pips, instead of having the smooth-edged circular form, are partly fimbriated and partly three-toothed, the centre teeth being almost twice as long as the lateral ones, and all are distinctly bordered with white; the flowers are variously coloured in the centre, some maroon-crimson, others violet-blue, purple centre; but whatever the colour, the whole bordering is uniform. The other is named "cuspidata," or Star of Quedlinburg, and in this case it is a selection from fimbriata, but the centre teeth of the petals, five in number, are four or five times as long as the lateral ones, and project beyond them in the form of spines from a third to a quarter of an inch long, and here also is found the white margin alike to the petals and the spines. The latter is a very curious form, and shows how the old fancies are being overthrown, for, as in the case of the *Verbena*, the fanciers of *Phlox Drummondii* have laboured to secure the smooth, stout, rounded edged, and now here is a reversion to star-shaped flowers. Whether these novelties in form will find favour in this country remains to be seen. *R. D.*

COFFEE AT HOME.

ABOUT Christmas time, as if to show what could be done in the way of furnishing berried plants, we received from Kew a branch of the Coffee shrub densely laden with its berries. The branch evinced such good cultivation, and was so beautiful with its deep green glossy leaves, forming a setting for a profusion of brilliant berries, that we sent it forthwith to the artist. Unfortunately the necessarily reduced size of the illustration, and the absence of colour are formidable obstacles in the way of reproducing the beauty of the original, but even in black and white the profusion of the berries is manifest (fig. 12). Planters speak of the berries as Cherries, with which they have little in common save the colour. The portion utilised is the seed. With the living plants in the houses, the museums in which the products and processes of manufacture are exhibited, the herbarium in which dried specimens of the various species and their allies are contained, the picture gallery in which are displayed Miss North's beautiful drawings, the laboratory in which the minute anatomy and chemical constitution of the plants may be investigated, and the library wherein the student may study the literature of the subject. Kew may well be proud of the completeness of the materials and opportunities she offers to the student. Those who are not interested in research will nevertheless find that the Coffee shrub, apart from its interest, is a beautiful shrub for the warm greenhouse or stove, as it is beautiful alike in leaf, in its white Jasmine-like flowers, and in its fruit. The cultural conditions are thus summed up in Nicholson's *Dictionary of Gardening*:—A turfy loam and sand, abundance of water, and ample pot room. The plant is readily propagated from cuttings. The following note relating to the fertilisation of the flowers in India is so interesting that we venture to reproduce it from the columns of *Nature*:—

"The Jasmine-like flowers of the Coffee are borne in clusters in the axils of the leaves, and appear

simultaneously all over the estates. After a prolonged drought of one or two months, or even more, at the beginning of the year, there is generally a heavy fall of rain, sometimes lasting only an hour or two, sometimes continuing for two or three days; the amount that falls must be enough to saturate; the ground, and should not be less than 1 inch.

"In from six to eight days from the time of the first shower, the flowers burst into full blossom, last for a day, and then drop off. On the evening before the blossom is fully out, if the flowers are examined, it will be found that they are partially open, the stigma being protruded and receptive. During the night the hum of insects can be distinctly heard, and I am of opinion that the flowers are largely fertilised by night-flying insects which carry pollen from those flowers which happen to be open rather before the others, as some are delayed. On the following morning all the flowers will be found open, and the field of Coffee presents a sheet of white. These flowers are frequented by immense numbers of bees, of two kinds, one about three-quarters of an inch long, and black, the other smaller, and with white bands round its abdomen. The stigmas now are covered with pollen, and the anthers bursting, and the larger of these bees may be seen buzzing from flower to flower sweeping up the grains of pollen between its front legs, and rolling them into balls. Long before evening all the anthers are exhausted of pollen, and the insects have departed. Besides bees some butterflies visit Coffee.

"The Coffee plant, by being protogynous, is intended by Nature to be cross-fertilised, but owing to all the plants in one clearing being usually grown from seed of a single estate, there must be a great deal of interbreeding, more especially as all the Coffee of Ceylon and most of South India is supposed to be descended from a single plant introduced into Batavia about two centuries ago. This may have something to do with the manifest deterioration in stamina of the younger Coffee."

DINNER-TABLE DECORATIONS.

As time goes on fashions constantly change. The rather heavy arrangements of groups of plants and designs in flowers on the table that were fashionable a few years since would hardly be tolerated in a town or country house at the present time, when the style in vogue is lighter, and more elegant than formerly.

Having to provide large quantities of materials for this purpose for the London abode, and also when the family is in the country, the mention of a few simple arrangements that we use here may be of service to others. The size of the dinner-table is not material, as, of course, the quantity of materials used, is regulated according to the number of guests laid for at the table. One pleasing arrangement consists of sprays of *Adiantum cuneatum*, laid on the centre of the cloth, as a groundwork with single flowers of *Eucharis amazonica*, with the same species of Fern standing in small globes; and single spikes of *Eucharis*, cut rather long, with from three to four open blooms on each, are placed in tall silver cups also with the Fern round them. The centre of the table has one, two, or three light feathery Palms in silver vases, according to the size of the table, the *Eucharis* in silver cups being arranged down each side of the table, and the globes of *Eucharis* flowers standing between the groundwork of *Adiantum cuneatum*, on which these are placed, showing the latter off to advantage.

Sometimes white *Chrysanthemum* blooms are employed instead of *Eucharis*, the more useful varieties for the purpose being Duchess of Manchester and Fair Maid of Guernsey. We also make use of forced Roman Hyacinths, turning the bulbs out of their pots, and placing them in damp moss, so that the foliage can be retained. For a strong contrast a dark red silk cloth laid along the centre of the white one is sometimes made use of, and bordered with the leaves of Gros Colmar Vine, which being of rich colours have a good effect. Some of the Vine leaves are also laid about on this red cloth, and some blooms of *Chrysanthemum roseum* superbum variety either in globes or silver cups, about three or four blooms in each, are stood on this

cloth each side, a centre being made of the same variety of *Chrysanthemum* cut off a good length and stuck in pots of sand and placed in silver vases—sufficient to form small plants. Another arrangement is a pale blue silk cloth for the centre of the white one, and edged with short sprigs of the pure yellow sport from the Golden Queen Holly and yellow *Chrysanthemums* employed in the same way as in the former arrangement. In this case the Holly sprigs are laid about on this cloth. Another arrangement consists of plants of *Poinsettia pulcherrima* in vases for the centre of the table, a dark blue cloth being used in this case, and bracts of the same cut ather long in the stem, together with their foliage, and placed in silver cups with leaves of the Gros Colmar Vine as edging, and laid about on the coloured cloth. When a gold service is used at this season of the year, plants of *Erica hyemalis* are very useful for filling the vases.

The above are only a few out of the many other arrangements made use of, and which are particularly in request in the autumn and early winter months. Single Dahlias in yellow, white, and scarlet, are very useful, as are green leaves of the Vine. Very large quantities of *Adiantum cuneatum* need to be grown for the supply during the London season if the family reside there. The hardy American Azaleas we find very useful at that time, especially the large yellow one, of which we grow large numbers. Roses of various colours are much sought after, as also *Azalea indica alba*, of which we grow a large number of plants. *E. Ward, Howell, Bromsgrove.*

CHRISTMAS ROSES.

The imported plants of *Helleborus niger* from North Germany, of which I have grown a large number, yield many pretty varieties, some of them with green stalks and the pure white flowers which distinguish the finer garden sorts, but the flowers are small and short-stalked. Those from the valleys of the Austrian Tyrol are of a larger sort, frequently *H. niger major*, such as is grown about Bath. It would appear that the *Hellebores* increase in size and improve in quality as you proceed southwards, probably as a result of more favourable climatic influences, continued through many centuries. In this way we find the larger form, *H. n. major*, in the Austrian Tyrol, and the larger *H. n. altifolius* or *maximus* on the south side of the Alps, both in Austria and Italy. I have had a good many *Hellebores* collected recently from the southern habitats, large-leaved varieties being alone selected, and they contain many examples of *altifolius* as well as those of the *angustifolius* group, resembling the well known Brockhurst and Riverston varieties. It is too soon to speak precisely, as it takes some time for plants to recover and display their proper characters. These plants were six weeks on the way from Italy, and it speaks well for the vitality of the *Hellebores* that they have survived and are all doing well.

The large forms of *altifolius* thus found growing wild have the same differences in leaf which are noticeable in our garden varieties. The petioles are from 12 to 20 inches long, with large spreading leaves. The lobes in some leaves are deeply jagged, and in others smooth-edged; some have wide, almost obovate lobes, whilst in others they are narrow, and the whole character resembling the *angustifolius* group. The colouring of the stalks also varies, some being pink, others mottled with purple, and some green throughout. In all the root is similar, like that in our *altifolius*, and quite different from the common *H. niger*.

Mr. Ware's new varieties appear to be from some new district, as the characteristic peculiarities of *altifolius* and *niger* seem to be combined. Probably they came from the Austrian Tyrol. His *H. n. rubra*, which is described as the most distinct and novel of the group—a veritable red Christmas Rose—is the most remarkable. Its stalks are deep purple, and the flowers are deep pink, and it has the deepest pink coloured pistils of any. This is the dis-

tinguishing features of the tall-growing *altifolius*; but *rubra* is as dwarf as the ordinary *niger*. This, then, is a new sort, of much interest, and should be in every collection. Mr. Ware's *cancasicus* is, as I have previously stated in your columns, and as far as I am able to judge now that it is in bloom, the *H. n. vernalis* of Don (see Sweet's *Flower Garden*, vol. v., p. 186). It agrees also nearly with Haynes' *H. n. altifolius*, as



FIG. 12.—COFFEE CROWN AT KEW. (SEE P. 76.)

figured in Reichenbach's *Icon. Flo. Germ.*, exil., and is thus probably one of the wild forms of *altifolius* from the Austrian Tyrol. Mr. Hartland has also sent me flowers of this variety and a characteristic leaf, and this exactly agrees with the leaf figured separately by Jacquin in his *Flora Austriaca*, to which Don refers in his description of the leaf of *H. n. vernalis*. I think we may, therefore, assume that this is the *H. n. vernalis* of Don, and it is to be hoped that the misleading name, *cancasicus*, will be

dropped for the future. It is a well marked and interesting variety, with the peculiar pink tipped styles, but with a very dwarf habit, the flower and leaf-stalks being only about 6 inches high. The flowers are small and of poor substance. Mr. Ware describes it as intermediate between major and *maximus*, but it is a much smaller plant than either of these. It also differs greatly from Mr. Poë's Riverston variety, which has this pink styles, but which has long flower-stalks, a larger and purer flower, and long-stalked narrow leaves, belonging to the *angustifolius* group.

Mr. Hartland sent me specimens of what he considers *H. n. vernalis*, but I do not consider them so. His is probably the ordinary *H. niger*, with pinkish colour, exceedingly like that figured by Curtis in the first volume of the *Botanical Magazine* so long ago as 1786. One of the names Curtis gives for this variety is *H. niger flore-roseo*. This differs from Mr. Ware's *rubra* in not having the pink centre. Mr. Hartland says that this plant has been in the South of Ireland since the time of the Hagnenots, which is likely enough, as it was the first variety recorded in our botanical literature, and they may as well be credited with the introduction of the Christmas Roses as they are credited with that of the Tenby Daffodils. *Wm. Brockbank, Brockhurst, Didsbury, January 14.*

Before receiving this communication Mr. Brockbank was good enough to send us excellent specimens of nine varieties. Unfortunately they arrived at a time of editorial pressure, and, moreover, one of persistent black fog; so that their examination could not be attempted till some days after their receipt.

The specimens were easily separable into two groups, or less readily into three. There is the *angustifolius* set with longer, thinner, paler leaf-segments, which are wedge-shaped, comparatively straight-edged at the base, and generally with finer sharper teeth at the margin, and with larger flatter flowers. In contrast with these is the *niger* group proper, in which the leaf-segments have generally shorter stalks, are smaller, more coriaceous, darker, not so distinctly wedge-shaped at the base, the margins being more curved and towards the apex more coarsely and crenately toothed. A possible third group may be made to take in the *altifolius* set, but that is less easily definable.

We append a few descriptive notes taken from the specimens before us, but it must be remembered that we have not hitherto had leisure to compare the specimens with herbarium specimens, or our descriptions with those given in books. It may here be mentioned that Mr. Baker's monograph will be found at p. 432 of our volume for 1877, and valuable notes from Mr. Brockbank, Mr. Archer Hind, and others, in our numbers for December 1, 1883, and January 19, 1884. We take the plants in the order of Mr. Brockbank's numbers. By mid, or deep stellate, we mean a flower whose white calyx appears divided to about the middle, or to a point below the middle. The measurements are rough averages. In the case of the leaf the central segment only is taken:—

1. HELLEBORUS "ST. BRIGID" (*ANGUSTIFOLIUS*).

Leaf-stalk not furrowed, green; leaf-segment $6 \times 1\frac{1}{2}$ inches, lanceolate, tapering at the base into a stalklet about half an inch long; slightly and remotely toothed in the distal third.

Flower-stalk green; bract broad, concave, whitish.

Flower nearly 4 inches across, flattish, mid-stellate; sepals obovate; petals (nectaries) half an inch; stamens nearly twice as long as the petals; styles white, about the same length as the stamens.

2. BROCKHURST VARIETY (*ANGUSTIFOLIUS*).

Robust; leaf-stalk green; leaf-segment $6 \times 1\frac{1}{2}$ inches, oblanceolate, tapering gradually to a stout stalklet more than half an inch long, rather coarsely but evenly saw-toothed in the upper third.

Flower-stalk green, with a tendency to bear two flowers; bracteolate-lanceolate concave, greenish, flushed with rose. Flower more than 3 inches across, flat, mid-stellate; sepals rather less than $2\frac{1}{2}$ inches, obovate, obtuse, tapering at the base; petals yellowish; stamens nearly twice as long as the petals; styles white, recurved, slightly longer than the stamens. Perhaps too near to St. Brigid to be worth keeping as distinct, but still distinct in the dentation and form of the segments.

3. RIVENSTON HYBRID (ANOSTIFOLIUS).

Robust; leaf-stalk green; leaf-segment lanceolate, scarcely oblanceolate, $5\frac{1}{2} \times 1\frac{1}{2}$ inches, gradually tapering at base into a stalklet rather more than half an inch long, rather coarsely and remotely saw-toothed in the upper third, teeth spine-tipped.

Flower-stalk red-spotted; bracts roundish or ovate-acute, concave, entire. Flower $3\frac{1}{2}$ inches across, flat, mid-stellate, white, flushed with rose on the outer side. Sepals $1\frac{1}{2} \times 1\frac{1}{2}$ inch, ovate, oblong, tapering at the base into a green stalk, hence the flower has a five-rayed green star much more strongly marked than in the others; petals less than half an inch; stamens slender, twice the length of the petals; styles about as long as the stamens, and pink. There is no obvious mark of hybridity about this plant.

4. H. NIGER MAJOR (VEITCH, EXETER) (ANGUSTIFOLIUS).

Robust; leaf-stalk slightly furrowed; leaf-segment $6 \times 1\frac{1}{2}$ inches; oblanceolate, tapering at the base into a stalklet about half an inch long, rather finely serrate in the upper third, and with a tendency to subdivision.

Flower-stalk red-spotted; bracts whitish lanceolate concave, lowest one somewhat leafy. Flowers flat, more than 3 inches across, white, mid-stellate; sepals ovate oblong obtuse; petals a quarter of an inch long, stipitate; stamens one-third longer than the petals; styles white, about the length of the stamens.

5. H. BATU VARIETY (COOLING) (NIGER).

Leaf-stalk red-spotted, slightly furrowed; leaf-segment $5\frac{1}{2} \times 1\frac{1}{2}$ inches, oblanceolate, tapering at the base into a short stalklet, less than half an inch long, evenly and shallowly toothed in the upper third.

Flower-stalk red-spotted. Flowers $2\frac{1}{2}$ inches, flat, white, mid-stellate; sepals ovate, oblong, obtuse, petals less than half an inch; stamens spreading, nearly twice as long as the petals; styles white, one-third longer than the stamens. In some respects intermediate between H. niger and H. angustifolius, having longer and more stalked leaflets than ordinary H. niger.

6. H. MISS HOPE'S VARIETY (ANGUSTIFOLIUS).

Leaf-stalks green, slightly red-spotted; scarcely if at all furrowed; leaf-segments oblanceolate-acuminate, with shallow dentations in the upper third only, and with a tendency to sub-division, gradually tapering at the base into a rather long stalklet, that of the central lobe being more than half an inch long.

Flower-stalks, red-spotted; bracts oblong green, flowers nearly 3 inches in diameter; flat, white, slightly flushed with rose on the outer side—mid-stellate; sepals ovate obtuse; petals nearly half an inch, greenish yellow—tipped; stamens twice the length of the petals; filaments white, anthers 2-lobed; proterandrous; styles erect, and as long as stamens; stigmas recurved, white.

7. MADAME FOURCADE (HORT. WARE) (ALTI-FOLIUS).

Petiole red-spotted, only slightly furrowed; leaf-segments $5 \times 1\frac{1}{2}$ inches, oblong lanceolate, tapering at the base into a short stalklet, coarsely and irregularly toothed in the upper half, teeth slightly spine-tipped.

Flower-stalk red-spotted; bract oblong lanceolate, concave. Flower $2\frac{1}{2}$ inches in diameter, pure white, shallow—stellate; sepals $1\frac{1}{2} \times 1$ inch, broadly ovate; petals $1\frac{1}{2} \times 1$ inch; petals scarcely half an inch long; stamens twice the length of the petals; styles about as long as the stamens; stigmas pink.

8. H. CAUCASICUS (WARE) VERNALIS (ALTI-FOLIUS GROUP).

Petiole green, stout, deeply furrowed, especially towards the upper part. Leaf-segments $5 \times 1\frac{1}{2}$ inches, oblanceolate, tapering at the base into a short stalklet more than half an inch long, markedly spinose—dentate in the distal third.

Flower-stalk thickly spotted with red; bract broadly lanceolate, recurved. Flowers 3 inches across, flattish, pure white, flushed with rose outside; deep stellate. Sepals $1\frac{1}{2} \times 1\frac{1}{2}$ inch, obovate oblong, leaving comparatively deep interspaces between them like the sails of a windmill; petals half an inch, greenish-yellow, stipitate; stamens only slightly exceeding the petals in length, much shorter than the white styles.

Remarkable for the deeply furrowed leaf-stalk, the coarsely-toothed leaves, and the narrow sepals having

deep interspaces between them. This is not true caucasicus of the hooks, nor is it the caucasicus of the Hort. Barr., but whether it be vernalis, as Mr. Brockbank suggests, we cannot say.

9. H. NEW SEEDLING, W. BROCKBANK (NIGER).

Leaf-stalk green, sparingly spotted, scarcely if at all furrowed; leaf-segments $4 \times 1\frac{1}{2}$ inches, oblanceolate, tapering at the base into a short stalklet less than half an inch long, coarsely crenately toothed in the distal third, with no tendency to subdivision.

Flower-stalk green, sparingly spotted. Flowers $2\frac{1}{2}$ inches in diameter, permanently cupped, pure white; sepals roundish, narrowed at the base; petals half an inch long, yellowish, shortly stalked; stamens twice the length of the petals, spreading; styles as long as the stamens, erect; stigma recurved, white. A form of niger remarkable for its deeply cupped flowers.

10. H. VERNALIS, HARTLAND, CORK.

Leaf-stalk green, furrowed segments $4 \times 1\frac{1}{2}$ in.; obovate-lanceolate, coarsely serrate. Flower-stalk red-spotted, with a tendency to branch; bract oblong ovate; flower flat, $2\frac{1}{2}$ inches in diameter, mid-stellate; sepals white, flushed with rose, showing a tendency to increase in number, ovate-oblong, rounded; petals yellowish, stalked; stamens one-third longer than the petals; styles white considerably longer than the stamens. This is a pretty form of niger evidently quite different from Mr. Brockbank's No. 8, known in Ireland for at least two hundred years.

Mr. F. C. Heinemann, of Erfurt, sends us a number of seedling Hellebores, which unfortunately were in bad condition when we examined them. They were seedlings from orientalis, having graceful, pendulous flowers, some pure white, others with numerous purple spots upon a white ground, and others again of a pale purple colour, either with or without spots.

Seedling No. 2 seemed to us in the state in which we saw it to be the most noteworthy, it being of a purplish colour, with reticulations and spots of the same colour, but darker.

THE ORCHID HOUSES.

ODONTOGLOSSUMS.—If the potting of the cool-house Odontoglossums was attended to in last September the plants should now be getting well established, and will not be easily disturbed during the work of cleaning and overhauling, and will also be in a fit state to pass through the flowering season. Care should be taken not to give more water at the root than is necessary, for if the plants are kept in a saturated state the compost will rapidly decay and become sour. Those having cool-house Orchids will find it a great relief to have got their potting done in the autumn, as the task of keeping the plants clean will take much of their spare time at this season, as not only is it necessary to guard constantly against the ravages of slugs, but if aphids be allowed to remain a few hours on the buds the flowers will be deformed.

Thrips are the worst plague a gardener can have in the Odontoglossum-house, for if they are present they will generally be found hidden amongst the new growths, and are then difficult to eradicate. When dark green spots are found on the tender leaves it is a convincing proof that these insects are about the plant; and when the flower-spikes show themselves the thrips seem to have a greater liking for these than for the foliage, and leave the latter and conceal themselves under the flower-buds. As prevention is better than a doubtful cure, I have found flowers of sulphur to answer very well, taking a small quantity in the hand, into which dip a soft brush and draw it upward on the spike, keeping the other hand underneath the brush to catch any sulphur that would otherwise fall on the plants. Take care to keep the sulphur and brush quite dry; but even this substance will not drive the thrips out if they once get possession of the flower-buds.

Late Potting.—If there are any Odontoglossums or Masdevallias that were not potted in the autumn, owing to the flower-spikes being then too far advanced, and they now require it, the potting may be done at this season, and the plants will be established quickly if placed in a moist atmosphere with a temperature of 50° and 55° . I find it necessary with Masde-

vallias to dip into or sponge occasionally with a weak mixture of tobacco-water, thrips and red-spider rapidly disfiguring the leaves of all, especially the Chimara section. It is a good rule to fumigate the Cattleya-house with tobacco before many of the C. Triana open their flower, although we may not have observed any thrips there.

Cattleyas and Laelias in pots should be carefully watered for some time yet, as their requirements will vary according to the interior arrangements of the houses, the kind of stages, &c. We find that once a week is sufficient for Laelias and Cattleyas standing on ordinary stages. Until the season is more advanced the night temperatures should be kept at about the following figures:—Phalanopsis-house, 65° ; East Indian-house, 63° ; intermediate, 58° ; the cool-houses, 50° ; and let the day temperatures rise 3° to 5° with artificial heat. Keep the fires in check on bright days, and let the temperatures rise several degrees with sun-heat. C. Woolford, Downside, Leatherhead.

PLANTS UNDER GLASS.

Plumbagos.—Only three species are found in cultivation under glass, viz., P. capensis, which yields a profusion of its pale blue flowers during the summer and autumn. This species, if grown in a warm, light position, and cut back after flowering, will soon break away afresh, and flower again; and this treatment may be repeated till well on in the autumn. Plumbago zeylanica (alba) is very similar to capensis, only that it is white, and is not quite so hardy. Neither of the two are very amenable to pot culture when aged; they do best when treated as climbers. The other species usually met with is P. rosea, or its improved varieties, coccinea or splendens; the last-named is grown in large quantities for winter decoration, and deserving of a specific name. The plant is of easy culture.

By putting in cuttings now, taken from plants which have been flowering during the past few months, they soon root, and may be potted off in the usual way, using a light friable loamy soil. It is better to get up young plants annually, as these are more manageable, and produce finer spikes of flower than old specimens. This species being an inmate of the stove or intermediate-house will not succeed where P. capensis does well, but its habit is considered by many to be preferable to that species, and it is well suited for pot culture. Nice bushy plants in 48's or 32's are very serviceable.

Euphorbia jacquiniæflora Julgens.—This plant is also best raised annually from cuttings. When it is grown in a pot, single plants with three or four shoots, laden with their handsome orange-scarlet flower bracts, are very telling things when associated with other plants, and as cut flowers lasting for several days in a fresh condition. The present is a good time to put in cuttings. Insert them singly in very small pots, using a fine sandy soil; when thus early struck single cuttings may be grown by autumn into handsome plants. A brisk stove temperature is best suited to the plant's requirements.

Finish pruning climbers that require winter pruning, such as Stephanotis, Bougainvillea, Clerodendrons, Tacsonias, Bignonia venusta, Aristolochias, and Tecomas.

Hard-wooded Greenhouse Plants.—Many of the plants belonging to this section are very impatient of damp, either in the atmosphere (that is, when it is stagnant), or when water lodges on their leaves, such as the Aphelexis, Phenocoma, and many of the Ericas; therefore, ventilate freely on every favourable opportunity, using only just sufficient fire-heat to expel damp after watering. Place such plants where they can get as much light and air as possible. Encourage Acacias by giving abundance of water to which a little soot has been added. Now is a good time to repot and otherwise attend to that useful autumn flowering species, A. platytera: it is just going out of flower, having lasted for about three months. A rather peaty loam with a good dash of sharp sand suits this plant best. Soft-wooded Heaths, such as hyemalis, caffra, gracilis, and autumnalis, which have done flowering, had better be cut back and placed in a warmer division, to encourage them to break; after which any potting considered necessary may be done. By thus giving them a longer season of growth, better results may be attained.

Epacris.—Many of those will at present be doing duty in the conservatory, and while mixed up among other plants they are apt to get over-watered, and

this is often the starting point of their decline. The *Epacris* does not require as large a quantity of water as most of the *Heaths* do, and there is this further difference, that *Heaths* should never be allowed to get so dry as *Epacris* before being watered—indeed, watering in this division requires a considerable amount of discrimination, and more so at this time of the year. It is sometimes rather difficult to make out whether the plants are dry or not; this might happen if the surface should appear dry, and the plants, through deficient drainage, should be wet at the bottom of the pot, or even the surface might be wet and the bottom dry through want of room between the top of the ball and the rim of the pot, thus preventing enough water being given at one time to soak the whole ball. These and kindred matters require looking to rather closely at the present time. Do not attempt what might be called a middle course by only giving as much as will carry over till tomorrow. At no time of the year than the present is it more imperative that plants be only watered when they require it, and then thoroughly. It is better to do with as little fire-heat as possible—40° as a minimum to 45° as a maximum—when the weather is mild.

Tuberous Plants: *Glorinias*, *Achimenes*, and *Caladiums*.—Look over the stock and see that they are not getting too dry, and that the first and last named are not being kept too cold. A few of each might now be started, especially if it be desired to increase the stock of any particular kind. *Caladiums* are easily increased by taking off the growths close to the old tuber, so as to get a little heel; and if kept moist and warm they soon take root, if planted in tan or cocoa-nut fibre, and put under a handlight. *Frank Ross, Pendell Court Gardens, Bletchingley.*

THE FLOWER GARDEN.

LAWNS.—To render the surroundings as attractive as possible at this dull season, these should be kept scrupulously free from fallen sticks and leaves, and in mild open weather should be frequently rolled. When sufficiently mild the present time is good for laying turf, and for levelling and relaying turf on old lawns. Many lawns, after the trying heat and drought of last summer, will be greatly benefited by a heavy top-dressing of well-decayed manure and loam; this, of course, will present rather an unsightly appearance for a few weeks, and in some instances would be strongly objected to, especially if used in the immediate vicinity of the mansion. Under such circumstances, and where expense is not considered, apply as an alternative a top-dressing of bone-meal and superphosphate of lime, at the rate of half a peck to 30 square yards. Where lawns are in an unusually bad state, and much infested with moss, more thorough measures than the above should be adopted—sowing seed, and applying a dressing of lime, soot, and wood ashes; but this matter will be referred to later, when the time for sowing seed approaches. In the meantime, give the order to the seedsman for a renovating mixture, stating the character of the soil, the area of lawn, and at the same time stipulate for a liberal admixture of Crested Dogtail, Sheep's Fescue, and Smooth-stalked Meadow-grass.

Walks and Carriage Drives.—Put in repair and good order any drains that are defective, and clean out all catch-pits. Turn over gravel walks when practicable, and re-surface with fresh gravel where necessary, in doing so keeping them somewhat higher in the centre than at the sides, and roll frequently on favourable occasions so as to maintain a thoroughly firm and smooth surface.

Miscellaneous.—Examine *Dahlia* roots, tuberous-rooted *Begonias*, *Gladioli*, *Tigridias*, and cut out all decayed parts, afterwards dusting over the wounds with powdered charcoal, which will prevent decay going further. Pot imported bulbs of *Lilium aratum* for planting out at a later period, and place them in a cold frame plunged to the rims in loose cocoanut-fibre refuse, or cinder ashes, for a few weeks till they have made a start. **Roses.**—All beds and borders of these should ere this have been mulched with rich manure, and all Teas and Noisettes protected from frost with dry bracken. In open weather push forward the planting of Box edging and plant *Anemone coronaria*, *A. hortensis*, and their varieties; also *Ranunculus tuberosus*. These plants, which delight in a rich sandy loam, should be planted 3 inches deep and if the soil be at all poor, a liberal dressing of well-rooted cow manure and leaf-mould should be dug

in beneath the roots, and that is best done by bastard trenching the soil. Should there be a heavy fall of snow—which at the time of writing seems imminent—pay attention to Conifers and evergreen shrubs by relieving them of any undue weight on boughs and branches; men furnished with sticks wherewith to shake off the snow will prevent much wreck and ruin amongst these plants. *J. Horsfield, Heytesbury.*

THE HARDY FRUIT GARDEN.

COVERINGS FOR WALL TREES.—Various kinds of materials are recommended for the purpose of protecting trees from frost during the time they are in bloom, but of these *Frigo Domo* is generally conceded to be the best, and with proper care it will serve for several seasons. The old stock of it should now be examined, and repaired if that be found necessary. When temporary appliances are used in connection with the blinds, in the shape of wooden copings, the same should also be examined to ascertain if all is in readiness for use.

Winter Moth.—This pest has been present in great numbers this winter, therefore Apple trees (that were attacked with the caterpillar last year) should, after pruning, have the prunings carefully raked up and burnt, as by so doing a great number of the eggs laid by the female moth are destroyed. During November and December the females, which have only abortive wings, creep up the trees and lay their eggs on the leaf or flower-buds. In Germany, where the moth is more common than here, bands of paper smeared with a gummy substance or coal tar, are placed round the stems, and which, when kept in a moist condition, prevent the ascent of the female.

Top-dressing Garden Pear Tree Borders.—As these trees are generally grafted on the Quince stock, and are therefore surface-rooters, the soil about the roots soon becomes exhausted, and the trees in consequence of this show signs of exhaustion in the inferior fruit produced. When this is the case, the border should be top-dressed, at the same time removing a portion of the old soil to the depth of 8 or 9 inches. A suitable soil for the purpose is rich maiden loam, chopped up, with an addition of one-half its bulk of decomposed farmyard manure. This new material should be carefully worked in among the roots, laying them in at the same level they occupied in the old soil; then gradually fill up, and make the ground firm by treading it afterwards, and complete the operation by mulching heavily. Should the border be found to be in a very bad condition, the trees should be lifted entirely and replanted, but this is an operation that is better performed in the autumn. *A. Ward, Stoke Edith Gardens, Hereford.*

FRUITS UNDER GLASS.

PEACH HOUSES.—Peaches which are set may have the temperature raised to 55° at night in mild weather. The fruits which have set in clusters should be thinned to one fruit, always leaving the largest. If there is a good set all the fruits may be removed from the underside of the shoots, and the crop consist of those on the upper side, where they will have the full benefit of the sun, and be coloured on the top and sides instead of at the base. As soon as the wood-buds are sufficiently advanced disbudding should be commenced, and this is better performed at several times: at the first remove all the buds from the front of the shoots, then those from the under side and back of the shoot, and lastly those from the upper side, leaving one only at the base of last year's shoot and a leader. If there be a vacant space to furnish, a shoot may be left at the base of this season's lead. No more shoots should be allowed to grow than are necessary to secure an evenly distributed crop of fruit. If the shoots are left too thickly the wood will be badly ripened, and which it will be necessary to cut out at the winter pruning, and the less these kinds of fruit trees are cut with the knife the better. Houses which contain trees in bloom should have a steady temperature of 50°, and the syringing be discontinued until the fruits are set. Go over the trees with a Pampas-grass plume about the middle of each day, and slightly draw the plume over the flowers. This is a more rapid and quite as effectual a mode of fertilisation as the camel-hair pencil. Get trees in later houses tied, and prepared for starting.

Pruning Young Trees.—Do not cut back young trees when planted, and any which were planted last season and have made strong growths should have such shoots left their full length, even if they should be 5 or 6 feet long; lateral shoots can be trained from the sides at distances of 6 to 8 inches apart to furnish the trellises and these will help to reduce the grossness of growth, as well as yield a crop of fruit the following season.

Figs.—Those which are intended to bring ripe fruits in April will be benefited by a bottom-heat of 75° to 80°—this is not absolutely necessary, but if it can be afforded them so much the better. Keep the roots in a moist state by waterings at a temperature of 85°. Let the temperature at night be as near 50° as possible, and when it reaches 65° by day admit a little air; syringe the trees in the morning and afternoon of fine days. Clean and dress succession plants, being careful not to pot any plants at this advanced season: have recourse to rich top-dressings and feeding with manure-water instead.

Strawberries.—Plants which are swelling should be well syringed, and a temperature of 60° to 65° may be kept up at night. Alternate waterings with clear soot-water and weak guano may be given. Wire shelves are best for holding Strawberries in pots, as they allow of the plants being syringed all over and underneath, which is a great matter with plants so liable to red-spider as these. Plants in bloom may have the temperature advanced to 55°, but do not syringe while they are in bloom. The weaker bloom-buds may be picked off if the trusses be large. If the weather be dull, go over the flowers with a camel-hair brush in the middle of the day. Put in a fresh stock of plants every eight or ten days, according to convenience or requirements. Examine each pot for worms, and see that the drainage is all right. The Strawberry is a moisture-loving plant, but it will speedily show its distaste for stagnant water at the root. Do not let the temperature for starting successional batches exceed 45° at this season. *W. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

PEAS that were sown in November will now require protection from frost, a good dressing of coal-ashes or sawdust being first spread along the rows to check the ravages of snails. After repeated trials I prefer coal-ashes for this purpose; sawdust (although being more effectual against snails) holds the moisture too much, and if the weather be very severe the Peas suffer accordingly. The stalks may afterwards be put in, and then some boughs of Spruce or other evergreens placed along the sides. It is well, if room can be spared, to sow some of the early kinds now, either in strips of turf or in small pots. The turf for this purpose requires to be cut and stored in the autumn, and should consist of pieces 9 inches long by 3 inches wide and 2 inches thick. Make a small groove down the centre, sow the Peas, and cover them with some good soil. If turf is not at hand, put five seeds in large 60's. After sowing, the turves or pots should be placed in a temperature of 45° to 50°, and if well hardened off before planting out they will be ready for use as soon as those sown in November. Broad Beans may also be treated in the same way.

Any Asparagus beds that show exhaustion should be dug up, and the roots placed in a hotbed frame on fermenting material, with a bottom-heat of not more than 80°.

As soon as the produce of a row or bed of Sea-kale or Rhubarb is cut, remove the fermenting material; trim the stools of the former, and cover both with rough leaf-soil or short straw, as a protection against frost. The thongs or small roots of Sea-kale that has been taken up for forcing purposes should be cut into pieces 2 inches in length, the upper end being cut square across and the lower slantingly, and be put thickly in pans or boxes of soil, and placed where they are safe from frost until planting time arrives. *W. H. Divers, Ketton Hall.*

PUBLICATIONS RECEIVED.—*National Footpath Preservation Society's Third Annual Report.* (London: 42, Essex Street, Strand, W.C.)—*Annual Administration Reports of the Forest Department, Madras Presidency, for 1885-1886.* (Madras: R. Hill, Government Press.)

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APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

WEDNESDAY,	JAN. 25	{ Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms. Japanese Lilies and other Bulbs, at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 26	{ Imported Orchids, from Mr. F. Sander, at Stevens' Rooms.
FRIDAY,	JAN. 27	{ 2000 Odontoglossum crispum, and other Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	JAN. 28	{ Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms. Bulbs and Plants, at Protheroe & Morris' Rooms.

The Gardeners' Royal Benevolent Institution.

It is refreshing to have to advert to the affairs of this Institution, which are as satisfactory and hopeful as some others to which we have had to advert are the reverse. At the annual meeting, held on Friday, 13th inst., the usual resolutions as to the adoption of the report and balance-sheet were passed. Mr. Harry Veitch was re-elected Treasurer, Messrs. John Lee, Meston, and Willard as Auditors, Messrs. E. Tidswell, Jas. Webber, E. W. Cathie, G. Monro, and W. Richards as Arbitrators, and Mr. Cutler Secretary for the forty-seventh time. New members of the committee were elected in the persons of Messrs. N. Sherwood (Hurst & Sons), Roberts, Gunnersbury; J. Laing, Forest Hill; A. F. Barron, Chiswick; G. Woodgate, of Kingston; and H. Tillman, of Covent Garden. Three persons, viz., Elizabeth George, Patrick John Hanafy, Caroline McElroy, were placed on the list of pensioners, without the necessity of election, they (or their husbands) having subscribed to the Society for the specified period; and in addition to these and five others selected by the committee, four others, the next highest on the poll, were elected to fill the vacancies which had occurred since the voting papers were issued, the names of those elected being Thomas M. Wall, Matilda Charlton, Charles Pepworth, James Ewing, William H. Head, Elizabeth Horton, Henry Moxham, Francis Fuller, and Mary Nelson.

The usual votes of thanks were passed to the President of the Festival on June 29 last, and to the officers. The following is the text of the Report; the balance-sheet was published in our last issue:—

"It is with infinite satisfaction that the committee present their report for the year 1887, and they sincerely congratulate the subscribers on the great success that has attended their labours during that time.

"During the year fourteen pensioners have died, five leaving widows, and these having been found worthy, and having in every way complied with the rules, were, in accordance with Rule No. 7, placed on the pension list in succession to their late husbands.

"This being the year of Her Most Gracious Majesty's Jubilee, it was after very mature deliberation determined by the committee that some steps should be taken to mark that auspicious event, and it was eventually arranged that a special Jubilee grant of £5 should be made to each of the pensioners, and to each unsuccessful candidate at the last election, and that a special appeal for this object should be made

mittee have to announce that the Right Hon. JOSEPH CHAMBERLAIN, M.P., has most kindly consented to succeed Baron FERDINAND DE ROTHSCHILD as Chairman at the festival to be held in the ensuing summer, and they have reason to believe that, with such a distinguished President, the festival will be a grand success. The number of pensioners on the list is 114, to be this day increased to 126."

At the dinner in the evening a large number of subscribers and friends sat down, with the Right Hon. Sir ROBERT PEEL, Bart., in the chair, supported by Messrs. John Lee, N. Sherwood, Dr. Hogg, J. Veitch (Treasurer), T. F. Peacock (Hon. Solicitor), E. R. Cutler (Secretary), and others.

The Chairman remarked that it was with much pleasure that he was present on this occasion, and referred to the beneficent influence of horticulture, finally inviting anyone interested in the art to visit his gardens at Tamworth Court.

Mr. H. VEITCH, the Treasurer, in the course of his remarks, contrasted the present flourishing

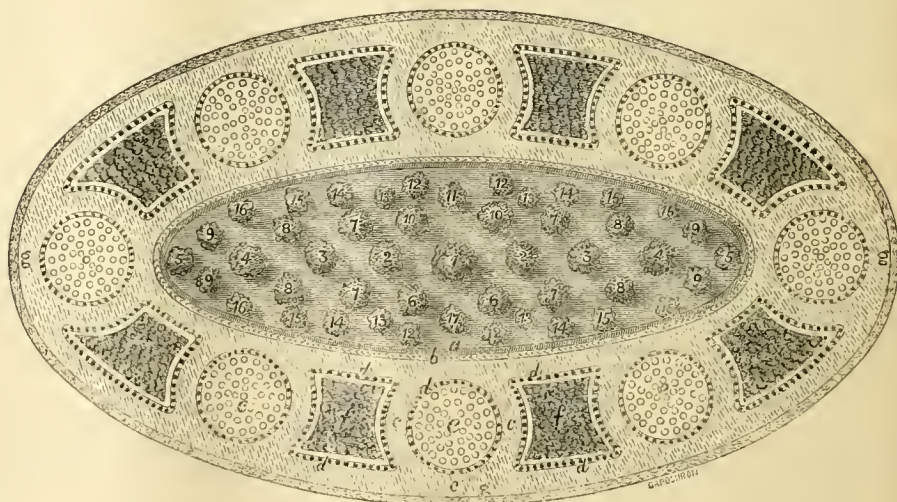


FIG. 13.—PLAN OF BED AT WILHELMSHÖHE. (SEE P. 83.)

REFERENCES.—1, Ricinus Gibsoni; 2, Nicotiana wigandoides; 3, Urtica bipinnatifida; 4, Solanum robustum; 5, S. betaceum; 6, S. pyracanthum; 7, S. Warszewiczii; 8, S. marginatum; 9, Cineraria platanifolia (S. petasites); 10, Solanum glutinosum; 11, S. atropurpureum; 12, Melianthus major; 13, Eutelia aborea; 14, Amicia zygomeris; 15, Solanum mammosum; 16, Senecio Ghiesbreghtii; 17, Urtica bipinnatifida. — a, Iresine Hoveyi (1 ring); b, Veronica Andersoni (1 ring); c, Antennaria tomentosa; d, Festuca glauca; e, Lobelia fulgens Queen Victoria; f, Anemone japonica Honorine Jobert; g, Alternanthera atropurpurea.

to the public and the horticultural world. This appeal, your committee are pleased to say, was nobly responded to, more particularly by gardeners, to whom special collecting-cards were issued, resulting in a clear sum of £677 12s. 2d.; this, with the donations, &c., received at the annual festival, have enabled the committee, not only to pay the largest amount ever distributed in pensions—viz., £2124 10s.—but also to make the proposed Jubilee grant, amounting to £635, without trenching upon the reserve fund.

"This has been with one exception the most successful year on record, and the committee have to return their best thanks and acknowledgments to Baron FERDINAND DE ROTHSCHILD, M.P., who so kindly presided at the forty-fourth anniversary festival on June 29 last, who, by his influence and his eloquence, added to his liberality and that of his friends, so materially assisted in securing a very large subscription list, and making the festival one of the events of the season.

"It is with infinite satisfaction that the com-

condition of the affairs of the Institution with what the condition was in former years, showing a steady and remarkable increase of revenue, a diminution of working expenses, and, what was still more satisfactory, an increased number of pensioners, stating that he hoped that in a few more years the income of the Institution would be such that all the applicants could be placed on the pension list without election.

Dr. R. HOGG said that, as far as he was concerned, he would do all in his power in the Press to advance the Institution, and was certain that other members of the Press would not be behind-hand in furthering the interests of the Institution.

With this bare outline we close our notice of an Institution which is obviously well managed, which effects a great amount of good, which is thoroughly worthy of the support of the fraternity, and which is likely to be even more useful in the future than it has been in the past. For

the great success it has achieved—its steady progress from the lowest point to its present sound financial condition—the thanks of the community are due to Mr. E. R. CUTLER, who, as we have said, for the forty-seventh time was elected as its Secretary.

DAFFODILS.—*On commence.* Mr. HARTLAND begins. He sends us flowers of his Ard Righ Daffodil, and also of the white *Narcissus moschatus*, grown in a cold frame and in a cold house respectively.

the flatter, flaccid, recurved pale green unbordered leaves, with fissured tips at an early age, and which are rolled back so that their tips reach or lay on the ground. It grows pendulous from the rocks along the Waitangi River in great abundance. The plant figured flowered at Torquay in the garden of Dr. LOMBE.

Ceratotheca triloba, t. 6974.—A beautiful stove herb, with racemes of Paulonia-like flowers. See *Gard. Chron.*, 1887, p. 492, fig. 99.

Thunbergia affinis, t. 6975.—A beautiful erect stove shrub, with large funnel-shaped flowers, with a curved tube, a purple five-lobed limb, with a yellow

inches broad, are so placed that the lip is uppermost. The three sepals are equal, ovate-roundish, green spotted with purple, and each prolonged at the apex into a long slender tail, lip with a curved stalk, and a rounded two-lobed hooded anterior lobe of an orange colour, with purple radiating lines on the inner surface.

HANDBOOK OF THE AMARYLLIDÆ.—We are pleased to learn that Mr. J. G. BAKEN's *Handbook of the Amaryllidæ* is in a forward state of preparation, and will be ready for publication in the course of a few weeks. It will be a cheap working hand-



FIG. 14.—GROUP OF FOLIAGE PLANTS AT WILHELMSHÖHE. (SEE P. 83.)

ORCHID CATALOGUE.—We have received a copy of the catalogue of Orchids cultivated in the Botanic Garden, Leyden, by Mr. H. WITTE, who prepared a similar catalogue in 1862. The present issue contains no fewer than 720 entries, it would have been interesting to have noted how many were included in the list published in 1862. Synonyms and references to books and plates are given, so that the book will, in spite of the proofs having been here and there imperfectly read, prove very serviceable.

"BOTANICAL MAGAZINE."—The January number opens with a coloured illustration of a new species of New Zealand Flax, called *Phormium hookeri*, t. 6973, differing from other species "in

throat. See *Gard. Chron.*, ser. 3, vol. ii., 1887, p. 460, fig. 94.

Prunus Jacquemontii, Hook. f., t. 6976.—A low growing shrub, recalling the old *Amygdalus nana*, with ovate lanceolate finely toothed leaves and small Peach-like flowers arranged in clusters along the sides of the branches. It is a native of north-west Himalaya and Afghanistan. Seed were sent from the latter country by Dr. AIRCROFT to Kew, where the plant flowered in May, 1887, the leaves not being fully developed till the following July.

Masdevallia Chestertoni, RENN. f. (*Gardeners' Chronicle*, vol. xix., 1883, p. 532), t. 6977.—A curious New Granadan species, with pendulous slender one-flowered peduncles. The flowers are about 2-2½

book of genera and species on the plan of HOOKER and BAKEN's *Species Filicum*, and his *Handbook of the Fern Allies*, published a year ago. It will, of course, contain a revised version brought up to the present time, of his synopses of *Narcissus*, *Crinum*, *Nerine*, *Agave* and *Fourcroya*, which have appeared in our columns, but exclusive of the *Hypoxidæ*. Sixty genera, and nearly 700 species of the order are now known, of these 500 have been brought in cultivation, although a good many have not become permanently established as garden plants.

THE PRICE OF POTATOS.—From a trade list just to hand we are able to gather some information as to the prices of seed Potatos. Taking into con-

sideration the fact that the crops of early varieties were light, they are yet extraordinarily cheap in price. *Magnum Bonum* is quoted at £3 per ton, or 3s. per cwt., and it seems difficult to realise that they can be grown and sold at such a low price, and yet made to pay. Other leading sorts, such as *Reading Russet*, *Schoolmaster*, *Myatt's Prolific*, *Early Regent*, *Climax*, *Imperator*, and *Reading Hero*, are cheap in proportion, and we are almost at the commencement, instead of being at the close of the season.

THE ROYAL HORTICULTURAL SOCIETY.—The following are the names of Fellows nominated for the Council at the ensuing annual meeting on February 14, when all the members of the Council will resign, but when it is proposed by the Council that certain members be thereafter re-elected and other new ones added. We understand that objections are likely to be raised to some of these proposals:—Sir Trevor Lawrence, Bart, M.P.; Robert Hogg, L.L.D., F.L.S.; Professor M. Foster, F.R.S.; D. Morris, M.A., F.L.S.; W. T. Thistelton Dyer, C.M.G., F.R.S.; A. H. Snee, William Lee, Col. Beddome, George Paul, Harry J. Veitch, Sydney Courtauld, E. G. Loder, Rev. W. Wilks, Baron Henry Schroder, and G. F. Wilson, F.R.S. Messrs Morris, Snee, Paul, Veitch, and Wilks are proposed to take the places of Major Mason, Mr. W. Haughton, Hon. and Rev. J. T. Boscawen, Col. Trevor Clarke, and G. Maw. As officers the Council recommend the following:—President, Sir Trevor Lawrence, Bart, M.P.; Treasurer, D. Morris; Secretary, W. Lee; and Auditors, Messrs. John Lee, Wm. Richards, and H. Turner.

PORTSMOUTH CHRYSANTHEMUM SOCIETY.—The annual dinner took place at the Royal Albany Hotel on Friday, January 13, F. Power, Esq., the Secretary presiding, the vice-chair being occupied by W. G. Ellis, Esq. Amongst the successful growers of the Chrysanthemum present were Messrs. KIMBEA, COLLINS, MOLYNEUX, DROVER, &c. The loyal toasts having been duly honoured, Sir W. King proposed the toast of the evening, "Success to the Portsmouth Chrysanthemum Show." He stated this was the third dinner he had attended, and what pleasure it afforded him to briefly notify how each season had been more successful than its predecessor, for though the society had given nearly £130 in prizes at its last show, yet they still had a balance of £121 15s. 1d. He was pleased to learn that the committee thought of keeping the next show open for three days. The Chairman, in responding, said they had received the support of some of the very best growers in England, such as Messrs. MOLYNEUX and DROVER. Messrs. MOLYNEUX and DROVER responded on behalf of the growers, the former remarking he feared that the three days would be a mistake; however, that was for the committee to decide, and suggested the offering of a prize less in value than the Cup, but higher than any money prize the Society has hitherto offered. Mr. DROVER coincided with Mr. MOLYNEUX's views, advocating the holding of a show the week before Christmas.

DRYING FLOWERS IN THEIR NATURAL COLOURS.—Dr. SCHÖNLANO kindly sends us the following details of his system of drying flowers:—"Take two pints of a saturated solution of sulphurous acid in water (which can be had at any chemist's, and is very cheap if bought in large quantities); add to this 1 pint of methylated spirit. Keep this mixture in a wide-mouthed bottle, which should be so tightly closed that the contents do not evaporate when not in use. Leave ordinary flowers in this mixture for about ten to twenty minutes; inflorescences of *Bromeliaceæ* and *Aroideaceæ* must be left in it about one hour. In most cases the colour will completely disappear, but it will gradually return during the process of drying, or even after the plants have become apparently quite dry. Having treated the specimens with the mixture for a short time, as stated above, take them out, and shake off the adhering drops of fluid. Leave the

plants in a dry, warm place, in order to dry them superficially (they must not be allowed to shrivel), and then dry them in the usual way between blotting-paper. If artificial heat is used in the latter part of the process excellent results are obtained; and it is not even necessary to change the drying-paper. If hotwater-pipes are available, it is very convenient to place on them the bundles containing the plants to be dried, which need not be subjected to very great pressure. As it is sometimes difficult to prevent flowers from collapsing, when using this method of preservation, and as often, it is almost impossible to spread out those flowers when they have collapsed, I often put them loosely between sheets of vegetable parchment before immersing them in the fluid."

BANBURY CHRYSANTHEMUM SOCIETY.—This Society has suffered a great loss through the death of its highly popular and able young secretary, Mr. F. G. DAY, after a very short illness. Mr. DAY, who was connected with a firm of solicitors in the town, brought to the discharge of his secretarial duties business qualifications of a high order, and his death is a very serious loss to the Society.

M. DEHÉRAIN has been elected into the Academy of Sciences—section of Rural Economy.

BRIGHTON AND HOVE CHRYSANTHEMUM SHOWS.—The dates for the above shows are fixed for November 13 and 14, and it may interest the many intending exhibitors among our readers to learn that the schedules will be ready by the first week in March, and may be then obtained from the Secretary, Mr. M. LONGHERST.

PREPARING ORCHIDS FOR THE HERBARIUM.—Several methods for preparing Orchids for the herbarium so as to preserve their colours have been tried by R. HEGLER, and the results given in the *Deutsche Botanische Monatschrift*. Salicylic acid was used with good success by dusting the dry substance upon the plants as they lie in the press. When they are taken out of the press the salicylic acid is removed from the flowers with a brush, and can be used for other plants. It specially preserves the intensity of the red colours. Powdered boracic acid may be used in the same way with nearly as good results. A solution of one part salicylic acid to fourteen parts of alcohol, applied by moistening pieces of blotting-paper and placing them above and below the flowers in the press, or by wetting absorbent cotton and putting it in and about the flowers, forms a simple method of attaining the same end.

OXFORDSHIRE CHRYSANTHEMUM SOCIETY.—The annual exhibition of this Society is fixed for November 20. Last year the income of the Society was less than its expenses, owing to various causes, but generally the shows prove financially successful.

LIGHT AND FLOWERS.—According to a paragraph in the *Journal of the Royal Microscopical Society*, Professor SACHS has been experimenting on the action of the invisible rays of the spectrum beyond the violet. The experiments were made on the common *Nasturtium* (*Tropæolum majus*), which was made to grow behind a glass vessel or screen filled with a solution of sulphate of quinine which absorbs the ultra violet rays, i.e., does not allow them to pass or transforms them into visible rays of less refrangibility of a light blue colour. The effect of so growing a plant exposed to light passing through a solution of sulphate of quinine was to develop the foliage inordinately and entirely to check the production of flowers. The experiments were numerous and compared with others where the light was suffered to pass through water in which latter case flowers were abundantly produced. It may then be assumed there are three distinct regions of the solar spectrum differing in their physiological action: the yellow rays which favour the decomposition of carbon dioxide and are active in assimilation; the

blue and violet rays, which are the agents in the movements of vegetation; and the invisible ultra violet rays, which cause the production in green leaves of the substances out of which flowers are developed. These are laboratory experiments, but it is quite conceivable that they might be turned to account by practitioners. Suppose, for instance, it were desired to retard the flowering of a particular plant, grow it for a time in the shade, so to speak, of a solution of sulphate of quinine! Seriously, we greatly stand in need of such experiments to set us thinking and acting in the future.

THE ARAUCARIA OF NEW GUINEA.—Among the plants of striking interest, observed by Messrs. CURRIERTON and SAYER during their ascent of Mount Obree, writes Baron VON MUELLER, one of the foremost is a coniferous tall tree, occupying rocky declivities at elevations from 6000 feet upwards. The careful examination of a fruit-bearing branchlet reveals the identity of this "Pine" with the *Araucaria Cunninghamii* of tropical and sub-tropical Eastern Australia, so well known in Europe as one of the noblest of conservatory trees. Dr. BECCARI, when ascending Mount Arfak in Dutch New Guinea in 1877 came across the same *Araucaria*, which he likewise pronounced as not distinct from *A. Cunninghamii*; but he noticed it at heights from about 3000—4000 feet, though the Italian explorer reached an altitude of fully 6000 feet. The occurrence of this *Araucaria*, on mountains so very widely apart in the great Papuan island, seems to indicate that much of the highland country there is likely occupied by this Pine, which fact—if it could be established—would be of geological significance and otherwise also be of physiographic importance. Professor DAVID DON, so long ago as 1838 (*Trans. Linn. Soc., Lond., xviii., 161*) considered it not improbable "that the interior of New Guinea might afford a species of *Araucaria*," an anticipation now realised. Mr. SAYER found the branchlets less vaguely spreading and more distichous than in the ordinary state of this tree in Australia. The *Araucaria Balanœ* from New Caledonia is closely akin to *A. Cunninghamii*, as characterised in Australia and New Guinea. Here it may aptly further be noted, that *Araucaria Rulei* was first described in the *Gardeners' Chronicle* for 1861, when a woodcut of the typical form was given.

THEN AND NOW.—A correspondent writes: "Just 101 years ago the *Botanical Magazine*, 'printed for W. CURTIS, at his Botanic Garden, Lambeth Marsh, 1787,' gave an illustration of *Cyclamen persicum* of MILLER, and it is represented by a white flower with a rose-coloured rim to the corolla, the segments being long and thin, the widest not half an inch in diameter, and representing the very worst type of the flower that could, perhaps, be found in a very bad strain of the present day. On the last day of the year we saw a batch of Giant White *Cyclamen*, a very fine pure white type, of great beauty and purity; and on spreading out the segments from the mouth of the corolla it was found the measurement from tip to tip was something over 4 inches, and the diameter of the segments quite an inch, and yet the freedom of bloom was as great as in the case of one of the commonest forms of the *C. persicum* type. Here, then, was a conspicuous example of the remarkable advance made in the case of the Persian *Cyclamen*; and not only have the flowers become greatly enlarged and refined, but our methods of culture are very different to what they were at a much less remote period; and now it is possible to sow the seeds in November of one year, and in the same month of the following year to have a fine plant carrying from twenty-five to fifty blossoms!"

MIDLAND INSTITUTE, BIRMINGHAM.—The following is the programme of lectures to be given at the Society's room, at 7.30 o'clock, on Tuesday evenings during the season:—January 17: "Florists and Florist's Flowers," by Mr. J. POPE. General discussion on the same to follow. January 31: "Flower Gardening," by Mr. W. WILDSMITH, Heckfield Place, Hants. February 14: "Alpine Plants, their Natural

Habitats and Cultivation," by Mr. G. GUTHRIE. February 28: "Medicinal Plants and the Drugs we get from them," by Mr. A. E. ROBINSON. March 13: "Cultivation of Fruit Trees in Orchard-bouses," by Mr. T. F. RIVERS, Sawbridgeworth, Herts. March 27: Reading of prize essays, and awarding of the prizes. The following prizes are offered for essays or papers; intending competitors to send in their papers to the Secretary, by post only, not later than March 17, such papers to bear a private mark or motto only; in no case must they bear the name of the competitor, or occupy more than ten minutes in reading. One person will be appointed to read the whole of the papers before the committee prior to the general meeting on March 27, when the successful papers will be read and the prizes awarded:—Single-banded Gardeners where no permanent help is given: The best twenty-four most useful plants for keeping the conservatory gay during the twelve months, with notes on their culture and time of flowering. First prize, 10s.; second prize, 5s.; third prize, 2s. 6d. Under-Gardeners: Twenty most useful herbaceous plants, with notes on their propagation and cultivation. First prize, 10s.; second prize, 5s.; third prize, 2s. 6d.

M. BALTET.—This well-known horticulturist has lately been appointed (as we learn from *Le Jardin*) Chevalier of the Legion of Honour.

LICHENS.—It will be known to many of our readers that of late years some botanists have come to look on lichens, not as distinct plants, but as associations of an Alga, or green plant, with a colourless fungus feeding upon it and keeping it within bounds, but not, as it seems, destroying it utterly. It is not wonderful that this explanation should be thought fanciful and incorrect, and the view is still warmly contested by those who study lichens from the systematic side only. Evidence, however, from various quarters concurs in showing that the notion, however strange it may appear, is correct. The first fungus detected belonged to the group Ascomycetes, in which the spores are produced in special sacs or cells, called asci. A few years since an Italian botanist followed up the subject by demonstrating the existence of a second type of lichen-structure characterised by the production of spores on cellular stalks, or "basidia," which latter are compacted together into a continuous mass, as in the hymenomycetous fungi (e.g., *Agaricus*). In a recent number of the *Philosophical Transactions* Mr. MASSEE refers the curious *Emericella* of BERKELEY to a new type of lichen, which he calls *Gasterolichenes*, inasmuch as it consists, according to him, of a fungus of the order Trichogasteres in association with an Alga called *Palmella botryoides*. BERKELEY seems to have narrowly anticipated SCHWENDENER's views.

A GROUP OF FOLIAGE PLANTS.

THE arrangement of the materials in the fine bed of foliage plants shown in figs. 13 and 14, for sending which our thanks are due to Mr. Karl Gotze, display variations from the methods usually adopted in English gardens. We will let Mr. Gotze describe them:—

The bed in question was several years ago laid out in the Royal gardens of Wilhelmshöhe, near Cassel, which is one of the many interesting and splendid spots in Germany. In former times Wilhelmshöhe was the favourite castle of the late Kurfürsten van Hersen, and since the Franco-German War it is well known as having been the place of captivity of Napoleon III.—a splendid imprisonment! The royal garden and parks, which are under the management of the Hofgärtner Franz Vetter, are open to the public daily, and thousands of visitors from all parts of the world come every year to visit the place.

The bed illustrated, measured about 34 feet in length, and 22 feet in the broadest part. The centre of the bed was filled with different foliage plants edged with a couple of lines, one of *Iresine Hoveyi* (a), the other of *Veronica Andersoni* (b). About

5 feet space was given for the broad edging (c), laid out with the white *Antennaria tomentosa*, whilst the circles were planted with the brilliant *Lobelia fulgens* var. *Queen Victoria* (e), the more or less square spaces alternating with the circles with the beautiful white flowering *Anemone japonica* *Honorine Jobert* (f)—both the *Lobelia* and *Anemone* patches being edged with a single line of the useful *Festuca glauca* (d). An outside edging to the whole consisted of two lines of the dark red *Alternanthera atropurpurea* (g). I was much struck with the appearance of the bed when I saw it, and, indeed, I doubt if any better way of displaying foliage plants could be found than is now represented.

The edgings of *Antennaria*, *Lobelia*, and *Anemone* were capital ideas, and contrasted well with the masses of the foliage plants. *Karl Gotze, Kensington.*

THE BULB GARDEN.

FREESIA CULTURE.

It is not an easy matter to assign any particular reason to the query of your correspondent, "R. H. L.," p. 52, as to why his *Freesias* "have not grown;" especially is this the case after careful reading of the note in question. "R. H. L." has evidently followed a good cultural routine generally, but is he sure of a perfect maturation of the bulbs after flowering last year?—for in this lies much of the secret of their successful culture; therefore, to have them continuously good year by year it is essential that a gradual yet thorough ripening of the bulbs be annually adhered to. From the report of your correspondent the bulbs are of good size and sound, therefore it is the more vexing that they do not start into growth. Since the bulbs in question appear to have been bought in 1886 it is not unlikely that these were imported ones, which usually flower freely in the first year, while many in the second year remain dormant, starting into growth the following autumn as though they had only taken their usual rest; this is particularly noticeable with small bulbs, and less frequently with large or what may be termed in the trade flowering bulbs. In one case in particular in my experience several hundreds of small bulbs remained dormant fully a year; these were the refuse from a large importation a year previous, while another batch of newly imported ones came up as thick as a bed of spring Onions in three weeks, and this after a prolonged rest. I do not think your correspondent acted wisely in placing them in a cool place after they had finished blooming. Why not have matured and dried them off under the same conditions where they "grew and bloomed to perfection?" It is not unlikely that thus placing them in a cooler place at the very moment when they needed the warmth as much as ever, has a deal to do with their partial failure this year. Certainly such a course is quite foreign to their nature, while it is freely given to plants of a more enduring and indifferent constitution with impunity, I should certainly never advocate such a course of treatment for the more fragile subjects, and the *Freesias* among their number. Generally their cultivation is not widely known—a fact much to be regretted, for they are beyond doubt among the most exquisite of fragrant flowers. The soil I prefer is equal parts of peat and fibrous loam, made very sandy, a free and abundant drainage, water sparingly at all times, with a thorough gradual ripening process. They appear quite indifferent as to how long they are kept dry, by which I mean to say, that bulbs may be planted in the present month (January) with as much success as those planted in October, with the additional advantage of making a long season of bloom. It does not appear that your correspondent has subjected his bulbs to excessive heat, or the failure might be attributed to this.

In conclusion, I am inclined to the belief that if your correspondent will (as I do) give his bulbs a thorough baking in full sun for six weeks, or there-

abouts, without water near them, and be content with starting them in October, he will be more successful than by his present method of preserving them in the seed cupboard, for in this place they lose absolutely what *Freesias*, *Ixias*, and such-like appear to enjoy, viz., sun, and which is so conducive to their well-being. *E. Jenkins.*

CULTURAL MEMORANDA.

ERANTHEMUM PULCHELLUM.

This pretty blue-flowering stove plant is not so frequently met with in gardens as it used to be, and deserves to be still. It is of very easy culture. Cuttings taken off now, and inserted singly in 3-inch pots, filled with an admixture of light sandy loam and peat or leaf-mould, watered and placed in heat, will soon take root. These, by judicious pinching and shifting into $\frac{1}{2}$ -inch and 6-inch pots at intervals, as they require more room at the roots, and by keeping the latter sufficiently moist, will make nice bushy plants by next autumn. Well-flowered plants of this *Eranthemum*, *Encharis amazonica*, and scarlet-flowered *Begonias*, intermixed with Ferns, are very effective, whether arranged in groups in the house, or on the stages in the stove and conservatory. *Eranthemum igneum*, a stove plant, with handsome bronze foliage, for which it is chiefly valued, can be propagated at the same time, and in the same way.

CAMELLIAS.

These do well in a minimum temperature ranging between 45° and 50°, giving the plants 5° more by day with fire-heat, and running it up to 75° with sun-heat. When the soil has become moderately dry in the tubs and pots water should be given, and in the case of very well rooted plants liquid manure may occasionally be afforded them. Plants in borders will require but little water at this season, unless they are very small and shallow ones, filled with the roots of the plants. In that case great care must be taken to prevent flagging, which would be followed by the loss of the greater number of the flower-buds. This loss of the buds will sometimes occur when a plant stands too near the heating apparatus when hard driven in severe weather. Soot-water is a useful stimulant for the *Camellia*. *H. W. W.*

FLORISTS' FLOWERS.

PLANTS IN FRAMES.

No sooner do we enter into the new year than active operations are required amongst these interesting occupants of our gardens. If the weather is favourable there is much to be done out-of-doors amongst the flower beds and borders, and in mild weather the occupants of frames can be overhauled, *Auriculas*, *Primulas*, *Carnations* and *Picotees* examined for insects, and to remove weeds or any parasitical growths from the pots and from the frames. Cleanliness is absolutely necessary for the health and vigour of plants. Efficient ventilation is also of much importance. I have seen the frames of these hardy flowers closely shut up in cold dry weather, when it would have been much better to have had the lights drawn off altogether. Plenty of dry air is the life of the plants at mid-winter. Shut up in foggy and wet muggy weather.

The plants of the show varieties in frames are looking well, and if they are to be placed in a house must be attended to very soon—not later than February 1, at any rate. If the house has had other occupants, and these are removed, the glass and woodwork must be cleaned, and the pots washed, and the plants themselves made clean. Excepting greenfly and the woolly aphis, no other insect troubles the *Auricula*; but as the one attacks the leaves while the other is paying attention to the roots, it may be supposed to be enough. Any of the

woolly aphid that may be upon the necks of the plants should be removed, and some fresh compost pressed round in place of the old. If the weather be mild the seedling plants will push into growth even more rapidly than the others, and require to be potted on; the largest plants may be ready to be planted in small pots, and the tiny ones, with, perhaps, only one leaf besides the seed-leaves, are pricked out also in small pots, but from six to a dozen in each, according to their size. The compost for these must be of a lighter and more sandy nature than that used for large plants.

AURICULAS OUT-OF-DOORS.

These have succeeded admirably during the winter, and they now look quite green, with the hearts round and firm; the few large outer leaves have quite decayed, and must be now removed, at the same time pressing in the plants with the fingers if necessary. I like to leave the soil round the plants undisturbed, merely removing the weeds, and leaving any green moss to remain, as the plants have a much more charming effect amongst moss, that is, if it is naturally grown.

The plants succeed best in positions where water drains away quickly, if the soil is of a medium or even heavy clay I find they do not mind exposure to the sun; of course, they must not be dried up by want of water, as well as much heat, in summer. *J. Douglas.*

CHRYSANTHEMUM GOLDEN GEM.

Those of my brother gardeners who have not yet added this variety to their stock should not fail to obtain it. For the embellishment of the conservatory and house throughout January it will be found very valuable, being robust, of dwarf habit, with that good quality of retaining its foliage well up to the season of its flowering. All those who have grown it are indebted to Mr. Owen, The Floral Nursery, Maidenhead, for a valuable addition to winter flowering varieties. *H. Vickery, Huntsmoor Park, Iver.*

FORESTRY.

Prompt attention is required when snow falls to prevent the destruction of the branches of evergreen trees and shrubs, and to do so effectually long and light poles should be provided, and if these are provided with a hook at one end so much the better, and placed in the hands of careful workmen. Every tree and shrub, it may be well to say, will not require to be divested of the accumulated snow on the branches, but only such as from their weighed-down appearance show that they are in danger of being broken; indeed, no better covering than a mantle of snow could be afforded.

Here it may be well to inform the "snow-shakers," but particularly those of the thoughtless caste, that "the last straw breaks the camel's back," and so it is with the snow-laden branch, for unless it be carefully divested of its burden, evil and not good is sometimes the result; therefore, never clasp the branch with the hook and pull downwards, but gently shake it from side to side, and afterwards in any way that may be found most convenient. If there is a specimen, be it big or small, of that lovely Conifer, *Cryptomeria elegans*, in the ground, give it first attention, for it gets badly broken by heavy snowfalls. Amongst shrubs the Yew and Box, as well as the *Laurustinus* and *Escallonia*, will require early attention during or immediately after a fall of snow, but being of low stature their wants are by no means difficult to attend to. In the nursery, too, we have often found it necessary to send a few men round with short sticks to shake the snow from off the more brittle-wooded and dense-foliaged plants, as well as to pay particular attention to those that have been recently grafted, as even a small weight of snow on the scion may cause it to become detached from the stock, and so a season's growth is lost. Indeed, a general look round the park woods and nursery immediately after, or even during a heavy and still falling snowstorm, is time well spent. *A. D. Webster.*

USEFUL INVENTIONS.

THE MYTICUTTAH.

UNDER this rather odd title the Standard Manufacturing Company of Derby have introduced a form of pruning-knife suitable for pruning shrubs, hedges, Rose bushes, and the like. So far as the cutting

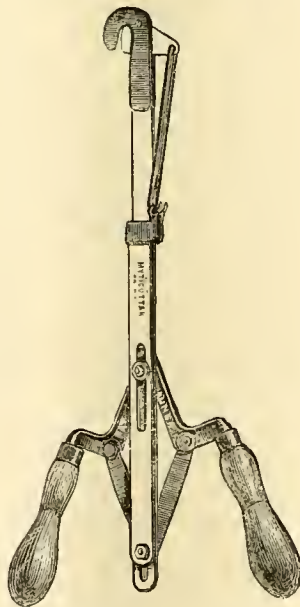
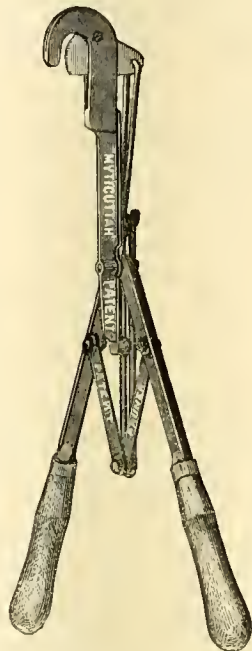


FIG. 15.—THE "MYTICUTTAH."

part is concerned, the new instrument is substantially the same as the "Standard Tree-pruner" sent out by the same firm some years ago, but the knife is moved by a slide, which works up and down the shaft, and is itself moved by two levers, by pressing which the cut is easily and swiftly performed. We have had considerable experience with the "Standard Tree-pruner," which does its work so easily and so well, that we were prepossessed in favour of the smaller tool, in a way that we should not have been by the mere inspection of

the implement when not in use. We can imagine any one looking askance at these weapons, but only let him see them at work—or, better still, use them himself—and he will be, as we were, as much delighted as surprised. This having been our experience with the tree-pruner, we lost no time in trying the "Myticuttah," when something of the old feeling of surprise came over us at the great power of the instrument, the ease and comfort with which it can be used, and the excellent way in which the work is done. In spite of frequent and often rough usage during two or three years, the Standard Tree-pruner has never needed repair or even sharpening, so that if the Myticuttah should prove, as we believe it will, to possess the good qualities of the parent, a boon will be placed in the hands of the workman of no ordinary nature.

ERIOSTEMON OBOVALIS *fl. pl.*

ONCE upon a time it was stated that there were no double flowers in Australia, then that they were rare, then that they only existed in cultivated plants, and that Australia was young in cultural matters, therefore there was a scarcity of double flowers. Most of these propositions have been overthrown by the progress of discovery, so that now-a-days it would be easy to find acceptance for the belief that the proportion of wild double flowers is about the same in Australia as anywhere else. Be this as it may Baron von Mueller has lately sent us flowers of an *Eriostemon* bearing numerous double flowers towards the ends of the branches. This plant would make a very pretty greenhouse plant, but it would of necessity have to be propagated by cuttings, as it could not produce seed. As cuttings form, however, the usual method of propagation, this defect is of no moment. The flowers are doubled by the multiplication of the petals and by the development of the stamens in spiral lines along the prolonged thalamus. To those conversant with the conformation of *Rutaceæ* these structural peculiarities will be seen to be of considerable interest, the more so as few double flowers have hitherto been recorded in this order.

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

MAHERNIA ODORATA, OR GLABRATA?—This is a charming old Cape plant, which I fancy has been long lost to European gardens from its life never exceeding two years, and requiring continual re-propagation by cuttings. It is figured by Andrews in vol. ii. of the *Botanists' Repository*, plate 85, and also in the ninth volume of Morren's *Belgique Horticole*, plate 19. It has yellow bell-shaped flowers, produced in great profusion, which exhale the perfume of the Jonquil, and one plant is said to perfume an entire greenhouse. It does well planted out during the summer. Plants of this introduced—good old plants—are now offered in New York at 30 cents, or two for 2s. *W. E. G.*

BRUGMANSIA CULTURE.—If Mr. Freeman's conservatory is not too small, I advise him to plant his *Brugmansia* out in free soil. This will save him a deal of trouble and his plant will grow more vigorously and flower more profusely than if grown in a tub or pot. The finest flowered *Brugmansias* I have seen have been planted out and a huge specimen I saw last year was planted out in a small border completely filled with roots, and yet it received no manure, only an annual top-dressing of good loam and leaf-mould. The chief points to observe with planted-out *Brugmansias* are to give ample drainage, so that the plant may be deluged with water during active growth, to give it good root-room in a soil of loam and leaf-

mould, to prune it annually after flowering as hard as possible, and to thin out the weakly shoots in spring. If the plant is young and small when planted out a little manure-water now and then will assist in building up a strong specimen, which is the object in view. After that little attention is required. The house should be cool and airy as most conservatories are. A profusely flowered *Brugmansia*, whether the red sanguinea or the white arborea or suaveolens, is one of the grandest sights that an autumn garden can produce. *W. G.*

PEA, THE STURDY.—This is not only one of the very best quality Peas, but it is equally good in cropping qualities. Last June I made two sowings of it, by the side of my especial favourite, *Ne Plus Ultra*. The season of course was an extraordinary one for trying the constitution of Peas; still, the one under notice withstood the severe test exceptionally well, yielding us remarkably heavy crops late on in the season, of large and well filled pods containing as many as from nine to eleven good Peas in each. I think it almost needless to say that any variety which grew and produced satisfactory results under such a trying season as that of last year, is well deserving of mention through your columns before the other sheets are completed. *H. Markham, Mereworth Castle.*

THE ROYAL HORTICULTURAL SOCIETY.—I think that in the second paragraph of your leading article last week, you struck a note which will find response in the minds of many of our Fellows, and which many seem to have overlooked. Are we not getting too botanical? Let me put the case as I feel it. Our charter was granted to us for the promotion of horticulture. On referring to the dictionary I find that word to mean, "the art of cultivating or managing gardens; the cultivation of a garden; the rearing and management of flowers, fruit, and vegetables in a garden." The dictionary may be wrong—I may be wrong; but I would suggest that the above is a very good description of what we ought to do. Take the history of a newly introduced plant: its first visit is rightly to Kew, where it is properly examined, dissected, and classified, and its proper place in the botanical world settled; specimens are carefully dried and put away for future reference, and having been scientifically described, it is given a Latin name, after which, unless it possesses some medicinal or utilitarian properties, or is of exceptionally botanical interest, it has practically done with that excellent establishment. Now it comes to us, say the Royal Horticultural Society: we begin striking, grafting, layering, &c., as the case may be, to find out the best means of propagating it; then seedling or hybridising it with some other allied species, to see whether we can improve or raise varieties of it; the results are then brought before one of our two committees (who are doing the real work of the Society), either Fruit or Floral, as the case may be, and adjudicated upon; and it is quite possible that in after years, if some of these results were sent back to Kew, they would have to look twice at them to recognise their old friend. The Society, then, might to see that these plants are brought properly before the Fellows and the public, and superintend, as it has often most usefully done, the distribution of them. There is plenty of work both for scientific botany at Kew, and practical horticulture for the Royal Horticultural Society. When we begin to get botanical we are trenching on the prerogative of Kew: this I maintain is a mistake—we ought to be purely practical: if we are not practical, we are not carrying out our charter. *W. Marshall.*

—I fully endorse your sensible, truthful and practical remarks relative to the ill-fated Royal Horticultural Society, of which I have been a Fellow for a very long period under the three Presidencies of Lord Aberdeen, Lord Bury, and Sir Trevor Lawrence. Surely, with influential members on its Council, there should be no difficulty in getting the amount of £3000 for the current year. Let the present small band of Fellows double their subscriptions, and in return let them be presented with an additional transferable ticket for one of their family. If our present worthy President organised an entertainment in May, in the shape of a bazaar, afternoon reception, ball, or night *fête* it would bring a certain amount of grist to the mill. *H. Guedalla, Lynwood, Bath Road, Bournemouth.*

—I believe that we must have now as our President a member of the Royal family, and we must hold one show a year at least in the country, as the Royal Agricultural Society does. That Society would not exist if it were not for the itinerant shows. Well-

wishers of the Royal Horticultural Society must remember that nine out of ten horticulturists never come to London; moreover, according to the *Journal of Horticulture*, the fortnightly meetings next year are all fixed for Tuesday. How is it possible for gardeners to send up parcels, unless sent on the Saturday, to arrive in time for the committee. No parcel sent on Monday morning by post or otherwise is delivered until Tuesday afternoon. It appears to distant country gardeners that those living near London get advantages which should be shared by the country at large. *W. C. K.*

CHRYSANTHEMUM JUDGES.—It would be exceedingly interesting if "Exhibitor" (p. 817, vol. ii, 3rd ser.) would define what he means by a "theorist" in relation to Chrysanthemum show judges. The trotting out these hackneyed and contemptible phrases, "theorist" and "practical," as applied to horticulturalists seem to indicate that "Exhibitor" is a disappointed person, who seeks to vent spleen upon fancied sections, because hard-up for argument. Possibly the definition is to be found in the late wish that "only growers who have distinguished themselves" should be appointed: that is proceeding very much on the principle that "he who judges fat oxen should himself be fat"—an absurd condition. But are there no men who are presumably theorists who have not the judging capacities in regard to the properties of Chrysanthemums, which growers only are assumed to have? Where are there six men who have, or at least had, better reputations as Chrysanthemum judges than Messrs. J. Wright, G. Gordon, G. George, J. Douglas, R. Dean and W. Earley, for



FIG. 16.—*ERIOSTEMON OBOVALIS*: DOUBLE FLOWERS.
(SEE P. 84.)

instance?—and yet I am not aware that either of these are, or for a long time have been, growers, much less exhibitors of Chrysanthemums? If such broad-minded men as these are to be shut out from making awards, in what respect can confidence be placed on their judgments? Chrysanthemum growers get to be rather egotistic, and somehow seem to hold that only those who grow flowers can be expected to know what a good flower should be: that is an absurd idea. Still farther, a man may be an excellent grower but have the most narrow and non-judicial mind. The wrangling and jangling that visitors to Chrysanthemum shows are too often troubled to hear from exhibitors after the awards have been made, prove that men may be the best of growers and the worst of judges. To grow plants or flowers well is one thing, to be able to judge well is quite another, and far from being the characteristic of all. The best of judges is the man who goes to his work with ample knowledge and a perfectly open mind. The worst judge is the man who is readily open to bias, or enters upon his work with strong prejudices in reference to the subjects of his work. I am at a loss to understand why it is more desirable that the name of the judges at Chrysanthemum shows should be published in the schedules than in the case of other or mixed exhibitions. In myriads of cases such an arrangement is not possible, and even if it be done, in no case can it be shown that the work is better done or the awards more equitably made, than is the case when there is no such publication. If confidence be placed in the executive of a society that it will honourably conduct a show and discharge faithfully its pecuniary obligations, certainly faith may be placed in that body that it will provide good judges. This demand no doubt arises from some disappointed person, who puts his want of success rather to the credit of some unfortunate judge than to his own inability to produce

good exhibits. It is useless to expect that with even angels as judges everybody would be satisfied. No matter who makes the awards the unsuccessful exhibitors are ever discontented; and then they put forth all sorts of suggestions with respect to the judges, as palliatives. Exhibitors should remember that even if judges' names were published in the schedule, yet a score of things may arise between its issue and the show to prevent one, two, or more from attending. In such case what has been gained by publication? The only satisfactory arrangement would be found in having at shows all prizes and no blanks. *Spade.*

THE WEATHER IN SCOTLAND.—An Aberdeenshire correspondent, writing under date Saturday, the 14th inst., says:—During the present week the weather has been of quite a phenomenal character. The temperature on Sunday and Monday was as high as 55° and 56°, which is said to be the highest point it has reached in Aberdeenshire at this period of the year since 1868. Bees were working as if it were summer, and wasps are reported to have been observed near Aberdeen.

FORCING THE SKIMMIA.—At p. 19 it is stated that the *Skimmia japonica* "forces well." As I have never seen or heard of *Skimmias* being forced, I should be glad to know what advantage is gained thereby. It is so unusual to force an evergreen that the statement is singular. *Enquirer.*

ARAUCARIA IMBRICATA.—There are in these gardens two fine specimens of this tree which were planted about thirty-five years ago, but which, although apparently in robust health, are gradually losing their lower branches. I should be glad to be informed if this loss of branches is the natural consequence of age, and whether there is any remedy for it. The trees stand on an eminence close to the coast, fully exposed, and have a stronger and more compact habit than I have noticed in others planted in more sheltered positions. The soil is a light loam resting upon limestone. *Edwd. Cockbill, Clevedon Hall, Somerset.*

THE PRICE OF HONEY.—My experience as to the difficulty of obtaining a fair price for British honey exactly corresponds with that detailed by an "Amateur Beekeeper" in your number of January 14, and agree with your correspondent that Mr. Chitty's felicitations are altogether illusory, not only in regard to the prices offered in London, but in the country. I was induced to extend my stock of bees from hives, and to provide myself with a number of appliances connected with the modern system of bee-keeping, by representations as to the assumed demand and profitable sale of pure honey. Although I did not indulge in all the mechanical aids recommended by professional apiarists which fill a good sized catalogue, I spent a considerable sum in the belief that I should be reimbursed by the sale of the produce of my hives, and my disappointment is very real when I look upon my large unsold stock of sections filled with honey as good as can be produced in this country, for I provided my bees with a succession of the best nectar producing flowers, and I am satisfied that the result has justified that experiment as far as the quality of honey is concerned. I was induced at the end of the last year to send examples of the produce of my apiary to a honey fair held annually in a neighbouring town: eighty-eight sections of comb honey out of 105 remained unsold. I was induced by the representations made in your columns by your bee correspondent, Mr. Chitty, to purchase an extractor, which was said to combine every good quality. I found the instrument troublesome to work and practically useless, and it has remained a dead loss on my hands. *W. Ingram, Bevoise.*

GARDENERS' ORPHAN FUND.—This excellent institution is so exceptionally deserving of generous support, that one would think it almost impossible for any gardener, having the slightest sympathy for the destitute orphans of deceased members of his own profession, to withhold altogether his support from such an institution; at the same time I can quite understand some gardeners having large families, and not receiving very high wages, not being able to become subscribers of 5s. per annum, although many would cheerfully give a smaller amount; this being the case, I have been wondering by what means suitable opportunities can be given to such as would like to give their small

silver or pence, therefore, I will take the liberty of making the following suggestion, which I hope the committee and gardeners generally throughout the country will find worthy of consideration, viz., that the committee shall consider the advisability of having some suitable money-boxes made, each one to be numbered and have the words "Gardeners' Orphan Fund" printed thereon, these boxes to be supplied gratis to all gardeners, managers in nurseries, nurserymen, or secretaries of gardeners' associations and flower shows who may choose to have them to place in suitable positions for the reception of voluntary contributions in the way of pence from the men under their charge. But in order that all contributions shall be purely voluntary, and that under gardeners shall not think that the head gardener or manager wishes to take undue advantage of his position, I think it would be wise to consult them in the matter and see if there is a general desire for a box to be placed in the establishment. If this is done, I would venture to predict that in nine cases out of ten the box would be most welcome, and contributions cheerfully given. In no case should the thing be forced, but, on the other hand, the men should be made to clearly understand that the question of giving is purely optional and in no way compulsory. Something may also be done by placing a box upon the table at the meetings of the various gardeners' societies and flower shows throughout the country; of this, I am quite sure, inasmuch as I have received the ready permission of the members of an important gardeners' association in the Midlands, to place a box upon the table at their fortnightly meetings, and this I have done with fruitful results. My own men under me, too, expressed a desire for a box in which to drop a copper occasionally, and as you may guess, the want has been supplied. Would it be too much to ask honorary local secretaries to undertake the distribution of such boxes in populous districts and collect their contents twice a year? In the case of a popular secretary I think this would be a great advantage. I myself being a local secretary in a large district, shall be only too pleased to do all I can to forward the movement, and I now appeal to my fellow gardeners to come forward and let the committee see that there are willing hands and hearts to help them forward in their charitable work, for I know of no charitable act more genuine than when a person does or gives something to relieve the wants of friendless and fatherless children. I shall be glad to see the opinion of gardeners in higher position than myself, for which, I am sure, you will gladly find space. *J. H., Birmingham.*

THE TWO BEST GARDEN PEAS.—If our garden Peas were reduced to two varieties, and the two mentioned by "Daring" retained, this would have the effect of reducing us here to one variety—*Ne Plus Ultra*—as *Veitch's Perfection* is not worth growing on our soil. I had seen this variety do so well in several different counties, that I decided, on coming here, to grow it largely. The first season I sowed 4 quarts for a trial, and I question if the produce was as much as the seed sown. I tried it for two more seasons, with the same result. Since then British Queen has been grown instead, and if I were confined to one variety this is the one I should choose. *E. Butts, Leigham Court, Streatham Hill.*

—"Daring" is justified in using his cognomen. Apart from the needlessness of selecting two Peas only out of some 200 or more kinds, there is much courage needed to name the particular two, and it is very probable that no two gardeners would entirely agree. In the first place, so far is *Veitch's Perfection* from being an early Pea, even if sown early, that many good kinds will beat it for speed a long way. In the second place, even if sown early, the seed being of a soft, wrinkled nature, is very apt to decay when the spring is cold and wet. I should never think of making a selection of garden Peas that did not include William the First for early work as being the best all-round early Pea we have. I do not mind asserting that two or three dishes of first early Peas, if not gathered too quickly, are more delicious eating than are any which follow, when Peas become abundant. But were I going to make a definite selection of a couple of Peas, I should prefer *Sharpe's Triumph*, a superb wrinkled marrow of medium height, and a great cropper, without in any way being stigmatised as an exhibition variety. Then for the other, commend me to *Sutton's Latest of All*, also a marrow of medium height, with pods as green as those of *Ne Plus Ultra* are, and borne in great profusion for a long season. It is only a question of period of sowing to have these two fairly dwarf Peas cropping from July to October. Add William the

First for first early cropping, and my selected trio is complete. However, in face of the fact that some twelve to fifteen new kinds of Peas have been just added to our lists, we may defer selection of two only to the Greek Kalends, *Spade.*

LAPAGERIA ROSEA IN THE OPEN AIR.—It may perhaps interest some of your readers to hear that we have against the wall of the mansion facing south a plant of *Lapageria rosea* in fine bloom. The foliage is very robust, and the flowers of very deep rose colour, and very beautiful. It is quite in the open air, and has received no protection whatever during the year and a half that it has been in its present position. It was originally in our conservatory, and since its change of quarters it has done much better than when it was indoors. The soil in which it is planted consists of peat, strong loam, and mortar rubbish. It has withstood 18° of frost, *C. Hazel, Gaunt's House, Wimborne.*

BEDDING OUT.—If the exigencies of space had permitted the Editor to insert my letter on this subject in full in the issue of December 17 last Mr. Jeffreys would have seen, from the combination of plants that were suggested, the idea I wished to convey was that of a series of groups in an irregular border, and that in each the aim was to let permanent plants form the greater part of each group, the intervening spaces being filled in with summer bedding plants, which spaces could, of course, as well be filled with plants that bloom in the spring and early summer, and which could be removed in time to plant others that will make the garden gay during the three summer months when most wanted. In the case of bulbs it would not be necessary to remove all of them before planting other things. In a border that has a margin of *Crocus* 1 foot wide the space occupied by them could be planted with *Ilernaria glabra* before the *Crocuses* begin to grow in the spring, spaces filled with *Scilla sibirica*, and we plant blue *Lobelia* between them just as the foliage begins to decay. If the ground be planted with the autumn *Crocus* the foliage of these will cover the soil in the spring, and as soon as it dies off *Mesembryanthemum cordifolium variegatum* can be planted between, which if pegged down close at the end of August will make a beautiful carpet to show off the *Crocus* which will appear in September. In a straight border here we have clumps of different varieties of border *Narcissus*, 2 feet across, placed at regular intervals: these make a good show when in bloom, but the bulbs are so thick together that it is impossible to plant between them; so as soon as the foliage turns yellow and looks untidy we cut it off, put a little good soil on the top, and plant some of the dwarf *Sedums*, such as *Sedum glaucum*. These are only a few instances, to show how much may be done to make a garden interesting at all seasons of the year. *G. B.*

BEE-PLANTS FOR LARGE BEE FARMS.—Planting for bees has already been considered in the *Gardeners' Chronicle*, and several plants were recommended, but hitherto small patches of ground, or at the most plots of 2 or 3 acres only, were thought of. I have lately turned my attention to the matter on a much larger scale. There is no hiding the fact that land is going out of cultivation—land which ought to and might be made remunerative. Large bee farms might be established in many places. No person in England better understands how to turn bee farms to account than Mr. Simmins, of Rottingdean. In his book called *A Modern Bee Farm*, he clearly points out how a few acres of land may turn out profitably for the farmer and the beekeeper. In planting note these words, which are his:—"Bees need at least six weeks to regain lost numbers after winter is past; they require just as much time to settle down quietly before the cold season comes on." As I can fully endorse this, it is evident that very late forage for bees is undesirable. Mr. Simmins mentions the following as excellent:—*Melilot Clover*, with *Borage*; *Trifolium*, *Sainfoin*, and white *Clover* with *Crocuses*. The words in italics mean that the two crops are to be in the same piece of ground at the same time. For instance, a large piece of ground could be filled with *Crocus* corms, about 6 inches apart. These and white *Clover* could be planted at the same time. In the spring the *Crocuses* will come first, and will not be in any way injured by the *Clover*. After the *Crocuses* are gone off the *Clover* would come into bloom, though of course not immediately. The gap could be filled up with *Sainfoin* or *Trifolium* in another field. In July the

Clover could be cut, and the grass of the *Crocuses* would come off with the *Clover*. Then a second crop of *Clover* would follow, and thus three crops could be got off one piece of ground in a year. There would be no difficulty in disposing of the *Clover*. So with *Melilot Clover* and *Borage*. The ground can be prepared, and these planted at the same time, and in this case there would be two crops off one piece of ground. In the cases mentioned very little time is required to clear the ground. This is important, as time could not be spared by the beekeeper for much clearing of ground. *Walter Chitty, Peasey.*

EVIDENCE OF SPRING.—A market gardener who grows fruit somewhat largely for market stated the other day that the Pear buds were plumping up fast, and becoming very brittle, owing to the mildness of the season, and in the course of pruning there was great danger of breaking the buds off. The moral he drew was that it is advisable to prune without delay. As the weather is now frosty and drying, it is a good time to get through the necessary work of pruning. *R. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 10.—Present: Mr. F. P. Pascoe, Vice-President, in the chair; Messrs. Boulger, Lynch, Smith, O'Brien, Michael, MacLachlan, Ridley, Murray, Morris, Smee, Wilson; Professors Church, Scott, Ward; Drs. Low, Masters; and Hon. Secretary, Rev. Professor G. Henslow.

Hybrid Rhododendrons.—Messrs. Veitch & Sons sent five hybrids between East Indian forms, interesting as showing the effects of colours. The crosses were as follows:—1. Female, *Rhododendron jasminiflorum*, from Malacca (white); male, *R. Curtisii*, from Sumatra (small and scarlet). 11yb., scarlet corolla, a little broader than that of the male parent. Effect: male transferred colour and form; female had no effect. 2. Female, *R. jasminiflorum* (white); male, *R. javanicum* (orange-yellow). 11yb., *R. j. carminatum* (bright red). Effect: male transferred the red colour, but the white female eliminated the yellow. 3. Female, *R. Maiden's Blush* (very pale pink); male, *R. T. Teymanni*, from Sumatra (pale yellow). 11yb., *R. Primrose*. Effect: yellow male transferred colour, unaffected by female. 4. Female, *R. Princess Alexandra* (large and white); male, *R. Curtisii*. 11yb., *R. Eclatant*, bright red. Effect: male transferred colour, female imparted size. 5. Female, *R. Monarch* (a hybrid from *javanicum*, but of a more pinky tinge to the orange); male, *R. malayanum* (very small, diameter three-quarters of an inch, but bright red). 11yb., *Little Beauty*, diameter 1½ inch, bright red. Effect: male transferred red, and eliminated the yellow. The general results observable are—1. The prepotency of the red male flowers and the impotence of white females to affect the offspring. When yellow is present—e.g., in orange—then either white or red can eliminate it (Nos. 2 and 5). The *Princess Alexandra* (female white of No. 4) arose in a similar way. A cross between the larger-flowered *R. javanicum* (orange) with the smaller *R. jasminiflorum* (white) gave rise to *Princess Royal* (rose), the yellow disappearing. A further cross of the last with the parent, *R. jasminiflorum*, now eliminated the red; the offspring, however, retained the form and large size of the corolla of *Princess Royal* and *R. javanicum*. Mr. O'Brien observed that a similar elimination of yellow had occurred in *Begonias*, for *B. Sutherlandii* (orange) crossed by *B. parvifolia Dregii* (white) had given rise to a red-flowered offspring. *Abutilons* afforded another instance.

Rhododendron Carringtoniae.—Baron von Mueller sent a description of this new species, which occurs on almost inaccessible declivities of Mount Obree, at elevations of 6000–7000 feet. The corolla is white. (From *Vict. Naturalist*, November, 1887.)

The Silver Fir Acclium.—Mr. Plowright sent the following communication with specimens:—"The extreme tip of the branches of the Silver Fir are often found bare of leaves and variously swollen and distorted. This condition has been assumed to be the result of injury from their having been bitten off by squirrels or other animals. In the specimens sent herewith, which have been given me by Mr. H. Munro, of Cleveland, Lyme Regis, the mischief is

caused, not by animals, but by a fungus, the so-called Peridermium columnare. Robert Hartig worked out the life history of this fungus in 1880. He found that the *Æcidium columnare*, A.P.S., is a heterocisical fungus, the teleutospores of which occur upon *Vaccinium Vitis-Idæa*, and are known to mycologists under the name of *Calyptospora Goepertiana* (J. Kühn). The *Calyptospora* is not a British species, so that it is difficult to account for the presence of the acidospores. (R. Hartig, *Forst und Jagdzeitung*, 1880; *Lehrbuch der Baum Krankheiten*, p. 56—61, t. 2.) Professor J. Kühn has, however, recently repeated Hartig's cultures, with this result:—He finds that there are two *Æcidia* on the Silver Fir, the true *Æ. columnare* of Albertini and Schweitz, which has for its teleutospores *Calyptospora Goepertiana* and another *Æcidium* much resembling *Æ. columnare*, but with a different life history. This *Æcidium* he proposes to call *Æ. pseudo-columnare*, and it is most probable that the fungus which has injured the accompanying shoots of Silver Fir is Kühn's plant."

Potato with Incaerated Beetle.—Mr. MacLachlan exhibited a Potato perforated and with a large internal cavity. A predacious beetle, *Pterostichus madidus*, had somehow entered and apparently could not escape. The lining of the cavity, which had seemingly been excavated by some animal, was provided with a strong layer of cork cells.

Aluminium in Plants.—Professor Church called attention to the fact that though large percentages of this metal are well known to exist in Lycopodiaceae, it was not hitherto suspected to be general in flowering plants, a Japanese chemist having discovered it in *Rhus vernix*, &c., in the gum of the lacquer resin. Professor Church examined Cherry tree gum, gums arabic, tragacanth, &c., and found traces to be invariably present. In the *Analyst* for January it is stated that it is also invariably present in the gluten of Wheat, in this case as a phosphate of alumina. It does not occur in association with the starch. From the precautions taken it could not have been due to the millstones. In all cases it is probably accidentally absorbed by the roots, and plays no part in vegetable physiology.

Orthozia insignis, Coccus on Strobilanthes.—Mr. Morris exhibited specimens of this newly-discovered "bug" on *S. cuspidatus* from the Economic-house at Kew. It has been described and figured in the *Journal of the Quekett Mic. Club*, vol. iii., p. 169. Mr. Michael observed that its habits did not agree with those cocci of which the larva lie dormant beneath the parent, but the young were always very active. The genus was, in fact, on the border of the Coccidae, and its nearest ally was *Iceria*. A discussion followed as to the nature of the secretion of wax. It is generally believed to be renewed, the length of the secretion depending upon the age of the insect. Mr. Browne, in the paper alluded to, says it is spreading, and is now found on *Scutellaria*, &c., in the adjoining house at Kew. Mr. Lynch added, that apparently the same species attacked Acanthaceous plants as well.

Clerodendron, n. sp.—Mr. Morris exhibited shoots of a new species received from Sir J. Kirk from Zanzibar. It is remarkable for having the basal parts of the leaves much thickened and curved for the purpose of support. The upper part of the petiole carrying the blade can oscillate, and become detached. It does not appear to be sensitive, but resembles the hooked peduncles of *Uncaria* and stipules of *Dipladenia*.

Monstrous Pears.—Mr. Henslow exhibited three forms of abnormal Pear growths, which appeared to explain the true nature of the fruit. The first was the Bishop's Thumb Pear, which consists of a succulent rod-like structure, presumably of an axial character alone. In the second a branch bore two or more irregular whorls of leaves with hypertrophied and partly coherent petioles. This case, which does not appear to be common, seems to suggest that the upper part of a Pear—corresponding to the whole of an Apple—consists of the hypertrophied bases of the sepals. The figure of an Apple with so-called "interrupted growth" in *Teratology* (p. 327) would therefore receive its interpretation in that the lower part is axial and the upper foliar. The third case represented a more complete fusion, in that the successive whorls were all welded together.

Dr. Masters describes this form as follows:—"The axis dilates to form the lower fruit without any true carpels being produced, but at its summit a whorl of leaves (sepals) is formed. Above these another swelling of the axis takes place, also without the formation of carpels, and this, it may be, is

terminated in its turn by a branch producing leaves."

Judging from the last specimen, Mr. Henslow was more inclined to regard this "succession of pseudo-Pears" as whorls of leaves with hypertrophied petioles rather than as axial. This view was confirmed and accepted by Mr. G. Murray. The fruit of a Pear, therefore, would seem to be axial below—i.e., from its tapering point up to the base of the carpels, but foliar from thence upward to the summit. Apples, therefore, would have no truly axial part at all.

Plants Exhibited.—Mr. R. J. Lynch brought the following from the Botanic Garden, Cambridge;—*Vanda concolor* (*Bot. Mag.*, 62, 3416), *Cymbidium sinense* (*Lodd. Cat.*, 37), *Moricandia* (*Orychophragmus*) *sonchifolia* (*Bot. Mag.*, 6243), *Acacia platyptera* flore pallida, and Miss Hope's Wallflower, a monstrous form, upon which Rev. G. Henslow undertook to report.

English Pomegranate.—He also showed a small fruit, about 1½ inch diameter, grown on the walls of Emanuel College, Cambridge.

LAW NOTES.

DUNSDON v. MOSS.

CLAIM FOR LOSS OF CROP.

This was an action heard in the Queen's Bench Division on Monday last, before Mr. Justice Stephen, without a jury, and was brought by John Dunsdon, of Furzedown Farm, Streatham, Surrey, market gardener, against Arnold Moss, of 39, King William Street, London (trading as Jacob Wrench & Sons), for the sum of £500 damages, alleged to have been sustained by plaintiff for loss of crop of Early Rainham Cabbage grown from seed supplied by defendant in 1886.

Mr. Lockwood, Q.C., and two juniors, appeared for the plaintiff, and Mr. Tindal-Atkinson, Q.C., and Mr. Earle, appeared for the defendant.

The plaintiff stated that he bought a certain quantity of Early Rainham Cabbage seed from defendant's firm in July, 1886, at a cost of £2 5s. sowed the whole of it on one day, viz. July 22, finally transplanting the produce on to 2½ acres of his land during the months of September, October, and November following. He affirmed that the land was properly prepared for such a crop; the result of his experience, he stated, was that instead of having a good crop of marketable Cabbages in June, 1887, he had a crop of "wild things" all running to seed, and what he said, was an admixture of Kales, Savoys, wild Broccoli, and Brussels Sprouts. His claim was at the rate of £22 per acre for rent, taxes, manure, labour and other expenses, in fact for total loss of crop. When cross-examined by Mr. Atkinson he admitted that he had sold bunched Cabbages off these particular lots of land amounting to perhaps, £8 per acre, and he could not swear it might not have been over £10, but he had not kept any account whatever of this money; also that he had in addition to the plants obtained from Messrs. Wrench's seed, procured some from a neighbour, and planted these in the middle of one of the fields, and included these in his claim against the plaintiff; that early sowing might cause Cabbages to run to seed the following summer, but early Cabbages always fetched more money than late ones.

Four or five market gardeners were called on his behalf as witnesses; each declared the same thing, viz., "that he had never seen such stuff before as were the plants on these 2½ acres;" but eventually, in cross-examination, they admitted that the runners might possibly have come from the Early Rainham Cabbages, and that early sowing combined with the exceptional character of the winter of 1886-1887, and the peculiarly cold spring of 1887 followed as it was by a sudden change to mild and fine weather, might have caused any Cabbages to run to seed, instead of forming heads.

At the conclusion of the plaintiff's case, the learned Judge said that it was useless to continue the case further, as plaintiff had entirely failed to make out his claim, and without calling on the

defence, gave a verdict for the defendant with costs, remarking that had there been a jury in the case to whom he would have had to sum up, he should have used a few strong expressions as to his opinion of the evidence of some at least of the witnesses called by plaintiff.

THE WEATHER.

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending Jan. 16.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1883.	Below 42° difference from Mean since Jan. 3, 1883.
Principal Wheat-producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	2 above	5	22	+ 21	— 41
1. SCOTLAND, E. ...	2 above	3	30	+ 21	— 45
2. ENGLAND, N.E. ...	0 (aver.)	0	31	+ 13	— 29
3. ENGLAND, E. ...	2 below	0	47	+ 12	— 20
4. MIDLAND COS. ...	5 below	0	63	+ 9	— 3
5. ENGLAND, S. ...	5 below	0	50	+ 4	— 3
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 above	3	21	+ 11	— 40
7. ENGLAND, N.W. ...	2 below	0	33	+ 7	— 23
8. ENGLAND, S.W. ...	5 below	0	36	— 7	— 4
9. IRELAND, N. ...	1 above	6	12	+ 13	— 31
10. IRELAND, S. ...	0 (aver.)	5	11	+ 2	— 23
— CHANNEL ISLANDS	3 below	3	15	— 3	— 4

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1883.	Total Fall since Jan. 3, 1883.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1883.
Principal Wheat-producing Districts.	Tenths of an Inch.		Ins.		
0. SCOTLAND, N. ...	8 less	6	1.0	14	10
1. SCOTLAND, E. ...	6 less	6	1.2	19	17
2. ENGLAND, N.E. ...	4 less	4	0.2	9	13
3. ENGLAND, E. ...	4 less	4	0.2	16	23
4. MIDLAND COS. ...	5 less	4	0.1	11	16
5. ENGLAND, S. ...	6 less	3	0.2	6	11
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	10 less	6	2.2	1	7
7. ENGLAND, N.W. ...	7 less	5	0.4	4	8
8. ENGLAND, S.W. ...	10 less	6	0.6	1	7
9. IRELAND, N. ...	8 less	5	1.1	3	12
10. IRELAND, S. ...	9 less	4	2.1	17	24
— CHANNEL ISLANDS	7 less	8	0.6	17	13

THE PAST WEEK.

The following summary record of the weather for the week ending Jan. 16, is furnished from the Meteorological Office:—

"The weather has been in a gloomy and foggy condition very generally. Over England and the greater part of Scotland the fogs were unusually dense, damp, and persistent. Towards the end of the period, however, the atmosphere became clearer, although a great deal of cloud prevailed.

"The temperature has continued rather above the mean in Scotland and in the North of Ireland, but has been below in nearly all the English districts, as well as in the 'Channel Islands.' Over central, south, and south-west England the deficit was as much as 5°. The highest of the maxima, which were registered on the 10th, ranged from 47° in 'England, S.W.' and 48° in the 'Channel Islands,' to 56° in 'Ireland, N.' and 57° in 'England, E.' The lowest of the minima, which were recorded on irregular dates, varied from 20° in 'England, S.W.,' and 22° in the 'Midland Counties,' to 31° in the 'Channel Islands' and 'Scotland, W.,' and 33° in 'Ireland, N.' During the greater part of the period the range of temperature was extremely slight.

"The rainfall has been scarcely appreciable. At nearly all stations measurable amounts of water were deposited in the gauge by the fogs referred to above.

"Bright sunshine has been very deficient, the percentage of the possible amount of duration ranging from 1 to 19 in Scotland, from 3 to 17 in Ireland, and from 1 to 16 in England. At many stations bright sunshine was altogether absent."

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JAN. 23. (AVERAGE OF FORTY-FOUR YEARS.)

Jan. 22	37°·7	Jan. 26	38°·5
" 23	37°·9	" 27	38°·6
" 24	38°·3	" 28	38°·7
" 25	38°·4	Mean for the week ...	38°·3

Obituary.

MR. JOHN DAY.—By the death of Mr. Day Orchidology has lost one of its most ardent, and at the same time, one of its most respected votaries. Among the amateurs who immediately succeeded the older cultivators, the Harrisons of Liverpool, Mr. Barker of Birmingham, Rev. John Clowes, Mr. Bateman, &c., Mr. Day certainly occupied for years the most distinguished position, notwithstanding that he had Mrs. Lawrence of Ealing, Mr. Rucker of Wandsworth, Mr. Dawson of Glasgow, and other once familiar names for his contemporaries, but whom he has long survived, so that he became well nigh the sole connecting link between the older pioneers in Orchid culture and the successful growers of the present day. The veteran Mr. Bateman still survives, but he has long given up Orchid culture. Mr. Day first acquired a love of Orchids from occasional visits to the collection of Messrs. Loddiges at Hackney, from whom he purchased his first batch of plants, which formed the nucleus of his former collection at Tottenham. From that time he followed up his favourite pursuit with all the ardour of an enthusiast, constantly attending sales and acquiring novelties till his collection became one of the richest and most famous in Europe. It was in this collection that many of the most admired Orchids flowered for the first time, notably *Odontoglossum crispum*, *Cattleya Walkeriana* var. *dolosa*, *Lælia elegans* *Wolstenholmicæ*, named after the deceased gentleman's sister, *Cypripedium Stonei*, and the wonderful variety *C. platytanum*, of which Mr. Day acquired the only plant that has ever been imported. This fine collection was dispersed at Stevens' Rooms in the spring of 1880. From an early date Mr. Day accustomed himself to make coloured drawings of the Orchids in his collection, and after its dispersion he continued the practice with unabated energy to within a few weeks of his demise, visiting for that purpose the collections of the leading London nursery firms, and occasionally Kew, Burford Lodge, The Dell, and Downside. These drawings are contained in upwards of fifty "scrap books," and constitute probably the most valuable collection of cultivated Orchid illustrations in existence. They are all faithfully rendered, many of them of exceptional merit, and as the botanical details of the Orchids from his own collection are given, that portion of the drawings has a special value of its own. Mr. Day's love of Orchids led him on several occasions to travel to their native homes; he visited India (more

than once we believe), Jamaica, Brazil, and last year, Ceylon and southern India, during which journey it is feared he contracted the first symptoms of the malady to which he succumbed. Since the dispersion of his first collection he has formed a smaller collection of Orchids, into which none but very choice, kinds, or of exceptional interest, have been admitted. For some time past Mr. Day took the warmest interest in the progress of Messrs. James Veitch & Sons' *Manual of Orchidaceous Plants*; the MS. of the genera already published, and of two or three of those not yet issued, being carefully perused by him, and many valuable hints were given, for which his long experience and extensive knowledge of the subject rendered him thoroughly qualified. *Cypripedium Dayanum*, *Masdevallia Dayana*, *Lælia pumila* *Dayana*, *Cœlogyne Dayana*, and many other fine Orchids will perpetuate his name far into the future.

ENQUIRIES.

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

MIGNONETTE.—Could any of our readers afford "A. E." information as to the varieties of Mignonette grown to supply Covent Garden Market, and how it is managed, and how got into bloom by the first week in August? "A. E." states that his object in inquiring is not commercial, but charitable.

NOTICES TO CORRESPONDENTS.

BOOKS: C. E. Cassell—yes, Henfrey's *Elementary Course*, 4th edition. (Van Voorst.)

BOX FOGGING: H. H. This may be cut in the late spring, when there is no longer danger of it being made brown by frost; and again in August, when a slight new growth will be made afterwards that will preserve the sightliness of the Box throughout the winter.

CAMELLIAS: J. G. "Them Camellia" leaves have the appearance of having been fumigated heavily with tobacco-paper. The shoots are healthy, and the foliage large and of fair substance. If neither tobacco-smoke nor the injurious fumes from the stovehole have reached them, please send to us some roots of the plant, a piece of the injured foliage, and some of the soil of the border.

CROSNES: L. The Japanese Crosnes figured by us recently are advertised by M. E. Watelier, Rue de Pontoise, Argenteuil, France.

"ECLIPSE" APPARATUS: C. D. H. We know nothing about this. Would you kindly send the notes and the illustration.

ERRATUM.—Page 49, January 14.—In the notice of Fellows elected to the Royal Horticultural Society, for John H. Tite read John H. Lile.

EMIGRATION: *Constant Reader*. You may obtain the most trustworthy information from the Emigration Information Office, 31, Broadway, Westminster, London, S.W. The office is in direct communication with the Governments of the various colonies, and was instituted to give such information as you require.

GARDENIAS: B. A. There were no symptoms of fungus, or any disease of the tissues, so that we were driven to the conclusions either that something deleterious had been given to the plants, or that there was fault in the management.

INSECTS: *Camjee*. The insect which is said to have eaten all the leaves off an Orchid is one of the imported species of cockroaches (*Blattidae*) occasionally found in hothouses. Search for them after dark. I. O. W.—F. W. B. We failed to find the insect that was said to feed on the parenchyma of the *Chrysanthemum* leaves.

LAPAGERIA IN SLATE TUBS: J. D. This plant is most successfully grown, when planted out in a well drained border of rough peat and loam, with a good addition of charcoal broken small, coarse sand, and broken sandstone. It is best to put no manure with the materials, unless the loam be of a very poor character, and then only a little leaf-soil. The border may be of any width over 6 feet, and should it become crowded with roots, assistance

may be afforded by occasional waterings with guano-water during the growing season. If you must grow your plants in the slate tubs, use the compost above-mentioned. Guard the young shoots from slugs by putting glass tubs over them.

LÆLIA: *Norman C. Cookson*. It belongs to the finest type of *Lælia anceps* *Stella*.

MEALY-DUG ON VINES: *Constant Reader*. No, do not burn sulphur in theinery, unless you would destroy the Vines. Read "Fruits under Glass" in our issue for January 14 for a remedy.

MUSCAT VINE ROOTS: S. K. The roots sent were entirely destitute of rootlet, and partially decayed, and indicated the worn-out sour state of the soil in which they grew. The soil sent showed by its texture, appearance, and odour, that that is so. Make a new border, and plant new Vines.

NAMES OF FRUITS: *Scarborough*. Apple: Kentish Goff. Pears: 2, Lewis; 3, Beurré Diel; 4, Bellissime d'Hiver; 5, Winter Bon Chretien.—*Oxford*. 1, Hanwell Soaring; 2, not known; 3, Winter Hawthornden.

NAMES OF PLANTS: J. W. *Physalis alkekengi*. A hardy plant, seeds of which may be obtained from any seedsman. The plant is an annual, easily raised from seed sown in the open air in spring.—C. E. F. *Tecoma capensis* was given on January 14, under "X. Y. Z.," your letter having been mislaid.—W. J. A. *Odontoglossum odoratum*.

PAN-DRAWING FOR PARKS AND GARDENS: *Constant Reader*. We know of no examinations in this subject. The "much value" in painting flowers would be chiefly as affording you gratification. The money value is but small, too many persons being engaged in the work.

SPRUCE: W. G. You must keep a watch on the trees. We expect the mischief has been done by birds (crossbill?), or perhaps by squirrels. We do not think any weevil has caused the damage.

CATALOGUES RECEIVED.

W. DRUMMOND & SON, Stirling, N.B.—Gladioli, &c. Jas. YATES, Stockport—Seeds, &c.

DICKSONS & CO., 1, Waterloo Place, Edinburgh—Garden Seeds.

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

JAMES DICKSON & SONS, 32, Hanover Street, Edinburgh—Vegetable and Flower Seeds.

TOOGOOD & FINLAYSON, Southampton—Seeds.

H. DEVERILL & CO., Banbury—Vegetable and Flower Seeds, Potatoes, &c.

ROBERT OWEN, Floral Nurseries, Castle Hill, Maidenhead—Chrysanthemums.

J. & R. THYNE, 83, St. Vincent Street, Glasgow, N.B.—Seeds.

COMMUNICATIONS RECEIVED.—W. P. A.—F. Sander.—H. J. V.—J. S.—E. S. D.—V. C.—W. B.—H. M. W.—Dr. Solender, Munich.—F. C.—W. H.—E. L.—L. Brussels.—J. D.—D. W.—B. H.—Cork.—J. T. B.—D. N.—E. B. C.—W. P. Andersen.—X. Y.—J. R.—Dr. A. Paterson.—Professor M. Ward.—R. A.—R. W.—G. J.—H. W.—D.—C. M. O.—N. E. B.—J. R. J.—C. C.—J. Morgan.—D. T. F.—J. W.—B.—G. D.—Carnation (shortly.)

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, January 19.

MARKET still quiet, with no alteration. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d.	s. d.	s. d.	s. d.
Artichokes, p. doz.	6 0	Mustard and Cress,	p. punnet ... 0 4
Beans, Kidney, lb.	0 9	Onions, per bushel	6 0
Beet, red, per dozen	1 0-2 0	Parsley, per bunch	0 6
Brus. Sprouts, lb.	0 4	Potatoes, per cwt.	4 0-5 0
Carrots, per bunch	0 6	... kidney, per cwt.	4 0-5 0
Cauliflowers, each	0 6	Rhubarb, per bundle	0 6
Celery, per bundle	1 6-2 0	Cucumbers, each	1 0-2 6
Endive, per dozen	2 0	Seakale, punnet	1 6-2 0
Green Mint, bunch	1 0	Shallots, per lb.	0 6
Herbs, per bunch	0 4	Spinach, per bushel	3 0
Leeks, per bunch	0 6	Syrac, per bundle	1 0
Lettuce, per dozen	1 6	Tomatos, per lb.	1 0-2 0
Mushrooms, punnet	1 0-1 6	Turnips, per bunch	0 8

POTATOES.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Duubar Magnums and Regents, 45s. to 100s. per ton.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 1-sieve	... 1 3-3 6	Melons, each	... 0 6-2 0
Grapes, per lb.	... 1 0-2 6	Pears, 1-sieve	... 2 6-6 0
— Channel Isl., lb.	1 0-1 6	Pine-apples, Eng., lb.	1 0-2 0
Kent Cobs, 100 lbs.	50 0-—	— St. Michael, each	2 0-5 0
Lemons, per case	... 12 0-21 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	8 0-18 0	Ficus elastica, each	1 6-7 0
Azaleas, per dozen	... 24 0-36 0	Foliage plants, vari-	
Bougardias, per dozen	9 0-12 0	ous, each	... 2 0-10 0
Cyclamen, per dozen	12 0-24 0	Hyacinths, doz.	... 8 0-10 0
Cyperus, per dozen	4 0-12 0	Lily of Valley, 12 pts.	18 0-24 0
Dracena terminalis,		Marguerites, doz.	... 9 0-12 0
per dozen	... 30 0-40 0	Myrtles, per dozen	... 6 0-12 0
— viridis, per doz.	9 0-24 0	Palms, in var., each	2 6-21 0
Epiphyllum, doz.	... 12 0-24 0	Pelargonium, scar-	
Ericas, various, doz.	9 0-18 0	let, per dozen	... 6 0-9 0
Euonymus, in var.,		Poinsettias, doz.	... 12 0-18 0
per dozen	... 6 0-18 0	Primula sinensis, doz.	4 0-6 0
Ferns, in var., doz.	4 0-18 0	Solanum, per dozen	9 0-12 0
Evergreens, in var.,		Tulips (pots of), doz.	8 0-9 0
per dozen	... 6 0-24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun	... 3 0-6 0	Narciss., paper white,	
Arum Lilies, 12 blms.	5 0-8 0	Fr., 12 bunches	... 2 6-6 0
Azaleas, 12 sprays	... 0 9-1 0	— Various, 12 bun.	1 6-4 0
Bougardias, per bun.	2 0-6 0	Pelargoniums, 12 spr.	1 0-1 8
Camellias, 12 blms.	2 0-5 0	— scarlet, 12 spr.	0 8-1 0
Carnations, 12 blms.	1 0-3 0	Primulas, double, 12	
Chrysanth., 12 bun.	12 0-21 0	sprays	... 1 0-1 6
— large, 12 blooms	2 0-6 0	— single, 12 bun.	4 0-6 0
Cyclamen, 12 blms.	0 6-1 0	Roses, 12, per doz.	1 6-4 0
Eucharis, per dozen	4 0-6 0	— coloured, dozen.	2 0-4 0
Gardenias, 12 blooms	12 0-24 0	— red, per dozen	2 0-3 0
Heliotropes, 12 spr.	0 6-1 0	— Safrano, dozen	1 6-3 0
Hellebore, or Christ-		Tuberose, 12 blms.	1 6-2 0
mas Rose, 12 blms.	0 6-2 0	Tulips, 12 blooms	... 0 6-1 0
Hyacin., Rom., 12 sp.	0 6-1 0	Violets, 12 bunches	... 1 0-1 6
Lily of Valley, 12 spr.	0 9-1 6	— French, bunch	1 6-3 6
Marguerites, 12 buo.	3 0-6 0	— Fr. Parme, bun.	5 0-7 0
Mignoneite, 12 bun.	3 0-6 0	White Lilac, French,	
Poinsettia, 12 blms.	4 0-6 0	per bunch	... 6 0-7 6

SEEDS.

LONDON: January 18.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that there was but a scanty attendance on the seed market to-day. More inquiry has recently prevailed for Clover seeds, and prices generally are extremely firm. The Continental and American markets keep very steady. Full prices are obtained by holders of Italian Rye-grass, owing to the lightness of stocks both here and abroad. More attention is now devoted to spring Tares, advantage being taken of the low prices current. For Blue Peas the trade is still slow. Haricot Beans continue firm. Other articles show no change.

FRUIT AND VEGETABLES.

COLUMBIA: January 18.—Fair supplies of all kinds; trade slow, prices moderate. Quotations:—Savoys, 2s. 6d. to 9s. per tally; Cabbage, 2s. to 2s. 6d. do.; Turnip-tops, 1s. 3d. to 1s. 6d. per sieve; sprouting Broccoli, 1s. 6d. to 2s. do.; Spinach, winter, 1s. to 1s. 6d. do.; Brussels Sprouts, 3s. to 4s. per half-sieve; Greens, 2s. to 2s. 6d. per dozen bunches; Turnips, 1s. 9d. to 2s. do.; Carrots, 1s. 6d. to 2s. do.; Beetroots, 1s. to 1s. 9d. do.; Celery 8d. to 1s. 4d. per bundle of 12 sticks; Parsnips, 9d. per acre; English Onions, 9s. to 10s. per cwt.; foreign do., 8s. to 9s. per bag of 110 lb.; Carrots, 28s. to 45s. per ton; English cooking Apples, 4s. 6d. per bushel; do., dessert Apples, 4s. to 7s. 6d. do.; American cooking Apples, 12s. to 21s. per barrel; do., dessert Apples, 14s. to 26s. do.

STRATFORD: January 17.—Both trade and supply were good during the past week. Quotations:—Cabbages, 6s. to 7s. per tally; Savoys, 9s. to 11s. do.; Greens, 4s. to 5s. per cwt.; Turnips, 3s. to 3s. 6d. per dozen bunches; do., 42s. to 50s. per ton; Carrots, household, 40s. to 50s. do.; do., cattle feeding, 28s. to 34s. do.; Parsnips, 50s. to 70s. do.; Mangels, 18s. to 21s. do.; Swedes, 20s. to 23s. do.; Onions, English, 7s. to 9s. per cwt.; do., Dutch, 6s. 6d. to 7s. 6d. per bag; do., German, 8s. 6d. to 9s. do.; Apples, English, 3s. to 6s. per flat; do., 5s. to 10s. per hamper; Celery, 14s. to 18s. per dozen bunches.

POTATOS.

COLUMBIA (East London): January 17.—Quotations:—Beauty of Hebron, 90s. to 120s.; Champions, 50s. to 60s.; Victorias, 60s. to 70s.; Regents, 60s. to 95s.; Magnums, 50s. to 70s. per ton.

STRATFORD: January 17.—Quotations:—Scotch Magnums, 80s. to 90s.; English, do., best, 60s. to 75s.; fenland, 45s. to 50s. per ton.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

JENSEN'S

Every grain fertilizes because the Guano is perfectly pure. It is most economical, one part of Manure to 100 parts of soil being ample for garden use.

FISH-POTASH

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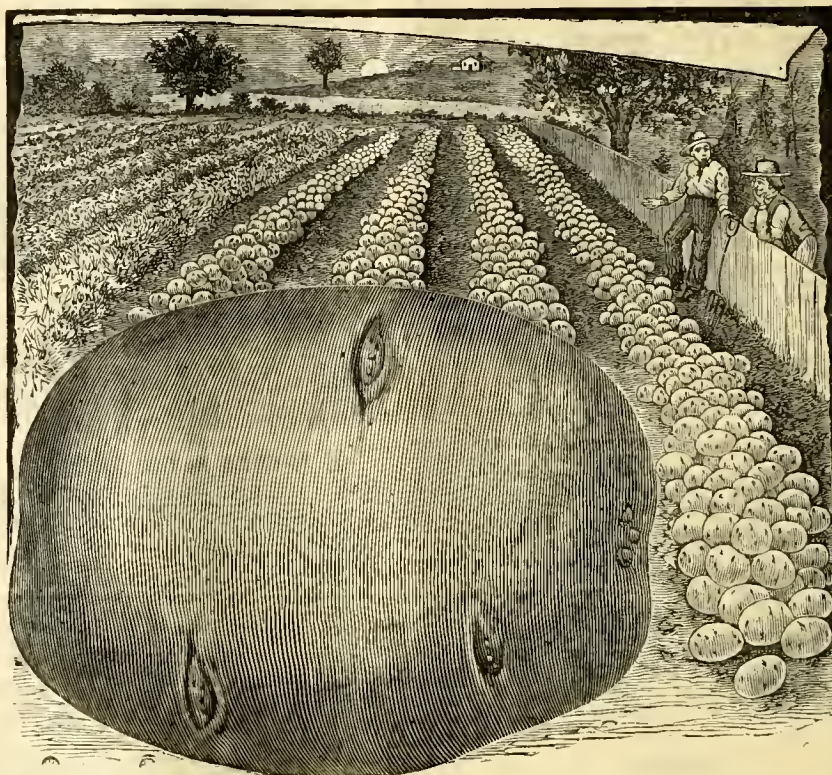
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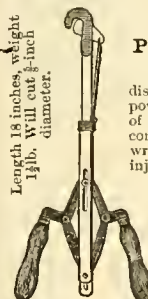


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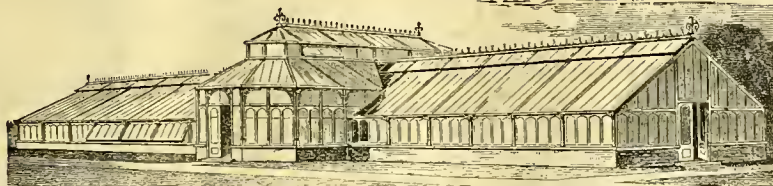
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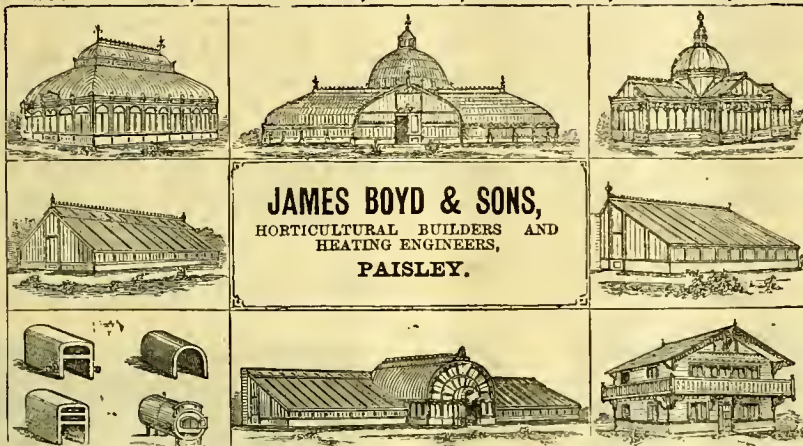


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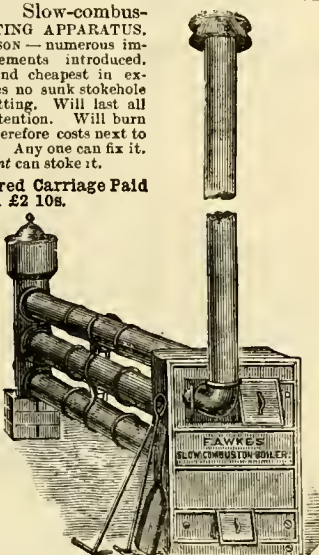
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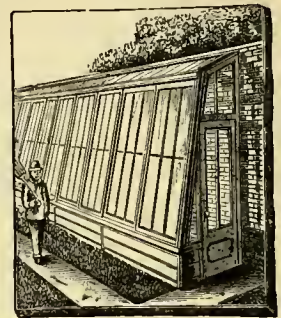
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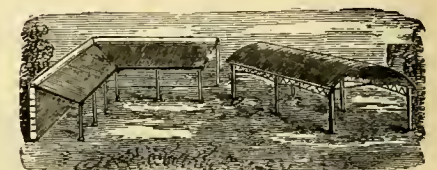
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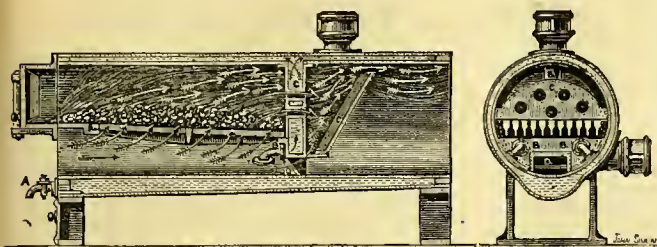
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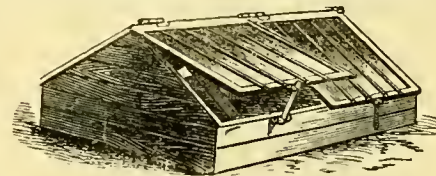
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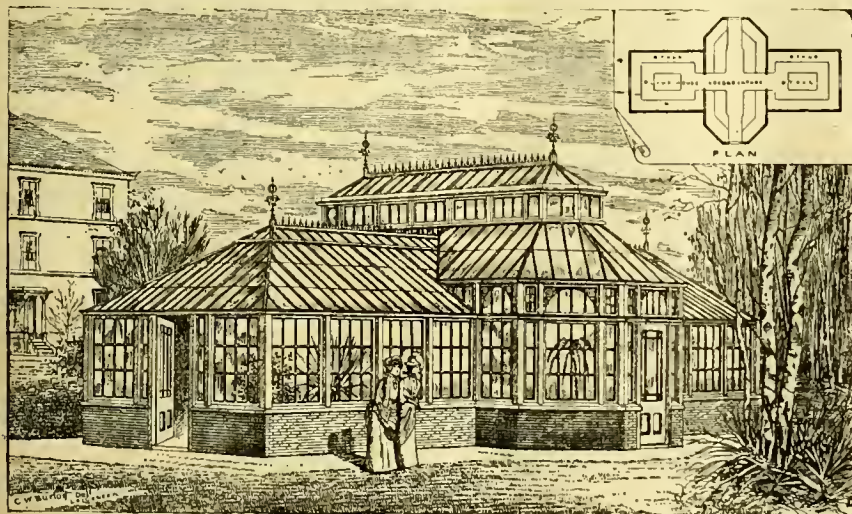
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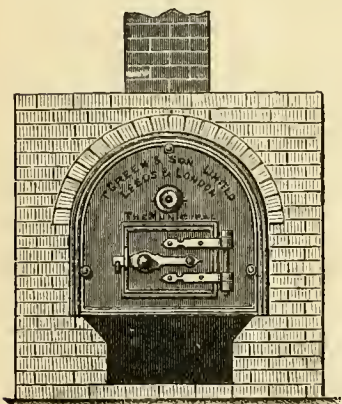
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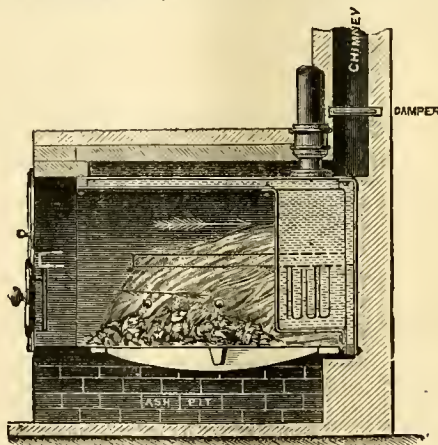
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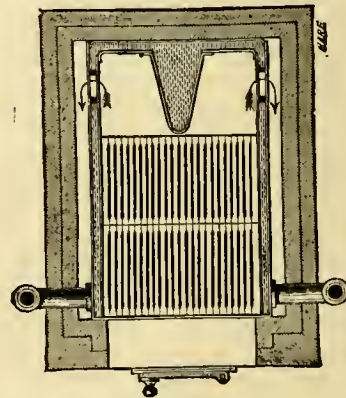
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CHARLES TURNER'S New LIST for 1888 is ready, and may be had free on application.
The Royal Nurseries, Slough.

NEW CHRYSANTHEMUM (Japanese),
SARAH OWEN, two First-class Certificates. Golden Bronze sport from Madame John Laing: fine for exhibition. Plants, ready March 1, 3s. 6d. each.
ROBT. OWEN, Floral Nurseries, Maidenhead.

CHOICE GERMAN
FLOWER and VEGETABLE SEEDS.
CATALOGUES free on application.
FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

Orange Trees.

NEW VARIETY, BRAZILIAN.

Described in *Gardeners' Chronicle*, December 10, 1887.

THOS. CHRISTY, Malvern House, Syden-
ham, has some more healthy Trees left from the parcel ex Tagus, that can be had at cost price.

Garden and Flower Seeds, Spring Bulbs, &c.

C. G. VAN TUBERGEN, Jun.,
Haarlem, Holland.
WHOLESALE CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD and SON, 25, Savage Gardens, Crutched Friars, London, E.C.

IRELAND and THOMSON'S
CATALOGUE of Select VEGETABLE and FLOWER SEEDS has now been Posted to all their Customers, and if not duly received, please inform them, and another Copy will be sent post-free.—81, Princes Street, Edinburgh.

1000 BEAUTIFUL MIXED DAFFODILS
from many fine sorts, for naturalising in orchards, wild gardens, on banks, &c., sent free, on receipt of P.O.O. for 21s.—BARR AND SON, King Street, Covent Garden, W.C.

White Lilac.

WHITE ENGLISH LILAC, Forced and Sold by

K. DROST, Kew Nursery, Richmond, S.W.,
and 30, Covent Garden Flower Market, W.C.
Any quantity to be had at a minute's notice.
TELEGRAPHIC ADDRESS—"DROST, RICHMOND, SURREY."

New Vegetable.

STACHYS TUBERIFERA.—We have much pleasure in offering Tubers of this Novelty, 1s. 6d. per dozen, post-free, with Cultural Directions.
JOHN LAING AND SONS, Seedsmen, Forest Hill, S.E.

New White Round Potato.

WEBBER'S "EARLY WHITE BEAUTY,"
First-class Certificate, Royal Horticultural Society.
See Advertisement on p. 98.

SALES BY AUCTION.

Wednesday and Saturday Next.

Pyramid and Dwarf-trained FRUIT TREES, in variety to name, Hardy Ornamental SHRUBS and CONIFERS, Dwarf ROSES of sorts, an extensive collection of CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, and many other BORDER PLANTS, Home-grown LILiums, SPIRÆAS, LILY of the VALLEY, DELIATRAS, GLADIOLI, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, February 1 and 4, at half-past 12 o'clock precisely each day. On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7610.)

IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 2, at half-past 12 o'clock precisely, a splendid lot of ODONTOGLOSSUM ALEXANDRE (of the best type), DENDROBES in variety, and other ORCHIDS, from Messrs. Shuttleworth, Carder & Co. Also some fine established ORCHIDS, including many rare species, some in flower and bud; a few specimen PALMS, DRACENAS, &c. On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7610.)

10,000 grand BULBS of LILUM AURATUM, L. SPECIOSUM ALBUM and RUBRUM, L. KRAMERI, &c., from Japan, received direct, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 2, at half-past 12 o'clock precisely. On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 16, at half-past 12 o'clock precisely, and he will be glad if gentlemen desirous of entering plants for this Sale will send list as soon as possible.

Tuesday Next.

CAMELLIAS, AZALEAS, Standard and Dwarf ROSES, FRUIT TREES, HARDY EVERGREENS, PALMS, FERNS LILIES, &c., in choice assortment.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, January 31, at half-past 12 o'clock precisely.

Catalogues had at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Tuesday Next.

New HYBRID DENDROBIUM in FLOWER. Two Plants. This hybrid is distinct, very floriferous, and of a strong growth and hardy constitution.

ODONTOGLOSSUM VEXILLARIUM SUPERBUM, part of the original plant from which this variety was named.

MESSRS. PROTHEROE AND MORRIS will include the above three plants in their SPECIAL SALE of ORCHIDS in FLOWER on TUESDAY NEXT, January 31. On view morning of Sale, and Catalogues had.

Tuesday Next.

ORCHIDS IN FLOWER.—IMPORTANT SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, January 31, at half-past 12 o'clock, precisely, a large assortment of ORCHIDS in Flower and Bud from various collections, amongst which will be found the following:—

<i>Lelia anceps</i> Dawsoni, grand plant	Dendrobium, very new hybrid, two plants
" " alba, two large specimens	" Fudaiyanum
" " Stella	Odontoglossum vexillarium superbum, part of original plant
<i>Lycaste Skinneri</i> alba, three strong plants	Dendrobium Ainsworthii
<i>Calogne cristata</i> , several large specimens	Oncidium macranthum, specimen
" " <i>Criata</i> variety	Odontoglossum Edwardii, splendid plant and spike
" " alba, grand plant	

On view morning of Sale, and Catalogues had.

Wednesday Next.

Important consignment of Japanese LILIES, received direct for unserved Sale.

18,000 LILUM AURATUM.

3,000 L. MACRANTHUM.

800 L. KRAMERI.

1,800 Various LILIES.

Comprising *Leichtlinii*, *concolor*, *Batemanie*, *speciosum*, *rubrum* and *album*, *rubro-vittatum*, *Wittei*, *Thunbergianum*, *elegans*, *sanguineum*, *tigrinum*, and *longiflorum albo-marginatum*.

MESSRS. PROTHEROE AND MORRIS will include the above important consignment of LILIES in their SALE on WEDNESDAY NEXT, February 1. On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

Sales of Standard and Dwarf ROSES, GREENHOUSE PLANTS, PALMS, a consignment of CAMELLIAS, AZALEAS, and other plants from Belgium; LILUM AURATUM, from Japan; an extensive assortment of English-grown LILIES, including most of the principal varieties; IRIS, DAF-FODILS, LILY of the VALLEY, TUBEROSES, DUTCH BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, February 1 and 4, at half-past 12 o'clock precisely each day. On view morning of Sale, and Catalogues had.

Friday Next.

ODONTOGLOSSUM HALLII XANTHOGLLOSSUM.

ROSSII MAJUS and RUBESCENS.

EPIDENDRUM VITELLINUM MAJUS.

RHIZOPHORUM.

PALUMBINA CANDIDA, large masses.

ONCIDIUM MACRANTHUM.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 3, at half-past 12 o'clock precisely, a splendid lot of the showy and handsome ODONTOGLOSSUM HALLII XANTHOGLLOSSUM in excellent order, comprising fine large bulb pieces, with sound healthy plants; also a large consignment of ODONTOGLOSSUM ROSSII MAJUS and its variety RUBESCENS, collected in the same locality from whence have come the finest varieties now in collections. The masses are very large, with numerous sound breaks, and in the finest condition; a quantity of the brilliant and large-flowering EPIDENDRUM VITELLINUM MAJUS in extra condition, together with a fine lot of the scarce ODONTOGLOSSUM DOS NIANUM and the rare and beautiful EPIDENDRUM RHIZOPHORUM, ODONTOGLOSSUM GRANDE, PLEIONE WALLICHIANA, large masses, IONOPSIS PANICULATA, COLAX JUGOSUS, CEELOGYNE OCELLATA—fine masses of this pretty species; SCUTICARIA HADWENII, VANDA CERULEA, CYMBIDIUM GIGANTEUM, ONCIDIUM CUSTUM, and many other ORCHIDS; also a very fine lot of ONCIDIUM MACRANTHUM.

On view morning of Sale, and Catalogues had.

Eltham.—Expiration of Lease.

Important CLEARANCE SALE of General NURSERY STOCK, extending over upwards of 30 Acres of Ground.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Mr. J. W. Todman to SELL by AUCTION, on the Premises, the Eltham Nursery, Eltham, close to the railway station, on MONDAY, February 13 and two following days, at 12 o'clock precisely each day, the First Portion of the valuable NURSERY STOCK, including about 50,000 Evergreen and Coniferous Shrubs in various sizes, consisting of 10,000 Laurels, 2000 Hollies, 1500 Rhododendrons, 4000 Cupressus and Thuas, 1500 Firs, 5000 Privet, &c.; 5000 Deciduous Shrubs, 10,000 strong Quick, a fine assortment of handsome specimen Border Shrubs, 4000 Standard Roses, 6000 Standard, Pyramid and Trained Fruit Trees, 3000 Forest Trees, and 150 loads of Manure and Loam.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Florists, Nurserymen, and Others.—In Bankruptcy. By order of Trustee. *Ac* Lewis, Morden Lane, Mitcham.

MESSRS. COOK AND SMITH will SELL by AUCTION, on the Premises, on MONDAY, January 30, at 1 o'clock, the Stock of a Florist and Nurseryman, comprising 500 NIPHELOS and other ROSES, in pots; 1800 CALLAS, 1000 FERNS, 2000 GERANIUMS, AZALEAS, FUCHSIAS, &c., large quantity of Pots, and other effects. On view morning of Sale. Catalogues of the Auctioneers, 47, King William Street, E.C.

Halstead's Nurseries, Scotforth, Lancaster.

UNRESERVED SALE by the Sheriff.

MR. CHAS. R. COMPSTON will SELL by AUCTION as above, on MONDAY, January 30, and following days (under a Sheriff's execution), the whole of the above extensive NURSERY STOCK, comprising Forest Fruit, and Ornamental Trees, Thorns, Shrubs, Evergreens, and Roses in great variety. Catalogues from the Auctioneer, 1, New Road, Lancaster.

Chiswick, Middlesex.

MR. E. P. NEWMAN has been instructed by the Executors of the late Mr. Joseph Jessop to SELL by AUCTION, at the Auction Mart, London, on FEBRUARY 7, 1888, the exceedingly valuable Interest in the Lease of the GROVE PARK FARM, Chiswick, of about 174 acres, held at a nominal yearly rental for an unexpired term of 15 years, the whole within 6 miles of Covent Garden Market.

Particulars can be obtained of Messrs. FINNIS AND WYLLIE, Solicitors, 19, Surrey Street, Strand, W.C., and Chiswick, Middlesex; and of the Auctioneer, 42, High Street, Uxbridge, Middlesex.

WANTED TO RENT, a GARDEN with

Glasshouses for Growing Plants, &c., for sale. Address FLORIST, 149, St. Thomas' Road, Finsbury Park, N.

FOR SALE, a Small NURSERY, SEED, and FLORIST'S BUSINESS, in first-rate locality. Price £100. Small stock at valuation. Apply, E. D., 1, Minton Villas, Uxbridge Road, Ealing Dean.

FOR SALE, LAND suitable for a Nursery or Market Garden, near a Railway Station in a town where there is a good opening either for a Nursery or Market Garden, or both. Advantageous terms of purchase offered. For full particulars, apply to P., Hammett's Library, Taunton.

Hampshire.

Close to the Railway Station on Main Line. TO YOUNG BEGINNERS.

A CAPITAL NURSERY, comprising 4 Acres of Land, with Small House and Shop, Greenhouse with Four Divisions: good light soil. Rent only £40. Small Valuation. Full particulars of PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

LAYING-OUT and PLANTING

NEW ESTATES.

and putting in Order Neglected Gardens. Having many years' experience in this branch of Horticulture, and a good knowledge of all the best Shrubs and Trees grown in our largest nurseries, and being able to Buy by Special Quotation, and personally Superintend the Work, enables me to do it well with economy. Can advise, plan, and estimate. JOHN TINSLEY.

Garden Contractor, North Finchley.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by **PULHAM AND SON, BROXBORNE.**

ORCHIDS.

An immense Stock.

Thousands Showing for Bloom.

NEW CATALOGUE

OF

ORCHIDS AND OTHER PLANTS,

Free on application to

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES,

GARSTON, near LIVERPOOL.

Spring, 1888.

NEW WHITE ROUND POTATO, WEBBER'S "EARLY WHITE BEAUTY." Awarded First-class Certificate, Royal Horticultural Society, September 21, 1887. The many testimonials received from well known authorities speak so well for the excellence of this splendid new white-skinned Potato that a lengthy description is unnecessary. In short it possesses every good quality. It is of handsome appearance, with shallow eyes, and the superior of the "Beauty of Hebron" both for quality and productiveness, whilst its dwarf habit and extraordinary quickness of maturation make it invaluable for early work. It has been tried on all kinds of soil with most satisfactory results, producing in every case a fine crop entirely free from disease.

TESTIMONIALS.

From Mr. J. RUST, Gardener to the Marquess of Abergavenny, Bridge Castle:—

"Webber's Early White Beauty Potate is a very desirable kind, of medium size, and when cooked it is white and floury, and of a most excellent flavour, and when better known will be a great favourite like at the tables of peer and peasant."

From Mr. FENNELL, The Gardens, Fairlawn Park, near Tonbridge:—

"Your new Potato White Beauty, is a decided advance, for general excellence and purposes, upon any Potato I am acquainted with."

From Mr. W. HOLAH, The Gardens, Redleaf, Penrhyn:—

"Webber's Early White Beauty is the best Potato that I have met with yet. I have grown over eighteen varieties this summer, and White Beauty is the best of them all, both in quality and productiveness; and for the table it is unrivalled. Its dwarf robust habit will make it of great value for frame work."

From Messrs. HURST & SON, Seed Merchants, 152, Houndsditch:—

"Potato Early White Beauty, of which you sent us some tubers for trial, we are very favourably impressed with. We consider it a fine early variety, an abundant cropper of good quality."

From Mr. A. HENDERSON, Gardener to John Deacon, Esq., Mableton Park, Tonbridge:—

"Having tried your White Beauty Potato, I consider it of first-rate quality in every respect, and a great acquisition."

See Testimonials continued next week.

Price—1 lb., 1s.; 7 lb., 6s.; of

F. WEBBER, Quarry Hill Nursery, Tonbridge, Kent.

Wholesale of Messrs. HURST AND SON, Seed Merchants 152, Houndsditch, London, E.

DWARF ROSES, on Manetti, fine plants, 22s. 6d. per 100; Planting SEAKALE, 3s. 6d. per 100. Cash with orders.

R. LOCKE, Royal Rose Farms, Wrotham, Kent.

CARNATIONS.

50 choice named sorts, my selection, 20s.

25 " " " " " " 10s. 6d.

12 good Border, to name, 4s.

Old Clove, true, 3s. per dozen.

CARNATION SEED, Home-saved, from my splendid collection of named sorts, packet of 50 seeds, 1s.; collection of 12 varieties, 3s., post-free.

General SEED CATALOGUE free to all Customers.

THOS. RUTCHER, Nurseryman and Seed Merchant, Croydon.

Chrysanthemums.

GEORGE STEVENS Splendid CHRY-SANTHEMUMS gained more Prizes last season than any other exhibitor. Well-rooted Plants, Incurred and Japanese, in pots supplied by J. Crute, patentee of the celebrated Concave Flower Pots, 5000 being used in this Nursery for blooming. Plants, 4s. per dozen; Cuttings, 2s. per dozen. For prices of new varieties see CATALOGUE sent on application. Cash with order. To ensure success a change in plants and pots is very essential.—J. CRUTE, 14, Knightbridge Street, London.

CROWN BOB GOOSEBERRIES.—From 10,000 to 12,000, extra fine, 2 and 3 yr. old trees; true stock, prices low. Apply, E. QUINCEY, Fulney, Spalding.

SIMPLE INSTRUCTIONS by which anybody anywhere may force and obtain a great quantity (lasting until outdoor beds are in full bearing) of most excellent ASPARAGUS at a very trifling expenditure of time or money. Directions sent Free to all applicants.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CARNATION "GLOIRE DE NANCY," without doubt the grandest Carnation ever sent out for Cut as well as Conservatory and the Open Border. Flowers from 2 to 3 inches across, pure white, and strong Clove-scented. More robust than the old red Gloire, and freer. Good rooted Layers, 25s. per 100, 15s. for 50, 8s. for 25. Cash with order. E. COLLINS and SONS, Cumberland Park Nursery, Willenden Junction, London, W.

FOREST TREES, &c.—Ash, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Beech, 1½ to 2 feet, 14s. per 1000; ditto, 2 to 3 feet, 18s. per 1000. Birch, 1 to 1½ foot, 18s. per 1000. Elm, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 14s. per 1000; ditto, 3 to 4 feet, 17s. per 1000. Larch, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000; ditto, 3 to 4 feet, 18s. 6d. per 1000; ditto, 4 to 5 feet, 20s. per 1000. Spruce Fir, 1 to 1½ foot, 8s. per 1000; ditto, 1½ to 2 feet, 10s. per 1000; ditto, 2 to 2½ feet, 12s. per 1000. Scotch Fir, 2 to 2½ feet, 12s. per 1000. Oak, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Pinus austriaca, 2 years transplanted, fine, 16s. per 1000. Oval Privet, 2 to 2½ feet, 26s. per 1000; ditto, 4 feet, 6s. per 100. Sycamore, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Thorns, 1 to 1½ foot, 12s. per 1000; ditto, 1½ to 2 feet, 15s. per 1000; ditto, 2 to 2½ feet, 17s. 6d. per 1000. Special offers for extra quantities.

GARLIES MITCHELL, Nurseryman, Stranraer.

STRONG FOREST TREES.

ALDER, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.
BIRCH, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, 3 to 4, and 4 to 5 feet.
LARCH, 2 to 3, 3 to 4, and 4 to 5 feet.
OAKS, 1½ to 2, 2 to 3, and 3 to 4 feet.
FIR, Scotch, 1½ to 2, 2 to 2½, and 2½ to 3 feet.
FIR, Spruce, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 4, and 4 to 5 ft.

All these are stout, good plants, and properly rooted. The prices quoted will be very reasonable in order to clear.

Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rock-work, which produce flowers and render the garden attractive all through the year. New LIST of sixty-four pages Free.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Trade Price Current Seeds, 1888.

PETER LAWSON AND SON (Limited), Edinburgh, have now Posted their Annual CATALOGUE OF VEGETABLE AND FLOWER SEEDS to their Customers, but should there be any not delivered Copies will be sent upon application.

THE ANNUAL CATALOGUE OF AGRICULTURAL SEEDS will be published later on, meanwhile special offers will be made upon application.

CREEPERS FOR WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Descriptive LIST and advice Free.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BEGONIA SEED.—Sixpenny Packets, post-free; 7d.; all colours, mixed or separate. Finest giant single varieties. Crimson, scarlet, pink, rose, white, yellow, orange, salmon. Larger packets, 1s. The best and cheapest procurable. Sow now.—JOHN R. BOX (for 10 years sole partner with J. LAING), Seedsmen and Begonia Grower, Croydon.

The Supplement to
W. THOMPSON'S CATALOGUE of FLOWER SEEDS for the present season is now published, and should be seen by all Amateurs of New and Rare Plants. It includes Seeds not to be found in any other European Catalogue. Post-free.
34, Tavern Street, Ipswich.

ASPARAGUS, grand Roots for Forcing, 2s. 6d. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

The New Raspberry.

LORD BEACONSFIELD. (A Seedling.)
The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883. Strong Canes, £3 per 100; 6s. per dozen. Smaller Canes, 6s. per dozen.

Trade supplied. Cash with order.
A. FAULKNER, Ickpoken, Hungerford.

BLACKBERRIES—For Gardens—Fields—Railway Banks, &c.—The most suitable variety for this country is Vertegans' Best of All, 7s. per dozen; Wilson Junior, 6s. per dozen. Home-grown; carriage and packing free. For novelties not to be found in other Catalogues, see Vertegans' Illustrated LIST of Specialties, post-free.

VERTEGANS, Chad Valley Nurseries, Birmingham.

Chrysanthemums.

MESSRS. W. AND G. DROVER are now Booking Names for their NEW JAPANESE W. G. DROVER, 3s. 6d.; Cutting Plants, 5s. Certificated Southampton, Birmingham, National, January 11 and 12. CATALOGUE, 3d. Nurseries, Fareham.

To Gentlemen, Nurserymen, Builders and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMS, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. CATALOGUES free on application.

The Nurseries, Trinity Road, Wandsworth Common, S.W.

SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Pans especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the best possible quality.

EVERGREEN HEDGES.
ARBOR-VITE, American, 3 to 4 feet, 40s. per 100; do., 4 to 5 feet, 60s. per 100.

HOLLIES, Green, 1½ to 2 feet, 40s. per 100; do., 2 to 2½ feet, 85s. per 100.

YEWES, English, 1½ to 2 feet, 35s. per 100; do., 2 to 2½ feet, 60s. per 100.

JNO. JEFFERIES AND SON, Royal Nurseries, Cirencester.

TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE Free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SMALL SHRUBS and CONIFERÆ.

Arcaurica imbricata, 8 to 9 inches, 40s. per 100. Abies orientalis, 8 to 9 inches, 12s. per 100. American Arbor-vite, 10 to 12 inches, 50s. per 1000. Cupressus Lawsonii, 12 to 15 inches, 60s. per 1000. Cupressus erecta viridis, 6 to 8 inches, 40s. per 1000; ditto, 1 foot, extra, 12s. per 100. Cupressus stricta, 6 to 8 inches, 40s. per 1000; ditto, 1 foot, 14s. per 100. Pinus insignis, 1 year, 4s. per 100. Pinus Cambria, 2 years, 10s. per 1000. Pinus Nordmanni, 2 years, 6s. per 100. Pinus excelsa, 1 year, 4s. per 100. Pinus canariensis, 1 year, 5s. per 100. Retinospora plumosa, 10 to 12 inches, 10s. per 100. Retinospora aquarosa, 6 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. Thuia Lobbi, 10 to 15 inches, 40s. per 1000. Thuiaopsis dolabrata, 6 to 8 inches, 4s. per 100; ditto, 12 inches, fine, 12s. per 100. Yew, English, 8 to 9 inches, 6s. per 100. Laurel, Portugal, 8 to 9 inches, 6s. per 100. Common Laurel, 12 to 14 inches, 35s. per 1000. Rhododendron ponticum, 4 to 6 inches, 50s. per 1000; ditto, 2 to 3 inches, 30s. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PALMS.—A few hundreds, well-grown, strong and healthy.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Latania borbonica, Seaforthia elegans, Phoenix reclinata, and Corypha australis, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, Enteropodia, and Areca lutescens, 2 feet 6 inches to 3 feet high, 3s. to 5s. each.

Fine feathery-foliated Seaforthia elegans, 4 feet high, 15s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

LARGE SHRUBS and CONIFERÆ.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a General Meeting of the Subscribers to this Institution, held on FRIDAY, the 13th January, 1888, for the purpose of making an Addition to the List of Pensioners, it was resolved "That in consequence of Four Vacancies having occurred in the List of Pensioners since the voting papers were issued, after the Five Pensioners for whom the Election is called have been Elected the Four next highest on the poll shall be declared Elected."

CANDIDATES.

Votes.	Name.	Age.
1141	MATILDA CHARLTON	91
139	STEPHEN EVANS	72
195	JAMES EWING	87
904	THOMAS MOXLEY	78
810	HENRY MOXHAM	68
753	MARY NELSON	68
203	JOSEPH NORVAL	62
1025	CHARLES OSMAN (Dead)	65
337	JOHN SLOWE	73
385	ELIZABETH SNOW	78
1815	THOMAS M. WALL	87
807	FRANCIS FULLER	77
951	WILLIAM H. HEAD	74
282	WILLIAM HOLAH	66
832	ELIZABETH HORTON	62
60	WILLIAM JENNINGS	65
748	GEORGE LAMBERT	69
377	HELEN W. LESSELLS	61
543	MARGARET MARGOLM	58
153	JAMES MANDELFORD	58
1043	CHARLES PAPFORTH	64
122	ELIZABETH FOLLARD	75
669	GEORGE READ	57
252	CHRISTOPHER ROBINSON	76

The Meeting then declared Thomas M. Wall, Matilda Charlton, Charles Pepworth, James Ewing, William H. Head, Elizabeth Horton, Henry Moxham, Francis Fuller, and Mary Nelson duly elected Pensioners of this Institution, from 25th December, 1887.

E. ROGER CUTLER, Secretary.

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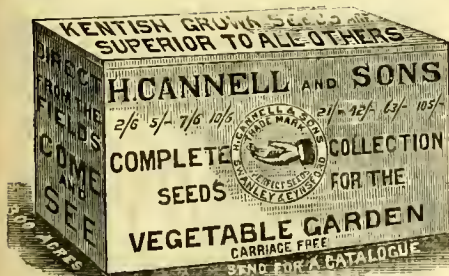
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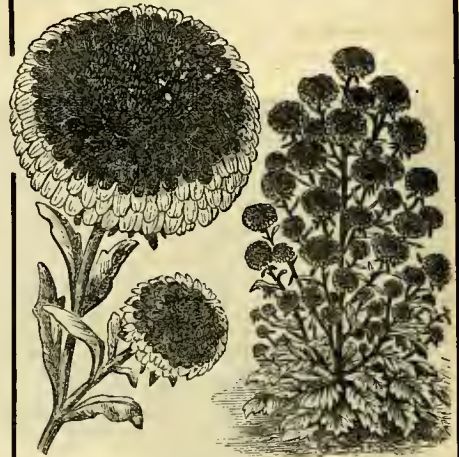
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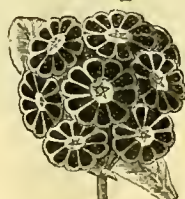


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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 28, 1888.

ALGIERS.

IN the warmer lands bordering the Mediterranean, and especially in Northern Algeria, the changes of the seasons with regard to vegetation are different from those of more northern regions. Here it is in summer that vegetable life disappears, and the earth rests. The cause is the continual drought characterising this season. From the end of May or the middle of June not a drop of rain falls; a fierce hot southern wind—the fearful sirocco—assists the sun; men and animals breathe with difficulty, and all vegetation vanishes; the harvest is already done, and the Grapes are almost ripe; one has to be content when the leaves are not attacked by insects, so that they fall off and expose the fruits to the influence of the fiery wind. The country has everywhere the appearance of a desert, as is the case in other lands in winter; the rivers are dried up, and the burnt soil nowhere shows any vegetation. In some sheltered spots the species of Citrus keep their leaves, but the hope of their bearing fruit is founded only on continual artificial irrigation; the indispensable water is, however, not to be found everywhere.

To this period of drought—dangerous also to men, and, above all, to Europeans not yet acclimated to it—a delightful season follows, best compared with the spring in Europe. A well-known scholar, Mr. Durando, of Algiers, who has studied the Algerian flora for upwards of thirty years, says:—"After a three or four months' drought, by which the herbaceous vegetation is completely burnt, rain appears in the first part of October, also often in the first part of September, refreshing the earth. . . . The soil is quickly covered with plants and flowers; it is our spring, and one is always glad to see this sudden change in Nature. Now the bulbous plants appear everywhere in the field; but when they appear in the footpaths or roads they are crushed by

wheels and passengers, and soon disappear. These plants are:—*Merendera filifolia*, Camb.; *Colchicum autumnale*, L.; *C. Bertoloni*, Kunth; *Scilla anthericoides*, Desf.; *S. autumnalis*, L.; *S. fallax*, Steinh.; *S. parviflora*, Desf.; *S. ligulata*, Poiret; *Lencojum autumnale*, L.; *Amarylilitea*, L.; *Narcissus cupanianus*, Guss; *N. serotinus*, L.; *Spiranthes autumnalis*, Rich.; *Arum arisarum*, L.; *Biarum Bovei*, Blume. Besides these, *Scilla maritima*, L.; *S. undulata*, L.; *Pancratium maritimum*, L.; and *P. collinum*, Coss and Dr., are already flowering in July, and continue so till October. Also may be mentioned *Cyclamen africanum*, Boiss. and Reut.; and *Ranunculus bullatus*, L., two plants the flowers of which smell like Violets; these and *Leontodon tuberosum*, L., with *Thrinax tuberosa*, DC., are very common. The yellow colour spread over the meadows about this time is caused by the flowers of the latter, as in the case with the species of *Ranunculus* in Europe. The children gather the roots, which are called here 'cat's-paws.' (*Association Française pour l'Avancement des Sciences, Congrès de Paris, 1878.*)

At the same time the following plants flower and ripen their fruits:—*Plumbago europæa*, L., with its indigo-blue flowers; *Calamintha heterotricha*, Boiss. and Reut., with a smell like Mint and balm; *Panicum colonum*, Lange and Willk., and *P. Crus-Galli*, L., cover the canals of the artificial irrigations—so they abuse the hospitality granted them; *Chenopodium ambrosioides*, L., from Mexico; this plant, with its aromatic smell, is now naturalised everywhere.

When the first cold is felt—and cold is here about 50°—with rainy weather, the soil is covered everywhere with the large silvery flower-heads of *Bellis atlantica*, Boiss. and Reut.; while *Iris stylosa*, Desf., is now seen expanding its beautiful blue flowers in ravines and other waste places; it flowers continually during the whole winter. Now the dark foliage of the Orange trees shows here and there golden spots intermixed. The Japan Loquat (*Eriobotrya japonica*) opens also its white and strong aromatic smelling flowers.

The upper parts of the Atlas Mountains are now snow-covered. Last year (1887) the first snow appeared during the storm of October 25–27, but disappeared in a few days. In the winter of 1886–1887 the snow covering was not seen before December 1, and lasted continually till the end of March. In a trip in the mountains on April 11 I found large heaps of snow under the Cedar trees at an elevation of 1400–1600 metres; it is, however, not rare to see all vanishing in a single day under the influence of the sirocco. At the foot of the mountains snow is very seldom seen, and even when it falls the flakes are melted as soon as they reach the earth. For the first time since my residence here I saw the country covered with snow for some minutes on February 11 last; it was between 9 and 10 o'clock in the morning; I also saw for the first time ice in the ditches on January 4. It is in general rare to see the temperature go down below the freezing-point; the lowest temperature observed was 25° on January 4 at 7 A.M. When the temperature falls as low as 41° the people believe themselves lost, and are benumbed with cold. In general the temperature varies between 50° and 70°, only when the sirocco blows it rises above 70°. This is the case in winter; in the summer months the heat reaches often above 110° in the shade; the mean for this season is almost 86° at mid-day.

From this it is easy to see that all greenhouse plants will vegetate here in the open air; besides almost all the species of *Citrus*, many of *Laurus*. Of these *Laurus gratissima*, L., *cinnamomum*, and in the first place *L. camphora*. Large specimens of the latter are seen here; it merits to be cultivated at large. (See an article on this subject by myself in the *Moniteur de l'Algérie*, March 4, 1887.) The species of the genus *Psidium*, *Anona*, *Eucalyptus*, and

Acacia, *Eriobotrya japonica*, the already quoted Japan Loquat, and besides a multitude of plants cultivated in the gardens here. I advise those of my readers intending to make a journey to Algeria to visit in the first place the gardens of Marengo, of Algiers, the gardens Bizot of Blidah, of Colea, and the nursery of Miliana. In one of the gardens of Blidah there is a specimen of the genus *Bombax*.

Last year many of these plants were damaged by the extraordinary cold mentioned above, at Mr. Fontaine's nurseries the following plants:—*Begonia semperflorens*, *Psidium pyrifera*, and *Anona cherimolia*. A certain species of *Psidium*, with small fruits, of which I do not know the name (it is called here *Goyavier du Japon*), has withstood the cold without injury. In my garden the buds and flowers of a *Justicia*, and also the young branches of *Laurus cinnamomum* were totally lost.

In the month of December flowers are rare; however, there are enough to make bouquets of them. The meadows are covered with luxuriant green. *Bellis annua*, L., forms a carpet which could be taken for snow at a distance.

In January the first Orchids appear in the fields, and in the garden the fruits of the species of *Citrus* are almost ripe; a variety of them has already appeared on our tables in December. The Violets are now seen everywhere on the roadsides, and the Roses are developing. As the season advances the number of flowering plants increases. I have in my herbarium thirty species of wild plants collected in February and fifty in March; the number collected in April and May is too large to estimate.

But the weather in March is not mild even here: I have found it to be the coldest month of the year (with the exception of 1887). On the whole, the weather of this month does not differ much from what we are accustomed to in Europe—wind, cold rain, and often heavy snow fall on the mountains. This bad weather, however, does not last long; when the sun breaks through the clouds spring sets in suddenly. Now an innumerable multitude of plants is to be seen; they are crowded together as if they feared not to get a place at this festival of Nature. It would lead me too far to describe the vegetation during the months of April, May, and June, as such a description would comprise the whole Algerian flora. Notwithstanding this I hope to try it soon, if not of the whole province yet at least of the environs of Blidah. *H. Gay, Preceptor of the Blidah College, Member of the Algerian Meteorological Society and the French Botanical Society.*

PLANT NOTES.

PYRAMIDAL POPLARS.

In my note upon these recently the Editor interpolates "Try Bolle's Poplar." This tree I know well, and consider it one of the most valuable additions to hardy trees of late years. But I think that what I meant to say was not made quite clear. What I meant is this. If the Metz Poplar is in habit of growth between the Lombardy or Bolle's, and the spreading pyramidal-headed Black Italian or Canadian, then it will be an important addition to ornamental trees, for we want a deciduous tree with an outline intermediate between the distinct forms which these trees assume. Too much cannot be written in praise of *P. alba* var. *Bolleana*. It is not much known yet, but it will undoubtedly become as popular as the Lombardy, and will, I imagine, thrive where the Lombardy will not. Being a variety of the *Abele*, it will probably prove as indifferent to soil or situation as that useful tree is. I am planting it wherever I have an opportunity. *W. Goldring, Kew.*

POPULAR PARASOL DE ST. JULIEN.

In answer to *W. Goldring*, who inquires as to the history of this Poplar in the *Garden*, January 7, p. 2, I should say that its history resembles that of many other varieties in demand by the planter. I will give its history in a few words. In the spring of 1865 one of the foremen of the establishment of Baltet Frères observed a slender, many-branched, reflexed Poplar growing on the bank of a canal at St. Julien, near Troyes. He then procured branches presenting in the most marked degree the character that it was desired to reproduce, and crown-grafted

them. After having proved and studied the new form during two years, MM. Baltet Frères sent it out under the name of Poplar Parasol de St. Julien. It immediately became widely spread owing to its highly ornamental qualities. It is far more beautiful than the old weeping Poplar, and it is also hardy. It is probable (but one cannot affirm positively anything in such a case) that the Poplar Parasol de St. Julien is only a form of *Populus tremula* (the Aspen), a form comparatively recent, and of a more showy aspect than that possessed by the old variety. I may add that it does best when grafted on *Populus alba* (the white Poplar of Holland), and that it does not succeed on the Swiss (?) Poplar. *Ferd. Cayeux, in "The Garden."*

NEW OR NOTEWORTHY PLANTS.

ONCIDIUM CHRYSOPS, n. sp.*

MR. HUGH LOW kindly informs me that this *Oncidium* struck him by its difference from its companions. It has short reddish leaves. The reddish racemose peduncle offers flowers which are distinct from those of the three neighbouring species—*bicallosum*, *Cavendishianum*, and *pachyphyllum*. The cuneate-oblong sepals and the much broader somewhat very blunt petals are of a very light brown colour. The basilar lacinia of the bright yellow lip are as small as in *Oncidium bicallosum*, the isthmus is very short, and the large anterior blade is reniform emarginate. The calli are triseriate. There are two large pistillar calli at the base, three filiform acute very small calli in the middle, and three larger terete acute calli in front. The column has falcate deflexed wings, with a tooth in front before they bend down on the superior margin. *H. G. Rehb. f.*

DENDROBIUM BRYMERIANUM (Rehb. f.) HISTRIONICUM, n. sub-sp.

The original type excelled in a glorious fringed beard, comparable to that of the genuine *Dendrobium Hookerianum*; I received later on numerous specimens with shorter fringes, some with none at all. The beardless plant may be easily recognised by its scarious bracts, making one think of *Dendrobium clavatum*, Roxb., and by the rhombic lip.

It was in August, 1886, that I learned that a most excellent observer, General E. Berkeley, had studied the plant; he knew it well from Bhamo, and had found it at an immense distance from that station. Mr. Rimann, then Mr. F. Sander's traveller, informed me of his having found another spot, on the (geographically) right side of the Irawaddy. General E. Berkeley's first specimens were very tall, the stems of course swollen in the middle. The same plant appeared later at Messrs. Hugh Low & Co.'s, who had long before introduced the grand type. Last year it flowered with Mr. F. Sander, and I had the same in 1879 from Mr. F. Kramer from the Rucker-Jensen garden at Klein Flottbeck. I tried to get as much information as I could. Mr. W. E. Brymer, M.P., Ilslington House, Dorchester, was the first who told me of the fact that the fine type is always vernal (spring flowering), while the histrionicum (which has sometimes a beard, sometimes none, like a comedian) is autumnal.

General E. Berkeley was so very kind as to send me three strong plants of the present variety from his fresh locality. I was exceedingly pleased to see last year the very same with very neatly bearded lips, which previously had been fully deprived of that ornament. Thus my old belief is confirmed beyond all doubt. The same gentleman called my attention to the quite

* *Oncidium chrysops*.—Aff. *Oncidium bicallosum*, Lindl. Sepalis tepalisque cuneato-oblongis obtuse acutis; tepalis latioribus magis obtusis; labelli lacinia lateraibus parvulis ligulatis obtusis; isthmo brevi; lacinia antica maxima reniformi emarginata callis triseriatis posticis geminis divergentibus pistilliformibus seil. teretibus; retuso-capitatis maximis, medianis minimis filiformibus acutis; anticis medio-cris teretibus acutis; columnæ alis falcatis deflexis; angulo superne supra flexuram exeunte. *H. G. Rehb. f.*

regular process of self-fertilisation in the *histrionicum* variety. It is regular in our plant. Then the General tells me that the *Bhamo* plant has always the bulbs longer and more slender, whether the plant be large or small. *Lubenter cedo majori*—the General is much better informed than I can be, yet I have obtained very slender specimens from the *histrionicum* from this high authority.

Just as in the case in the type, it frequently shows some abnormalities in the column. As it is, I cannot find satisfactory reasons for separating it as more than a sub-species. It is, however, exceed-

keels. The disc is covered with seriate gyrose callosities, which might be compared for their wrinkles to those of *Cœlogyne Massangeana*. Of the colour I can say nothing. I think of all my herbarium specimens, one from *Moyabamba* may decidedly, and that the *Lindenian* 1263 may probably, belong to this species. If the lip is much pressed and rolled it is exceedingly difficult to find the characters, which are so very easily seen in the fresh plants. *H. G. Rehb. f.*

KOROLKOWIA DISCOLOR, *Regel.*

We have this new and rare species in flower again

in breadth, with a tinge of red up the midrib on the underside. These leaves run right up the stem into the flower-head, losing themselves in numerous bracts. The flowers are arranged in a terminal head, and number from nine to twelve, and stand individually erect and forward, quite different from the campanulate form of inflorescence in the *Fritillary*. The flowers are from $1\frac{1}{2}$ to 2 inches across, of a light yellow, with a slight suspicion of green in it; segments oblong-lanceolate, slightly reflexed, and at the throat of the flower runs a blood-red ring; anthers prominent, of an ashy-purple colour. The flower



FIG. 17.—*LELIA ANCEPS* VAR. *GRANDIFLORA*. (SEE P. 107.)

ingly astonishing that the one variety flowers in spring, the other in autumn. *H. G. Rehb. f.*

WARNEA BIDENTATA, *Lindl.*

I have at hand a fresh (frozen) inflorescence, kindly sent me from Mr. Sander's Transatlantic establishment (50, Storm Avenue, Jersey City, New Jersey, U.S.A.), by Mr. S. Förstermann, the excellent and most successful traveller. Now I see the flowers in a fresh state I feel inclined to think that the plant is quite distinct from *Warnea tricolor*, *Lindl.* The lip is longer and narrower, not so transverse as in that plant. The keel at the base of the lip is very sharp, and has scarcely any indications of lateral

at Hale Farm Nurseries, Tottenham, and it is doubtless one of the best of Dr. Regel's introductions of late years. It may never become a commercial plant, for the flower lacks that decided colour which such a plant requires, but it would always form an object of interest in a private or botanical collection. A notable distinction between this plant and the *Fritillary*, to which it is so nearly allied, is its being amenable to forcing. By potting in autumn, and then placing it in a warm house, it will flower in about three weeks. In habit the plant is dwarf and compact, about 10 inches in height, with erect, sessile, subamplexicaul, broadly lanceolate, glaucous leaves, fleshy, about 3 inches in length, and 1 inch

gives the idea of a gigantic *Ixia*. A peculiarity of the plant is, that only three flowers of the ten have the pistil developed—in seven of the flowers it is totally absent; the flowers, with this exception, are perfectly normal. There are others coming on, so that I shall be able to observe if this irregularity be constant. *F. E.*

ROYAL SEEDSMEN.—We learn that Her Majesty's Commissioner of Works has entrusted Messrs. Oakshott & Millard, Seedsmen to the Queen, Reading, with the order for supplying Grass seeds for the Royal parks.

FERTILISING MOSS.

I AM pleased that one of such well recognised ability as Mr. Roberts finds this subject sufficiently interesting to give the readers of the *Gardeners' Chronicle* the benefit of his experiences and successes with that medium (vol. ii., s. 3, p. 810). I am also glad at the chance it gives of pointing out something of a novel character for intelligent horticulturists in the new year. True, as Mr. Roberts remarks, the system of culture is not quite new; it would be difficult to say when it originated, and yet very few growers have ever turned their attention to it to such purpose as has your able correspondent.

In the summary of the year's events in the various horticultural papers it is unanimously agreed that we have had no striking novelties introduced. Whether this, to many, new mode of propagation and culture will be taken up as a novelty it is too early to say. Plant growers are rather conservative in their treatment of ordinary subjects, and like your other correspondent, Mr. Bell, they are content to know that "fibrous loam" still retains its virtues, and that leaf-mould and peat are always to be relied on for given results. Perhaps, had we a more vigorous and practical united horticultural society at the head of affairs cultural, and not so much taken up with clique and fashion, we might hope—but there, I think it may be as well to let by-gones alone, and to live in hopes of a bright era under the auspices of such a national horticultural society as seems to be looming in the near future.

I am thoroughly convinced that there are many subjects of ordinary culture, both in soft and hard-wooded plants, that rejoice in a much freer and more porous rooting medium than is usually given. Some six years ago I treated the whole of my bedding, and more than half my stage plants with fertilising moss, and as I disposed of or planted out upwards of 30,000 of the former, and sold off all the spare stock of the latter, being afterwards applied to for more in the same condition, I was well satisfied with the results.

My satisfaction arose more, however, from the happy thriving condition of my plants, and one of my "pleasant memories"—and I trust we shall have many such in the New Year—is the mental picture of a large Wardian case filled with perfect little specimens in full bloom and vigour. This group included Fuchsias, Begonias, Pelargoniums, Gloxinias, Coleus, Ferns, and grasses; and as it was sent to embellish a counter in one of the most fashionable "ladies' emporiums" in London, and was there duly admired and wondered at, I had my reward. Not one of these plants had ever felt the benefit of loam or its concomitants. They were reared and bloomed in fertilised moss—most of them even without the aid of pots, the moss being simply bound round the balls, as it seemed desirable owing to the rapid and vigorous ramification of the roots.

Succulent plants, I find, are highly delighted in this medium, and I have no trouble or loss in propagating them in it, the moss being so much more absorbent under control, as regarded its damping properties, than other potting mediums. I am just now turning out a pot of the common spined Cactus that has had no water for over six weeks, and yet moisture is sufficiently present in the ball of moss to serve it for a considerable time. I find that after the moss has lost its fertilizing properties—it does so after being acted on by a vigorous set of roots for six or seven months—it is easier and better to place fresh moss over the surface of the old than to disturb the roots—especially in such examples as the Agave and Cactus. I also find that the plants get great benefit if after the moss has become partly exhausted liquid manure, chemically prepared, be afforded them. From previous experience I am aware that these facts and statements will be dubiously received by some of your readers, and I often wish that circumstances would permit me to set before them at some of our exhibitions a few examples of fertilising moss culture. As I cannot do that I trust the Editor will kindly comment

on the simple example I am sending him for inspection.

Its history is this:—A young, tender growing shoot, 3 inches long, broken off accidentally by a neighbouring gardener, and given by him to one of my little boys, was placed by him into a handful of the fertilising moss, pressed down into a pot. It has been simply afforded water by dipping the whole pot and its contents under water and letting the surplus drain off about once a month. This shoot was brought home in the spring of 1886.

I am quite aware that my system is different from that advocated by Mr. Roberts, but I trust that, as your correspondent Mr. Bell asked "that some one acquainted with the details of moss-culture" would ventilate the matter, you will find my few lines worth printing. The "Dumesnil" moss does not appear to me to suit this system of culture, as it is stated that it should be protected from the roots, or rather *vice versa*. What I use is the same as mentioned by Mr. Roberts, and I know of nothing so good for preserving roots while at rest, and bulbs and corms during the winter time, as it does not entirely dry them off, but on the contrary keeps them fresh and plump. Tuberous Begonias winter splendidly in the moss, and start again freely when required. Soft-wooded cuttings callus very quickly when the moss is kept moist and warm, and such roots may be removed at any time without injury. *E. Abel*.

[The Cactus is in excellent condition, and providing the plant be kept cool it will rest perfectly during the winter. The growth made from so small a piece of *Cereus splendissimus* was as good as could be done in the soil ordinarily employed. Many of our readers will have used moss, and moss commingled with rough peat for covering the shaded walls of stoves and greenhouses with Selaginellas, Ferns, and variegated-leaved Begonias, the materials being kept in place by wire netting. This is also in a sense fertilised moss. *Ed.*]

ORCHID NOTES AND GLEANINGS.

SEEDLINGS OF CYPRIPEDIUM.

THESE, so far as our present knowledge goes, are the easiest of Orchids to raise from seed, and are not long in reaching the flowering state. The lovely *C. niveum* is the parent of numerous seedlings, some of which have flowered, and others will do so shortly. A distinct and very handsome hybrid has just opened its flowers in the nursery of Messrs. Veitch & Sons, Chelsea. The seeds were saved from a plant of *C. Lawrenceanum*, whose flowers had been fertilised with the pollen of *C. niveum*. The foliage nearly resembles that of *C. Lawrenceanum*, and the flowers, though much larger than those of *C. niveum*, are more like it than the seed-bearer. The sepals are mottled, spotted, and striped purplish on a creamy-white ground, and the bases of all the sepals are slightly tinged with green.

Another hybrid is *C. Leeaenum superbum*; it is one of the prettiest hybrid *Cypripediums* yet raised. The dorsal sepals are almost pure white in colour, with just a slight flush of pink, and measure 2½ inches across. The form *C. Leeaenum* is now very plentiful, and as it can be obtained at a cheap price it should be found in every collection. The new *Cypripedium Sanderianum* is also in flower in Messrs. Veitch's; the flowers are much better developed than any I have yet seen. It is a distinct and beautifully marked species; the dorsal sepal is marked in the manner of *C. lavigatum*, and the slender tail-like attenuations of the laterals are much more beautifully marked than those of *C. caudatum*, and are quite 14 inches in length. The upper portion of the tail is densely covered for 1½ inch of its length with fine purple hairs, and has reddish-purple spots; the lip is of a brown colour. The flowers on established plants are expected to be much larger. The plant has larger leaves than those of *C. caudatum*, but is much like that variety in other respects. *J. D.*

GROBYA AMHERSTIE.

A specimen of this curious and interesting little Orchid, which is well figured by Lindley in the *Botanical Register*, t. 1740, is now flowering in the Kew collection. It has the habit and general appearance of a *Laelia*, except that the racemes are drooping. These bear a number of good-sized flowers, very singular in appearance, somewhat honey-coloured, the broad petals being densely spotted with purple-brown spots arranged in transverse bars. The curved column is also barred in front like the petals. The lip is of singular shape, the side lobes being large and membranous, and the front one small and very fleshy. It is a native of Brazil. Lindley remarks that it was sent to him by the Countess of Amherst, in whose collection at Montreal it flowered during the month of September. It had been sent home by Mr. Hayne, a Commissioner in Brazil, from the interior of that country in 1820. The only other species of the genus, *G. galeata*, Lindl., is also Brazilian. The flowers of the latter species have the segments narrower, green stained with a little purple, and the lip indistinctly banded with the same colour. Lindley remarks that the petals are much larger than the dorsal sepal, beneath which they are so placed as to resemble a helmet overshadowing the lip. *W. B.*

VANDA CATHARTICA.

This plant is figured in the *Botanical Magazine*, t. 5845, and we learn from the same source that in its native home (the Himalayas) it is usually found growing best in the immediate vicinity of waterfalls. This information affords us the key to its cultivation, and by closely imitating the natural conditions under which it is found its refractory tendencies might, in a great measure, be overcome. Indeed, I think, from what I know of the plant, there is no difficulty in growing and flowering it, provided a position suited to its requirements is allotted to it, which, from what has just been stated, points to a moist one with not too much direct sunshine. Our plant is trained against the back wall and partly over the water tank in a small stove, where the temperature during winter is about 55°–60°, and the wall always more or less damp from the moisture arising from the tank.

This position seems to suit it admirably—as it grows freely and flowers annually about this time, and is at present in flower. That the proper points of its management are attained, is shown by the bottom and side breaks flowering, but which we have been unable to flower in a small state when detached from the parent plant. Moreover, the old plant appears to suffer injury if it be shortened, and trimmed in the manner that is practised on some of the other species of *Vanda*. But it now seems more than doubtful whether this plant is a *Vanda*. Professor Reichenbach referred it to *Esmeralda*, and in the *Genera Plantarum* it is placed with *Arachnanthe*. Yet probably Lindley's name of *Vanda*, is just as good as any other for our purpose. The flowers are very striking, and remarkable. The sepals are quite an inch broad and rather larger than the petals, but both are of the same colour, elliptic in form and very bluntly pointed, overlapping each other towards the base. The ground colour is yellow; but it is so thickly marked with transverse reddish-brown lines that the latter colour is most conspicuous. The labellum, owing to its hinge-like mechanism of attachment to the base of the column, and its peculiar shape, is exceedingly striking; it is white, with two red lines running lengthwise: there are also bright red lines and spots round the cavity at the base. In shape the whole thing is not unlike a grass edging-iron with its centre pressed up, and the edges, which are yellow, sharply upturned all round. The flowers measure about 4 inches over, have a highly polished and massive appearance about them. *F. Ross*.

CYPRIPEDIUM SANDERIANUM MAGNIFICUM.

This variety promises to be very useful as a winter flowering plant when more plentiful. I lately saw a fine batch of it in flower, and also a quantity of

healthy young seedling plants, at Captain Vipan's, Stibington Hall, near Wansford. Mr. Milne, the gardener, had also a fine specimen of *C. insignis* with twenty-eight flowers open, and a very good variety of *Lælia autumnalis* with flowers 5 inches across. *W. H. Divers.*

LÆLIA ANCEPS GRANDIFLORA.

The accompanying illustration (fig. 17), from a photograph, of a fine plant in the possession of T. S. Timmis, Esq., Liverpool, well represents in its best aspect this beautiful Orchid, which with its white and newly introduced varieties, has of late years so far enriched our Orchid collections that in many places either a separate house or considerable space is given to them. The variety *grandiflora* has of late been sent us from several correspondents round Liverpool, who had acquired their specimens out of the *L. anceps* "Morada" importation of the Liverpool Horticultural Company, Garston, Liverpool. The *Morada* variety is characterised by fine size and form of flower, dwarfness and neat arrangement of the flower-spikes, and more particularly by the breadth of the front lobe of its rich purplish-crimson labellum, which may be seen even in the necessarily reduced proportions of the engraving. The plant illustrated was fully described in our issue of December 24, 1887, p. 788.

ONCIDIUM SPLENDIDUM.

Mr. Sander sends us a flower of this species, received from the gardens of Baron Edmond de Rothschild, of Armauvilliers, near Paris. In 1871, when we had occasion to write of this species, it was rare, and it still remains so. Our original figure, taken from a plant of Lord Lonsborough's, almost exactly reproduces the flower before us. The sepals and petals are recurved, undulate, pale yellow, with broad chestnut-brown blotches. The lip is clear canary-yellow with a wedge-shaped stalk, and a rounded sub-cordate limb. Projecting from the centre of the stalk of the limb are three straight keels, of which the central is much the longest; the column is thick and short, and furnished on either side at the top with an ear-shaped process, white, with a few purplish spots, and greatly resembling the head-dress such as many of the Dutch or Flemish ladies of Rembrandt's time affected. Quite in the interior of the flower are two yellow tooth-like processes, apparently proceeding from the base of the lip, but quite concealed from view till the flower is cut open. (See fig. 18.)

VANDA CÆRULEA.

The following note has come to hand since the issue of the representation at p. 41, January 14:—"The photograph shows a mass of *V. cærulea*, some of the spikes having as many as seventeen flowers on them. The plants have an exquisite effect when mixed with *Feris* and other ornamental plants. They have been grown in rather a dry position, with plenty of light and air, the roots clinging to the bare benches, for they do not seem to relish any sand, or any other material on the benches, that would hold the moisture about the roots too long." *G. S., Rochester, U.S.*

THE BULB GARDEN.

FREESIA CULTIVATION.

THERE is no reason why any one with an intermediate-house should not succeed in growing this charming flower, if only its natural requirements be followed. It is a semi-aquatic plant from the streams of the Cape of Good Hope and Natal, therefore should be liberally supplied with water, and kept growing the greater part of the year, and never dried off entirely. To see some fine examples of such treatment a visit to Mr. Bartlett, of Earlsam Hall, Norwich, would well repay any one. Some few years since some thirty bulbs were sent by a friend from the Cape, and which were potted in a 6-inch pot, and as the plants grew were potted on from time to time as the pots became full of roots, till now they are a perfect

picture to behold, being 3 feet high, and a sheet of bloom. It is a great mistake to treat them as many do, by being satisfied with one spike of bloom; for, like *Ixias* and *Gladiolus*, *Freesias* throw off bulblets, which in their turn produce spikes of bloom.

Now is as good a time as any for potting the bulbs, as large importations have just arrived in England from the Cape. If potted now, and treated as above, they will produce a quantity of flowers, and will well repay any one who requires a quantity of pure white sweet-scented flowers all through the year. On p. 83, I observe, E. Jenkins states that they want water sparingly at all times, which statement, I think, is erroneous, semi-aquatic plants naturally requiring plenty of water at all times. Mr. Bartlett gives his plants water freely several times a day, and hence his success, and besides, grows them over a tank of water. The soil most suited is, as Mr. Jenkins says, an equal quantity of good fibrous loam and peat, with a free admixture of sand and plenty of drainage. The best temperature is from 55° to 60°. *J. G. Hill.*

RAISING NEW VARIETIES OF AMARYLLIS.

Since the remarks by me on *Hippeastrum* were published at p. 56, I have thought that something more might be added on hybridising and raising of seedlings that might be useful. In less than a month the first flowers will be open, and the interesting process of crossing may be commenced. I have stated that the attempt to cross *Sprekelia* with *Hippeastrum* was a failure; and as far as my experience extends with the best named varieties of the *H. Leopoldii* type, it is very difficult to obtain seeds from them. The variety *John Heal* is, perhaps, the grandest garden variety of this type, and one that might be expected to reproduce handsome progeny; but hitherto the difficulty has consisted in obtaining good seeds, and whether this variety is fertilised by its own or by some other pollen, the result is the same. The flowers will show that they have been fertilised, and the pods will swell rapidly up to a certain point, when they shrink up, and there are no results. Except in several special instances, it is not desirable to save seeds from flowers crossed with their own pollen only, as I proved when I tried the experiment with that handsome variety, *Empress of India*, when it was first introduced to cultivation, and raised 700 plants from one umbel of flowers. There were five pods of seeds only. The result of this experiment was a large number of plants not differing materially from the parent; a few of them were better, but by far the larger proportion were inferior. The best results are obtained by cross-breeding, and I would rather have fifty plants raised from seeds that had been obtained by a judicious selection of parents than 500 from self-fertilised flowers. It has been stated frequently by experimentalists, that pollen from a distinct species, applied to a garden variety, is more potent than if its own pollen were employed. This is so in some instances, but not invariably. I have sometimes found the reverse to be the case. Dean Herbert, writing in the *Journal of the Horticultural Society*, in 1847, "On Hybridisation amongst Vegetables," seems very positive in the affirmative. He says that "the observation of several years enables me now to say that this remarkable fact is almost invariable, and that although the hybrids in this genus (*Hippeastrum*) are capable of bearing seed by their own pollen, the admission of the pollen of another cross-bred plant of the same genus (however complicated the cross) to any one flower of the umbel, is almost sure to check the fructification of the others, so the excision of the anthers in such case is quite superfluous, the difficulty being to get the individuals to fertilise their own germs." Herbert, in his very interesting paper verifies this statement by instances which came under his own observation; but doubtless many growers could give instances of plants of this genus producing flowers on which their own pollen was more potent than that taken from flowers of another species or variety. In fact Herbert himself states that the original *H.*

Johnsoni was in itself "capable of reproducing itself from seeds," and "A bulb of *H. solandriiflorum*, Johnson, of which all the flowers now set by their own pollen, produced seed vigorously from all of them."

I would like to remark here that the species, *H. solandriiflorum*, in two varieties (see *Bot. Mag.*, t. 2573 and 3771), as they were grown by Herbert at Spofforth, are likely to make quite a new class. They are grown in the collection of Messrs. Veitch, at Chelsea, and have been crossed there with some of their best garden varieties. The produce has already flowered in their Chelsea nursery. It may be either used as a seed or pollen bearer, and long-tubed flowers of rich and varied colours may be produced. They would be quite different in character from the produce of *H. pardinum* and *H. Leopoldii* species which have scarcely any tube. It will not be difficult to cross any species or variety of *Hippeastrum* with each other. The anthers of the flower intended to produce seeds can easily be removed with the fingers before the pollen-cases burst; that is about two days before the flowers are fully open. The flower must then be left until the petals have reached their full expansion. The pollen can very easily be applied to the stigma with a small camel's-hair brush. I perform the operation once a day until the flower fades, as one cannot be sure that the pollen on the one hand and the stigma of the other flower may be productive on the day of the first application, besides the seed-pods may start to swell, and give the cultivator the idea that they are likely to be full of seeds; but they may only reach a certain stage, and then suddenly collapse. The flowers ought not to be much shaded during the period of fructification, and a moderately dry, buoyant atmosphere ought to be maintained.

I sow the seed as soon as it is ripe, placing it in a hothouse with or without bottom-heat; but it will vegetate most freely with a bottom-heat of about 85°. The doubtful seeds, which may probably produce the best flowers, will vegetate in a bottom-heat, and might not do so without it. I prick out the plants in three weeks after they appear above ground—about a dozen in a 5-inch pot, where they grow freely up to mid-winter, when they are repotted and started with the others. *J. Douglas.*

CULTURAL MEMORANDA.

CYPERUS ALTERNIFOLIUS.

THIS almost indispensable decorative plant and the variegated form of it are easily increased by division of the roots, or by inserting medium-sized tops in small pots filled with light soil with a surfacing of silver-sand, and plunging them in a good bottom-heat. Plants of dwarf habit than could be obtained by division of the roots will be secured within a month or six weeks from the time of putting in the tops, which should rest on the surface of the soil. The plant may also be readily propagated by placing the tops with an inch of stem attached in pans of water in a stove or cucumber-house, potting them up after they have sent up several little plants in a mixture of peat and loam, and a sprinkling of sand. The plants should be kept moist at the roots. They will thrive in any temperature between 55° and 85°. The variegated form should be potted in all heat, giving only sufficient sand to keep it porous, and any green stems that appear—which they not unfrequently do—should be removed forthwith.

EUPHORNIA JACQUINIFLORA.

The long sprays of scarlet flower bracts furnished with long narrow green leaves, which this erect-growing stove plant freely produces during the winter months render it a desirable and effective plant. Cuttings taken off now and inserted in small pots filled with sandy mould, watered, and placed under a bell-glass or hand-light in a stove or cucumber-house will soon root. They should then be potted singly into small 60-size pots in a mixture of loam and peat, with a dash of silver-sand added,

putting the plants back in heat in a position near the glass, and as soon as they have made fresh growth pinch the points out, repeating the operation a week or two after they have been shifted into 3-inch and 4-inch pots respectively to make them branch, but not after they have been put into their flowering (6-inch) pots. The growths should be trained up under the glass during the summer and early autumn months in order to get them properly ripened, giving water at the roots when required. During the last two weeks of September and throughout October the plants should be rested a little by putting them in an intermediate-house, returning them to the stove or forcing-house early in November. *H. W. Ward.*

CISSUS DISCOLOR.

This stove climber is a good subject for a basket or hanging vase, for covering a wall, or as plants in a pot trained over some form of trellis. It makes a handsome specimen, and as such is frequently met with at summer horticultural shows. Small plants of it, alternating with plants of *Panicum variegatum* at the sides of the staging or kerb in the plant stove, are a tasteful arrangement. It is easily increased by cuttings taken from the young growth and put into small pots filled with sandy peat and put into heat. They may be potted off singly when rooted, or a cutting pot may be shifted into a larger pot and thus grown on.

FICUS ELASTICA.

Cuttings of this plant taken now and put in singly in 3-inch pots filled with sandy soil in a bottom-heat of 85°, and kept moderately close, will root in a month. Shift when the roots touch the side, and grow on in a hotbed for a month, when they may be taken to the stove or warm greenhouse and placed near the glass. They will make nice useful plants by the end of next summer. The wood chosen for cuttings should be ripe, one or more years old; soft growth is of little value for the purpose. Tie up the leaves to a stick whilst in the cutting bed, to prevent injury to them. Plunged in a bed of tan or leaves in a pit and afforded plenty of room and but little shading the *Ficus* makes fine robust specimens. *F. australis* is an almost equally good species, and is harder than *F. elastica*. *H. W. Ward.*

PLAN OF GARDEN AT DUNHAM MASSEY.

The plan (fig. 19) of a Cheshire garden is one that was proposed by Mr. John Shaw, of Bowdon, a landscape gardener of established repute. The place is the property of W. Bery, Esq., Dunham Massey. We think that, as regards the boundary screens, and groups to secure diversity, the arrangements are well adapted to the purposes intended to be fulfilled, but the floral decorations of the garden appear to be inadequately provided for, as, with the exception of the geometrical parterre in front of the house, no other provision seems made for the cultivation of flowering plants in the open air, unless that be done in the kitchen garden. We note, too, that the vineries have half-face round to the east, thereby robbing them in the afternoon of some direct sunlight. Mr. Shaw has kindly furnished us with the following particulars:—

The site chosen for the house and grounds is on the slope of a hill commanding extensive views south to west over the well-wooded counties of Cheshire and Lancashire. It is also comfortably backed up and screened from the north and east winds by the old woods and park of Dunham. The main entrance is direct from the Knutsford road, with suitable back entrance and other convenient outlets to interesting points of surrounding scenery. The laying out of the grounds, it will be seen, is in the natural style, as being best adapted to the situation and the natural features of the vicinity. The terrace, flower garden, and immediate surroundings of the house are subordinate to it, but, with the exception of the parts to be used for lawn tennis and other games which are level, the

general surface is considerably undulated, with easy slopes pleasantly diversified by promontories for views and recesses for privacy, shade, and shelter.

The lawn is spacious for a place of this kind, and unspoiled by the objectionable system of cutting up into flower-beds or the spotting over with trees, which is carried to too great an extreme in some gardens.

The kitchen garden, of rather under half an acre in extent, is situated conveniently to the stables, and pretty well screened from the pleasure ground, without being unduly shaded. The walls will be utilised for growing fruit trees.

The conservatory is attached to the house, but the vineries and forcing-houses are as indicated on the plan. The house, stables, summer-house, and forcing-houses are placed not only for convenience, but are so diversified in their construction that each forms a feature in harmony with its neighbouring objects. As the situation and soil are in every way

this purpose the earliest forced plants are not suitable, being too much weakened through hard forcing; but those plants are the best which are turned out from the middle of April to early in May. After being placed in a sheltered situation for a short time and well attended to as regards watering they are planted in their permanent quarters in the garden. Care must be taken that the soil is placed firmly round the ball, and that the plants are well moistened previous to being planted. Towards the end of June these plants should afford a fair supply of sturdy runners which I prefer to runners from the previous year's plantations. As soon as runners are procurable they are placed in small pots, and are not detached from the parent plant until well rooted. When detached they are placed in a position facing west, where they remain until they show unmistakable signs of active growth. Where thousands of plants are grown it is well to layer a few hundreds more than are wanted for potting as, there will



FIG. 18.—ONCIDIUM TIGRINUM VAR. SPLENDENS. (SEE P. 107.)

suitable for the growth of the generality of most species of trees and shrubs, only such will be planted as will afford shade, shelter, and pictorial effect.

STRAWBERRY FORCING.

PREPARATION OF THE PLANTS.—From this time onwards until early Grapes, Peaches, &c., are ripe, there is no fruit of more importance than the Strawberry, and its successful cultivation should be such as to afford ripe fruit in quantities without a break from the middle of February until ripe fruit can be picked out-of-doors. To do this entails much forethought and painstaking skill. There are various ways of growing and preparing the plants for forcing, and every experienced grower will adopt that system which he has found in practice to answer his purpose the best; that is what I have done, and thinking that the practice may be of interest to some of your readers I furnish the following points of it. It is my custom to preserve as many of the forced plants annually as are wanted to plant a quarter in the garden. For

generally be a few weak and badly rooted plants which must be thrown away or put on one side for the reserve border in the garden. The pots I use are termed 6-inch, but they measure rather more; all are made scrupulously clean before being used.

POTTING AND SUMMER TREATMENT.

The soil used in potting is composed of three parts fibry loam, with most of the fine sifted out, and one part old Mushroom-bed manure, with a liberal addition of bone-dust and soot. Only one good crock and a few small ones are used (these must also be clean); these are covered with fibry turf afterwards sprinkled with soot to prevent the ingress of worms. In potting it is almost impossible to press the soil too firmly in the pot, and the crown of the plant should be a trifle higher than the surface of the soil. After potting the plants should be placed together as thickly as possible in a sunny position and should remain here until they have made considerable progress in growth, when they must be afforded more room and arranged in beds of five or six rows with paths between the beds for watering, weeding, and keeping runners down.

As soon as the pots are fairly full of roots, the plants receive an occasional dusting of soot, and this is the only stimulant they receive whilst growing. Some of the varieties are prone to form duplicate crowns, these should be reduced to one or two as soon as perceived.

The plants should remain out-of-doors to as late a

WATERING.

There is no duty so important in connection with the successful growth of pot Strawberries as that of watering; for you may observe every detail necessary to secure good results, but if you fail in the matter of careful and timely watering all other labour will count for nought, and failure will be

well, and his superior can say that his plants have not suffered at any time from the want of water, or from the ravages of spider, then I should mark that man, and feel much disappointed if he did not succeed in life.

THE EARLIEST CROPS.

To have ripe fruit about Valentine's Day, which is

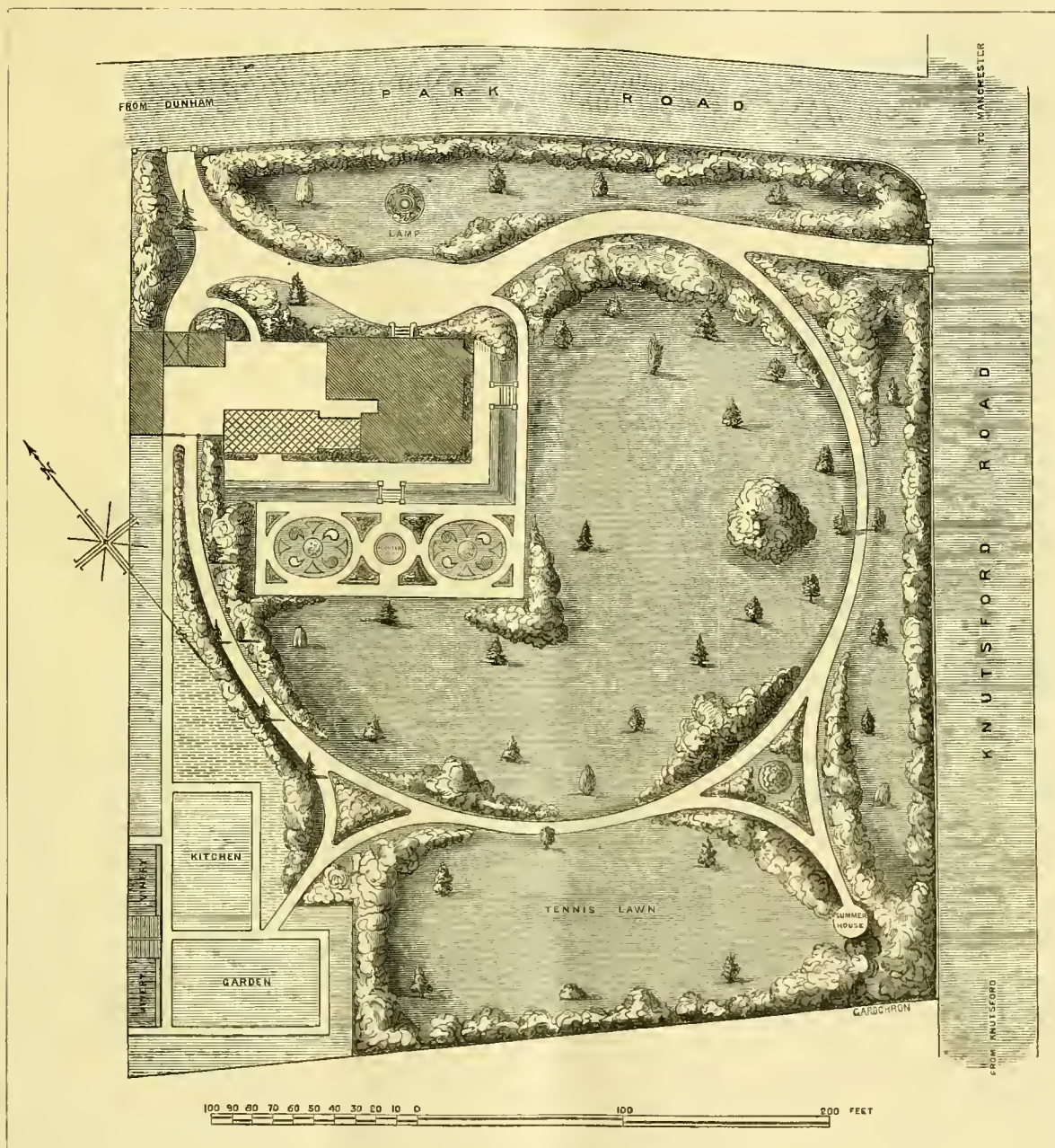


FIG. 19.—PLAN OF GARDEN AT DUNHAM MASSEY. (SEE P. 108.)

date as possible in the autumn; mine are left out until there is danger of frost cracking the pots. The plants are best wintered in cold frames, the pots plunged in leaves to the rim. If wintered in fruit-houses, as is common in most gardens, the plants should never be permitted to suffer from want of water at the roots, and a good syringing overhead once a week through the winter tends to keep the plants fresher and in better health than when the foliage is allowed to become too dry.

sure to follow; therefore let me urge this truth with importunity on the minds of young gardeners who may have charge of a valuable stock of these plants, never to permit them to suffer from want of water at any period of their growth, and especially after the plants are placed under glass for forcing. To have charge of five or six hundred plants in full swing on dry shelves in lofty houses from March to the end of May is as severe a test of the mettle of a young gardener as I could imagine. If he acquits himself

the time we usually commence to pick it, it will be necessary to introduce the first batch of plants into heat a day or two after Christmas. The means most favourable for starting the plants into growth I have found to be a pit with a thick bed of Oak or Chestnut leaves, which will afford a bottom-heat of 70°, and the top-heat should be kept at about 50°; the plants must be arranged close to the glass. As soon as the flower-buds can be discerned the plants are removed to a warmer temperature—generally a shelf

near the glass in the Melon or Cucumber-house, where they remain until the flowers are on the point of expanding, when they are again removed into a house which has a warm current of dry air passing through it, and where they receive daily attention to fertilisation. At this season of the year this is an important point, as is shown by the many deformed and useless fruit we observe on plants not carefully attended to in this matter.

As soon as the fruit is set the plants are again placed in more heat in a light position near the glass, where they soon swell and mature a crop of fruit, which, when well finished, afford as genuine a pleasure to a grower as the far superior crops do later on. Some may object to the labour of shifting the plants from one position to another; but when it is a question of success or non-success, the slight additional work is of no moment.

As the season advances the attention to fertilisation will not be so necessary, but all through the matter must be borne in mind, as it is impossible to have satisfactory crops with imperfect fertilisation.

SECESSIONS.

Once a week during the season the plants should be overhauled—those which have done fruiting taken out, and their places immediately filled up with the forwardest of the plants with set fruit coming on in cooler houses. Those setting must be looked over, and the fruit thinned, reserving eight on each plant. Any "blind" or imperfectly fertilised plants should be thrown away, and a succession brought in from the cold pits. If this work is readily attended to once a week, and sometimes oftener, there need be no break in the supply of ripe fruit for dessert; but if only attended to in a hap-hazard sort of way, then only a fitful and unsatisfactory supply is obtained. A liberal use of the syringe is beneficial to Strawberries in pots at all stages of growth during forcing (excepting when in bloom), and absolutely necessary in hot weather when the plants are grown on shelves in fruit-houses, if spider is to be kept in check.

The forcing of Strawberries is made much easier and more simple where a house is provided for the purpose in different sections, although I have seen better fruit on shelves in fruit-houses than I have ever seen in houses exclusively devoted to their growth.

It is a good plan, where a cold pit can be spared, to plant it with Strawberries; most excellent crops are grown in this way, and often prove valuable in giving a supply at the end of the first season, and before the out-of-door fruit is in.

VARIETIES TO FORCE.

The question, Which are the best varieties to grow? is an important one to the Strawberry grower, and one on which many opposite opinions are held. As a first early variety some growers employ Black Prince, and others Keen's Seedling, and Vicomtesse H. de Thury, and some the latest favourite, Pauline; all these I have grown extensively, but have discarded in favour of La Grosse Sucrée, which in my estimation is the best early Strawberry in existence; to be followed by Keen's Seedling, President, Sir C. Napier, Sir J. Paxton, Dr. Hogg, and a few Marguerite for size. O. T. C.

FLORISTS' FLOWERS.

PRIMULAS.

Croice species, Alpine and Himalayan, are treated very much like Auriculas, both as regards the treatment of seedlings and of old plants. Most of them are of more vigorous growth, and also grown more rapidly. The largest sized pots we use for Auriculas would be about $4\frac{1}{2}$ inches in diameter, whereas some of the Himalayan Primulas would require 8-inch pots after one year's growth. Some of the most vigorous are *P. prolifera*, *P. purpurea* (not the *P. purpurea* of Royle), *P. sikkimensis*, *P. luteola*, *P. rosea*, and a few others. The alpine species are, as

a rule, more dwarf in habit, and if large pots are used for them the plants are not likely to do so well. They all require to be placed in an open, airy position. Damp close frames, or too much water, cause many of them to rot off at the neck. If necessary, any of them requiring to be surface-dressed should be seen to now. All of them must be made thoroughly clean. In addition to the leaves being attacked by greenfly, and the roots with woolly aphid, that more insidious pest, red-spider, is very troublesome; it will sometimes altogether destroy the leaves of such species as those of the *P. purpurea* type.

THE POLYANTHUS.

These are the most difficult plants to manage of any varieties or species of the great Primula family. If we could produce first-class varieties easily from seeds the work would be easy enough; but I grow annually numbers of plants from seeds of the best varieties, and have not yet raised anything to nearly equal George IV., Lancer, Exile, Prince Regent, Cheshire Favourite—or, indeed, any others of the old beauties of long ago. Amongst moderns Mr. Barlow has made some of the best hits in the way of seedling raising, and Sanderson's Naxara is very distinct, and equal to the best. The plants are now in a frame near the glass, treated as the Auriculas are, but they require rather more water at the roots.

THE CARNATION AND PICOTEE.

Already we are preparing the compost for potting the entire collection of plants in February, that being the month in which the work is usually done here, although we sometimes go into the early days of March with it. The material used is loam four parts, leaf-mould one part, and decayed stable-manure one part, with a portion of sharp sand added to it, and all the different materials are well mixed. This compost is better for being in a heap at least six weeks before it is used. As regards the sizes of pots, we use 7 to 8 $\frac{1}{2}$ inch, and find them quite large enough, the layers rooting better in the autumn, when the small pots are used, than was the case formerly, when much larger ones were used. The compost being prepared, and placed where it cannot be saturated by rain, it is ready for use when required. Before commencing operations let the pots be cleaned and well crocked, some tough fibre, free from loose particles of earth, being placed over the crocks, a little light flaky manure being mixed with it. All our plants were in large and small 60-sized pots; and in transferring them from these into the pots in which they are to flower we are very careful not to cause damage to the roots, and my object in potting the plants thus early is to give them a better chance to recover from the shift. However careful one may be in repotting a plant, it is certain that some roots will be damaged, and this is easier to be repaired about the end of February than later. I do not ram in the compost too firmly, but it is better that it should be made firm with the fingers, so that no spaces are left round the old ball. It was an old custom to place the pots containing newly potted plants out-of-doors as the work proceeded. If that is still anywhere preserved, early potting will not answer, and the operation had better be delayed until the middle of March; but even then there is danger, as I well remember. Encouraged by the mild weather, I placed the plants out-of-doors, but before the work was completed the wind had changed to the east, and snow fell heavily. This taught me a lesson for my future guidance, and now the plants are put into frames as they are potted, and no water given for two or three weeks; this latter depends, of course, on the kind of weather experienced; some seasons they are not watered for six weeks after being repotted. Frost may set in, and continued cold weather, but the plants will be all right if they are kept dry—they do not mind the cold.

The whole collection out-of-doors in beds and borders looks very promising, and, so far, they have required no attention. We shall first remove the dead and decaying leaves from the plants, pull out the weeds with the fingers, and then stir the surface

of the ground with a hoe. I tried an experiment of late planting this year. The rooted layers were not taken off until the end of November, and they were at once planted out in the open. I hope they will succeed even better than the earlier planted ones, J. Douglas.

"RUN" CARNATIONS.

Mr. M. Rowan, of Clapham, has recently made known a curious circumstance affecting "run" flowers of Carnations. Two plants, sports in 1886 from John Harland, crimson bizarre, with pink grounds and maroon markings, took singular departures during 1887. One returned to the pure white ground and beautiful colours of the original, while the companion plant subsided further into a deep purple self. The vagaries in the way of sportiveness in flowers is something remarkable, and these are cases in point.

THE DRY SUMMER AND CARNATIONS AND PICOTERS.

Mr. Tom Lord, of Todmorden, a well-known grower and exhibitor of these flowers, makes the interesting statement that, though the season of 1887 commenced unkindly, the development of the plants by the end of the summer was most satisfactory. The appearance of the weaker growing varieties, Rob Roy, R.F.; Muriel, H.P.P.; Esther, Minnie, and Lady Louisa H. Rose, P.S., is such that good blooms may be expected.

PLANTS AND THEIR CULTURE.

PROPAGATION.—To be an adept in the art of increasing plants the gardener must be a good plantsman, because patience and careful attention to the individual requirements of the plants are the chief factors that are essential to success. The operation is very much simplified when there is a special house or pit for the purpose, but much may be accomplished without these helps, and there are few gardens in which suitable places could not be made out of existing structures. In the case of tropical plants a warm sheltered corner should be selected, such as where, from some cause or other, there are a greater number of hot-water pipes. But whatever position be selected, and having decided on the size, enclose it with boards so that it can be filled with material to absorb the heat from the pipes, and to plunge the cuttings in. This material may be either leaves, tan, coal-ashes sifted finely, cocoa-nut fibre refuse, or sawdust; the last-named two are, I think, the best, and in point of cleanliness I prefer the sawdust—I also find that sawdust is a capital substance in which to root many things. A frame is placed on this prepared bed, and in doing this try if possible to get the back or highest part of the frame on that side which would be the sunny side, the object being to get a maximum of light without having to use much shading, as much shading seems to retard the rooting process in cuttings, and undoubtedly weakens them. In all these arrangements for the propagation of plants the principle is the same, viz., to maintain the balance between evaporation and absorption; thus, when the cuttings lose water in excess of what they are able to take up they wither, and as plumpness is a necessary condition of growth none can take place until the necessary degree of distension is regained. It is, therefore, proper never to let cuttings flag. See that the bottom-heat does not get too strong, which is an evil most to be guarded against at first. A strong bottom-heat will cause cuttings to flag even when sufficient shade and moisture are afforded.

Where there is much furnishing or table decoration to be done a large batch of suitable things put in at the present season become well rooted and fit to pot on just in time to get the full benefit of the bright days of spring, thus admitting of early maturation of growth. And again, should the object be to grow them into specimens we cannot over-rate the advantages of an early start. In taking the cuttings choose large healthy pieces, especially when the cuttings are those of Crotons, Eranthemums, and Acalyphas; there are, however, plants which, when required in a small state, are best when grown up from small cuttings and eyes, such as Cyanophyllum and Cordylines.

In putting in the cuttings use sandy soil, as this,

THE FLOWER GARDEN.

BEDDING PLANTS.—Plants for summer bedding should receive timely attention. Look over autumn-rooted Pelargoniums in store pots and boxes, taking out dead ones and removing mouldy and decaying leaves, and ventilate freely on fine sunny days. In watering, exercise caution for the present, and avoid extremes either way. Examine old plants, cutting out all dead shoots. These plants will furnish cuttings to replace losses amongst the autumn-struck stock, and if taken off now, inserted singly in small pots, and placed in a little heat, they will soon take root, and make serviceable stuff in time for planting out. Stock plants of *Alternantheras*, *Iresines*, *Coleus*, *Lobelias*, *Tropæolums*, *Ageratums*, and *Verbenas*, should also be seen to, and where doubts are entertained regarding the quantity of cuttings required, push on in more heat, placing them on shelves near to the glass.

Frame Ground.—Cold frames containing shrubby Calceolarias, young stocks of perennials, Violets, Echeverias, &c., will require occasional examination by way of cleaning, and stirring the surface soil with a pointed stick, to render all clean and sweet. Ventilate freely on all favourable occasions, the object being, for the present, not to excite the plants into what would be premature growth. See that the means to exclude frost are in readiness, and should the plants get frozen thaw them gradually, and shade from sunshine for a few days; timely precautions, however, ought to be taken to avoid an occurrence of this nature.

Seed Sowing.—Seed of tuberous-rooted Begonias may be sown, using shallow pans with plenty of drainage and a compost of finely sifted loam, peat, leaf-mould, and sand; water the soil before sowing and let the seed remain on the surface and cover the pans with a pane of glass—some would use a tile. The following seeds of sub-tropical bedding plants may be sown without delay, viz., *Cannas*, *Ferdinandia* eminens, *Acacia lophantha*, *Solanum giganteum*, *S. robustum*, *S. pyracanthum*, *S. Warscewiczii*, *S. marginatum*, *S. laciniatum*, *Wigandia caracasana*, *Melanthus major*, and *Acanthus latifolius*. Place the seed-pans in a temperature of 70° to 75°, and when large enough prick out the seedlings into other pans, or singly into thumb-pots, shifting on into larger pots as they require more root-space. A compost of loam, peat, leaf-mould and silver-sand, with good drainage, will suit such plants. *J. Horsfield, Heytesbury.*

THE HARDY FRUIT GARDEN.

THE PRUNING OF BUSH FRUITS.—All these should now be pruned without delay. Before pruning Gooseberries, the purposes for which the fruit is required should be taken into consideration. For instance, the bushes from which the fruit is gathered in a green state may have the wood left rather thickly, while those which are desired to produce fine fruit for dessert will require more thinning, and he side shoots to be spurred in to two buds. It is always a good plan to leave a few well-placed young shoots, so that one or two of the oldest and undermost branches may be removed annually.

Currant bushes of the red and white varieties, if well established, should have the side shoots spurred in to three buds, and leaving 3 to 6 inches of young wood, according to needs and position, on the ends of leading shoots.

In pruning black Currants which do not require any stopping, merely remove some of the oldest and worst placed wood. If this matter is properly attended to yearly, the trees will always be furnished with vigorous bearing wood, which will bear fruit of the finest quality in large quantities. After Gooseberry and Currant trees are pruned (should they have been attacked last year with caterpillars) take a hoe and scrape the soil away to the depth of 2 or 3 inches from under the bushes and as far as the branches extend. Then on the exposed surface apply a good dressing of freshly-slaked lime—this will be found a good preventative. The soil that is scraped away should either be dug in deeply between the bushes, or, better, taken away and buried, as it contains the small brown cocoons from which the saw-fly issues in the spring. This advice does not apply to black Currants.

Gooseberry and Currant Cuttings.—Should it be

desired to increase the stock of any particular variety, and the cuttings are not yet made, select medium-sized shoots; no time should be lost in doing so. If small birds attack the buds of Gooseberries, it may help to keep them away to dust the bushes well with a mixture of lime and soot; but this is not always successful, and netting the bushes or shooting the predators may become imperative.

Raspberries.—If these were properly thinned last autumn, but little will remain to be done beyond topping the shoots to the required height. Leave six canes to a stool, use fresh stakes if found necessary, and fasten the canes to the same with tarred twine, or Willow twigs. The framework from which the nets are suspended to keep birds from the fruit had better be looked to, and repaired if it be found necessary, as time for this kind of work can be better afforded now than when the season is more advanced. Autumn-fruiting Raspberries, which bear on the current year's growth must be pruned close to the ground, and if fine fruit is wanted give a liberal dressing of manure. *A. Ward, Stoke Edith Gardens, Hereford.*

FRUITS UNDER GLASS.

MELON-HOUSE.—Melons which are planted on mounds should receive a steady night temperature of 70° to 75° at this season of the year, and it will be found advisable to augment the bottom-heat with warm leaves, the warmth from these being more genial than that from hot-water apparatus alone. Sowing Melon seeds in small pots is a complete waste of time, tending to weaken the constitution of the plants, and to predispose them to attacks of red-spider and thrips. It is better to make up a good bed of warm leaves in the houses, keeping it as close to the glass as possible; on this place tiny heaps of nice sharp light soil, and in each heap place two or more seeds. They will germinate as quickly and grow more robustly than those grown in pots. I have succeeded in rearing young Melons this way when the pot system has signally failed.

Cucumbers.—Plants which have fruited up to the present time will be greatly benefited by slight top-dressings of nice light soil and a little Vine manure put over their roots; if put on in thickness of about an inch and a half it will be quite sufficient, each time the roots appear on the surface. These plants should not be stopped so closely as summer fruiters. Prepare another division for early sowing, if not already done; see that the structure is scrupulously clean, and make up a bed of warm leaves, on which place small mounds of two parts leaf-mould, and one part spent Mushroom-bed and fibry loam; into each of these place a couple of seeds. Maintain a generally humid atmosphere by frequently sprinkling the paths and walls, and let the temperature be about 65° to 70°. *W. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

FORCING-PITS.—If the fermenting material has been prepared as was advised a fortnight ago, it should now be ready to make up into hotbeds for early Potatoes. In making the bed, pack all the material firmly together; put a thickness of about 1 foot of rich light soil on the top, and as soon as this is warm, plant the Potatoes that have been previously started into growth in boxes, making the rows 15 inches apart, and putting the sets 12 inches apart in the rows. If room be scarce, a few Radish seeds may be scattered thinly over the top, and lightly covered in, but these as a rule are much better when sown by themselves. Early Milan Turnip and Early Nantes Carrots should be sown now in hotbed frames.

Chicory should be taken up, and the roots placed rather closely together in a Mushroom-house, or any similar position that is warm, moist, and dark, about a fortnight before being required for use. Any Lettuces or Endives still remaining outside should be taken up in mild weather, and be re-planted in a cold pit where they can be prepared for use as required. Endive is quickly and easily blanched if planted in boxes 4 inches deep, and put in the Mushroom-house, and is then very tender. If Onions are likely to be scarce toward the end of the season, any that may start into growth now should be planted out, such will be useful for pulling green before the Tripoli varieties are ready. *W. H. Divers, Ketton Hall.*

being very porous tends to prevent the loss of cuttings from damping off, and the smaller the pots are the better, provided they contain enough soil to hold the cuttings firmly in position, neglect on this point is the cause of much loss. I always find it better, when the cutting is large, to fix it to a small stake, and also to tie up the leaves. This last operation, while assisting in steadying the cutting, also prevents the leaves from being damaged so much as they often are when fully spread out; space is likewise economised. Finally, water them, and plunge the pots in the propagating frame, and maintain a constant degree of humidity and warmth about them, with as little variation as possible. Strict attention to the last named points will greatly minimise the chances of failure.

Potting Plants.—With the beginning of February plants will show signs of moving, therefore the general potting should be no longer delayed. In order that it may go on rapidly after commencing, it is well to see that all requisites are got in readiness. Loam, peat of various grades, leaf-mould, and sand, having been put under cover last month, these will now be in capital condition. The fibry and more durable portion of peat should be used for plants as the staple for such plants as *Ixoras*, *Marantas*, *Alocasias*, *Anthuriums*, &c., the finer portion being suitable for mixing with loam in potting *Dracænas*, *Eranthemums*, *Ferns*, &c. The fibry part of loam is proper material for Palms, Cycads, Crotons, Dasyliorions, Yuccas, and Beaucarneas, &c. Leaf-mould should be freed from bits of decayed wood, which is apt to breed fungus in the pots. The operation itself is simple enough, and generally well understood, yet it is well to remember to use clean pots only, and to crock them with clean crocks, and not to pot a plant when it is dry at the root or when in a wet condition, but fairly moist throughout is the best state in which to pot, and, unless with strong growing or annual subjects, do not give large shifts. Disentangle the outside roots carefully, and give small shifts, and, if desired, pot again as soon as the roots reach the side of the pot. In putting the soil into the pots care should be taken to work it well in amongst the roots—always making it moderately firm, as the roots are only able to perform their proper functions when in close contact with the particles of the soil. Leave plenty of room for watering, and in finishing the operation the surface of the soil should have a nice rounded appearance, and rather higher towards the collar of the plant.

Mignonette.—Plants which have been wintering in pits or frames should have air afforded on every favourable occasion; pinch off any weak growths, and assist them with weak liquid manure. A little clear lime-water is also beneficial to the plant. If the plants are standing on a cool moist bottom, the temperature may now be kept up to about 55°. Avoid overwatering the plants. Put in fresh seeds for succession, using 48's and 32's—the sizes which are the most useful. For soil, use three parts good loam, adding rotten manure, leaf-mould, and a little sand; and either use some lime rubble in the crocks or mix some with the compost, which latter ought to be of a fairly retentive character. Sow the seeds thinly and cover lightly, thinning out to eight or ten plants, and shade from strong sun as soon as the seedlings are large enough to be handled. When 4 inches high put a small stick to each plant, keeping the plant in front of the stick. Parson's white, Golden Queen and Giant Pyramidal are varieties that will suit the most fastidious.

Calceolarias.—Those do best in pits or frames where the frost is only just kept out, and plenty of light and air afforded. Late successions should be moved into their flowering pots before there is any sign of their showing flower, as it is very little use potting after that. Having tried them in many soils, I have found them finish best in rather strong loam mixed with leaf-mould and sand. Should greenfly put in an appearance syringe with weak tobacco-water, taking care to apply it on the underside of the leaves—a "crank" syringe with a rose being the best instrument for applying it.

Fuchsias.—The general stock of these should now be brought out from their winter quarters, pruned hard back, and placed where they can be occasionally syringed. An ordinary greenhouse temperature suits them best, but plants may be put into heat to afford cuttings. Pot off cuttings which have been recently struck, using light rich soil consisting of one-half loam and one-half sand and leaf-mould, or manure. Pot firmly. *F. Ross, Pendell Court.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, FEB. 2—Linnean Society.

SALES.

TUESDAY,	JAN. 31	Orchids in Flower, at Protheroe & Morris' Rooms.
WEDNESDAY,	FEB. 1	Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. Japanese Lilies, at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 2	Imported and Established Orchids, 10,000 Lillium auratum, &c., from Japan, at Stevens' Rooms.
FRIDAY,	FEB. 3	Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	FEB. 4	Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. Roses, Lilies, &c., at Protheroe & Morris' Rooms.

The Royal Horticultural Society.

THE affairs of this Society continue to occupy the attention of the horticultural world to an extent

that may seem to an outsider disproportionate to their real importance. If the Society were necessarily metropolitan, and devoted exclusively to the gratification of a limited number of pleasure-seekers, or of members with personal interests to serve, this impression would be correct. But the facts are far otherwise. The decadence or the success of a purely local or personal society would be subjects of limited interest only, but in this case we have a matter of serious national importance to consider. In most foreign countries the State undertakes the supervision of all affairs of public concern, in this country it is far otherwise—private enterprise and associations of individuals constituting societies take in hand the regulation of things which concern not only themselves and their own individual requirements, but also the welfare of the nation as a whole. Those who look on the Royal Horticultural Society as a society whose chief duty it is to pass a critical judgment on a Pansy or a head of Celery, and as a means for awarding prizes to successful exhibitors of one or the other or both, take a very limited view of

the subject. It is far too much the practice to look on horticultural societies as mere associations for the gratification of individual whims and fancies, and to ignore more serious matters which lie at the root of national prosperity. The amount of capital embarked in the purely aesthetic and sentimental departments of horticulture is no doubt enormous, and far beyond the knowledge of the public in general; but this, large as it is, is as nothing compared to matters of intrinsically greater importance. We have only to look to our food supplies, the enormous amount imported, and to consider the condition of agriculture at the present time, and the circumstances under which that art is practised in this country, to realise that if any portion of the money now sent out of the country is to be retained here in future and if agriculture is to be raised from its present state of depression, such results must in a very large degree be dependent upon the teachings of the science and the adoption of the methods of horticulture. The consideration of these facts must serve as an excuse, if any be needed, for recurring again to the position of the representative horticultural society.

The Society must aim deep and it must aim high; it must serve the interests of the few and most decidedly it must cater for the interests of the many. If it fail in either direction it will deservedly sink beyond the power of redemption. The present is no time for disputing over relative trifles, such as the forms of government, still less for ventilating sectarian animosities and unworthy jealousies. If anything of permanent value is to be done it must be by the earnest advocacy of sound general principles and by resolute practice, based on the legitimate inferences to be drawn from those principles. Descending from this upper region we have to face, in the first instance, the question of finance. The events of the last few weeks are reassuring as to this matter. We have little doubt now that, once a broad general policy of usefulness be laid down, funds will be forthcoming. Former experience rather leads to the fear that such finances may be wasted or misappropriated. Let us hope that the teachings of the past will suffice to prevent any such disaster in the future.

Then as to the policy of the Society. As we have said, there is practically no difference of opinion as to what its general direction should be, points of detail offer endless opportunity for discussion, perhaps for variance of opinion, but let us, before all things, subordinate these minor matters to general principles. It is not whether this section or the other is the more important—it is not whether Mr. A. or Mr. B. is the more worthy representative—not whether this department of the Society's work is more important or less important than any other—these considerations are worthy of heed, no doubt, but at the present juncture they are, as the phrase goes, "mere matters of detail."

From weariness of spirit, from utter disappointment in some cases, from the sense of years of labour and zeal apparently thrown away in the service of the Society, there are many who say in their bitter moments, let it die. Such feelings are intelligible enough, but happily they are but transient, and no large section of the community, we are sure, wish in their calmer moments that it should do anything of the kind. Rather is there a very widespread feeling that the Society must not and shall not die. Equally determined are they that the Society shall be revolutionised—but by peaceful means, by the free will and zealous co-operation of all its members, not by the violent action of a sectarian

few. The case is one for constitutional remedies, not for the exercise of tyranny and brute force such as make peace where there is no peace.

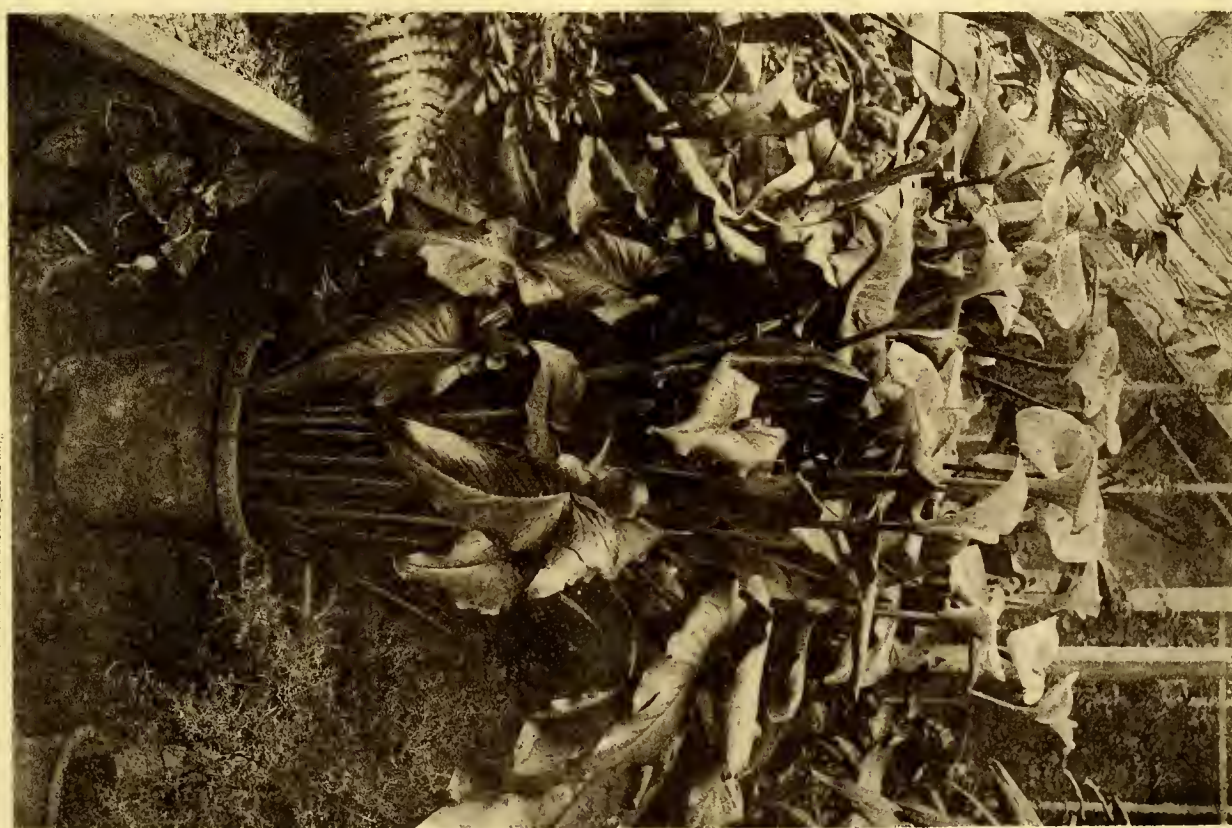
As the case stands at present, a strong and representative outside committee has been appointed to confer with the Council, and, unless appearances are more than usually deceitful, there is every prospect of cordial co-operation between the two bodies. The outside committee is strong because it is representative. Every section of the community is represented upon it, and the most earnest desire is expressed on all sides to do good work, and rescue the Society from its present depressed state. When the annual meeting is held next month it will, we believe, be found that all reasonable expectations as to the representation of the horticultural element proper will be met. The existing Council is tied hand and foot by the charter and bye-laws, but in spite of these bonds we believe means will be found at that meeting to satisfy popular requirements without contravening the letter of the law. It is no doubt a delicate and difficult matter, but it will be done. Already such good representative men as Messrs. SNEE, VEITCH, G. PAUL, and WILKS, are secure of their seats on the new Council, and we are in a position to state that steps are being taken by the Council to secure the accession of practical gardeners. There is precedent for this in the charter, where we find that of the original members—including peers, bishops, botanists, men of science, directors of the national botanic gardens, &c.—no fewer than three gardeners were included. His Majesty, GEORGE III., out of his own "especial grace, certain knowledge, and mere motion—given and granted—that"—"our right trusty and well-beloved counsellor, Sir JOSEPH BANKS; our trusty and well-beloved WILLIAM TOWNSEND AITON [the then Director of Kew], THOMAS ANDREW KNIGHT [*salve magne nomen!*], RICHARD ANTHONY SALISBURY [an eminent botanist]; and JAMES DICKSON, THOMAS HOY, and WILLIAM SMITH, gardeners," should form part of the first Council. It would be of interest to know more about these three gardeners. This by the way: our point is that three practical gardeners were on the first Council, and it would be all the better if thrice three were on the new. In any case, we must make the best bread we can out of the flour that is available, and we fully believe this will be done.

So far as we can learn, the Council and the committee are at one as to the general future policy of the Society—a policy it must be remembered fought for and won in Council by Professor FOSTER and Mr. DYER in particular—they are at one as to the necessity of widened popular representation, and a lowering of the conditions of franchise; they are at one in thinking that these desirable things cannot be done under the conditions of the existing charter and bye-laws; they are one in thinking that the one and the others must eventually, and sooner rather than later, be radically changed. This revolution—for revolution it is—cannot be done in a week or a month; that is obvious to anyone who will consider the matter fairly; and hence it is not unreasonable to urge patience and trust on the part of the community. By all means, when these things are seething, let us have the fullest and freest discussion consistent with fairness and good breeding, but let us also have, when the time comes for collective action, the fullest possible concord and co-operation. To secure this, we must probably each and all be prepared to sacrifice some pet notion or project, banish personal antipathies, and muzzle, if we cannot eradicate, unworthy prejudices.



PHAIUS GRANDIFOLIUS.

GROWN AT WORKSOP MANOR.



RICHARDIA ETHIOPICA.

THE PHOTOGRAPH BY MR. J. H. MARTINE LANE, CANNON ST., LONDON, E.C.

So far as we can see at present, there is a very general desire to do this for the general good, and if so, success is certain.

THE GARDENERS' ORPHAN FUND.—The executive committee of the above Society met at the Caledonian Hotel, Adelphi Terrace, on the 20th inst., Mr. GEORGE DEAL presiding, there being a large attendance of members. The minutes of the previous meeting having been read, the Hon. Secretary, Mr. A. F. BARRON, announced that there had been promised or sent since the last meeting the sum of £183 11s. 6d., £139 6s. 6d. being in the form of donations, and £44 5s. as subscriptions. That the total amount promised as donations was £1084 15s., of which £869 5s. 6d. had been paid; and as annual subscriptions, £315 6s., of which sum £165 9s. 6d. had been paid. The total sum promised and paid up to date is £1400 1s., contributed by 1130 persons. Several local secretaries sent in their returns up to the end of the year, and hearty votes of thanks were passed for their valuable services, and a hope expressed that they would continue to act in this capacity. The Chairman having expressed the opinion that the dates of the meetings of the executive committee should be fixed for the year, it was resolved that the meetings take place at the Caledonian Hotel on the last Friday in each month, at 6 p.m. Suggestions having been made that contribution boxes should be provided for nurseries and other public places, into which small contributions towards the fund could be dropped, it was resolved that these be provided by the committee, and it was agreed that sample boxes should be submitted for approval at the next meeting of the committee. Several letters of inquiry were duly considered. The sub-committee appointed to sketch the course of procedure to be observed at the first election of children to the Fund in July next, and also to present drafts of the necessary documents, brought up their report, but previous to considering it the Chairman stated it was important the date of the first election should be fixed. It was unanimously resolved that the annual general meeting of subscribers to the Fund and the election of children should take place at the Cannon Street Hotel, E.C., on Friday, July 13 next. The documents submitted by the sub-committee, were, first, a form of application for candidates, which have to be sent in to the Hon. Secretary by Monday, April 23; second, a form of nomination paper, including one for those desirous of recommending the case, and the medical certificate; third, a form of advertisement and also a form of circular to local secretaries, asking for their co-operation in securing full particulars in their returns from applicants; fourth, a form of contract to be entered into by the committee with the parent, foster-parent or guardian, to whose care a child may be committed. All these documents were subjected to keen criticism, and eventually passed, and ordered to be printed for final consideration at the February meeting of the committee. A suggestion having been thrown out at the meeting at South Kensington, called to inaugurate the Fund, that something in the form of a *fête* in its aid, should be provided during the summer, Mr. W. G. HEATH submitted certain proposals on behalf of the Crystal Palace Company. Eventually it was thought best for the present year to hold a dinner in the autumn, and a sub-committee was appointed to consider the matter, and bring up recommendations. The proceedings closed with cordial votes of thanks to the election sub-committee, and to the Chairman for presiding.

THE ROYAL HORTICULTURAL SOCIETY.—Among the numerous letters we have received with reference to the Royal Horticultural Society we are glad to see one from Mr. D. T. FRISH, not alone on account of the policy he advocates, but because he has had the magnanimity to put aside the memory of the frightful ingratitude that was shown to him, and the cruel insult to which he was, though without any such design, subjected. He can very well afford to do so, as everyone who remembers

the circumstances will know how fully he earned all the honour that could be paid him on that occasion. Of course the Council of the day had no intention other than that of honouring the man who had done so much for it. Its action was the result of a deplorable blunder. The real fault consisted in the non-adoption of some other means of showing its gratitude when the one originally proposed was found to be illegal. Mr. FRISH's letter is very long, but we must try and make room for it on another occasion.

METROPOLITAN PUBLIC GARDENS AND PARKS.

—Various important works are now being carried out or under consideration by the Earl of MEATH's Association. The laying out of a park at Camberwell is one of the chief works. Land to the extent of some 14 acres has been presented by a gentleman who owns a large property at Camberwell, and his offer has been accepted by the Association. The donor desires to be anonymous. It is estimated that the cost of laying out this park will amount to nearly £8000, and it is hoped that a portion of the Gardens and Pleasure Grounds (Mansion House) Fund for giving work to the unemployed will be available for the work. This new park will be near the Camberwell New Road railway station, in a populous district where there are no other public parks or gardens excepting the small Kennington Park, which has always been much too limited in area for the neighbourhood. Among other good work in progress is that of transforming into gardens the disused burial-grounds of St. Albans, Fulham; All Saints, Notting Hill; St. Alphage, Greenwich; Trinity, Poplar; and St. James, Bethnal Green; also the Tower Gardens, and Edward Square, Islington. The Association have also under consideration the laying out of the Victoria Park Cemetery, about 11 acres, as a public garden; a recreation ground (1 acre) at Parnell Road Recreation Ground at New Cross. These are some of the chief works which this Association is now engaged upon, which, when finished, will add many more open spaces of which we have still too few in London. This most useful Association deserves the support of all who sympathise with the unemployed, and also wish to see those whose lives are spent in crowded neighbourhoods enjoy the privilege of resorting to pleasant public gardens.

THE MELON-PEAR.—Readers of the gardening papers have probably seen a good deal (in print) of the so-called Melon-Pear, which, after the fashion of popular names, is neither a Melon nor a Pear, nor a cross between the two. It is the egg-shaped fruit of *Solanum guatemalense*, and is a near ally of the Egg-plant and Tree Tomato. A figure is given in the *Orchard and Garden* (January), where it is described as "lemon-yellow striped with purple, attractive in appearance, and with a spicy aroma." Its exceeding sweetness is slightly tempered with acidity, and its flavour decidedly resembles that of Musk Melon.

SIR JOSEPH HOOKER.—A portrait of this distinguished botanist is to be placed in the rooms of the Linnean Society.

LINNEAN SOCIETY.—At the usual fortnightly meeting, held on Thursday, January 19, Mr. BEENY exhibited *Ranunculus pseudo-reptans* from Shetland, and the same form after being cultivated in his garden, where it had developed into the ordinary *R. flammula*, thus showing that the former is nothing but a tiny starved form of the Lesser Spennwort. *Phaicalanthe Sedeniana* ×, from Baron SCHROEDER's collection, sent through Messrs. JAMES VEITCH & SONS to Kew, was exhibited by Mr. ROLFE, to show the way it combines the characters of the two parent genera; also *Phalenopsis intermedia* ×, with the two parent species, as an interesting example of a supposed natural hybrid whose parentage had at length been proved by the well known experiments of Mr. SEDEN. A paper was read by Mr. SPENCER MOORE on "The Action of Light on Chlorophyll," in which he showed the different behaviour of chlorophyll-grains during varying degrees of sunlight, from ex-

periments made during the long spell of bright weather of the past summer. The next meeting will be held on Thursday, February 2, at 8 p.m., when the following papers will be read:—1, "Ferns of Simla," by Mr. H. F. BLANDFORD; 2, "Fertilisation of *Cattleya labiata* var. *Mossiae*," by Mr. H. J. VEITCH; and 3, "Descriptions of species of *Galerucinae*," by Mr. J. BALY.

THE OXFORD CARNATION AND PICOTEE UNION.

—The annual report just issued by Mr. E. S. DODWELL, the Hon. Secretary and Treasurer, shows that the third year of the existence of the Union has been characterised by much success. There are now 256 subscribers, and the income for the year now closed amounts to £125 18s. The Union began with 110 members, and the first year's income from all sources was £70 16s. 6d. In 1886 an addition of 112 members was made, and though there were withdrawals by death, removals and other causes, the income rose to £94 17s. 6d. One interesting feature of the report is the large amount of information contributed by local secretaries bearing upon the Carnation and Picotee bloom of the past year. A balance of £20 6s. 3d. is carried over to the present year.

A GOOD INVESTMENT.

—We learn that Mr. WILLIAM BULL, of King's Road, Chelsea, has just purchased from the Leatherhead collection the rare *Cypripedium Saundersianum* for £300. It is interesting to note this at a time when there is a depression in many other things, for we hear this very plant was purchased by the recent owner in the autumn of 1883 for 50 guineas.

THE NEW PARK AT RAMSEY, ISLE OF MAN.

—Mr. E. THOMAS, landscape gardener, of Town Green, Liverpool, has been awarded the first prize of £15, offered by the Ramsey Town Commissioners, for the best plan of the new Mooragh Park and lake; and Mr. E. G. REID, of Present, the second prize of £10. There were several competitors.

"ORCHIDS: THEIR STRUCTURE, HISTORY, AND CULTURE."—A fourth edition of Mr. LEWIS CASTLE's book is being prepared, and the work is also being translated into French and German.

THE GREAT YORK GALA.

—The schedule for 1888 is now issued, and we notice that the sum of £42 10s., as well as a special prize of £5 5s. from Messrs. BACKHOUSE & SON, is offered for Orchids. The sum of £104 10s. is offered for *Pelargoniums* in various classes; £62 for Roses in pots, £61 for cut Roses, £3 10s. for Pansies and Violas, special prizes for double and single *Pyrethrums*, and for a collection of ten varieties of fruit prizes respectively of £10, £8, £5, £3, and £2 are offered; and £31 10s. for other fruits. Stove and greenhouse plants, groups, and a host of other things have also liberal sums of money allotted, the aggregate amount of the schedule exceeding £600.

THE CONSERVATORY AT SOUTH KENSINGTON.

—It is reported that this structure will shortly be demolished, to make room for a further extension of the School of Music.

CLASSIFICATION OF ORCHIDS.

—Prof. PRITZER's recently published scheme of classification is based, not only on the floral structure, but also on the mode of growth of the stem, and the manner in which the leaf is rolled up. Thus, first of all, the *Cypripediums* are cut off by their two lateral anthers. Other Orchids are all monandrous, that is, have one anther only. Of these, the first division, *Basitonae*, is composed of the *Ophrydinæ* only, in them the filament is continuous with the anther, and the pollen masses bear caudicles at the end. The second great division (*Acrotonæ*) includes those Orchids in which the filament is marked off from the anther. This great group is divided, first of all, into those in which the inflorescence is in the form of a sympode, and next into

those in which the inflorescence is borne on the sides of a leafy stem or a creeping rootstock. These two groups are further subdivided according as the leaf is rolled up in the young state (convolute), or folded (duplicate). Further subdivisions depend upon the circumstance whether the blade of the leaf separates from the sheath or whether it does not, the nature of the pollen, the presence or absence of pseudobulbs, &c. Those who are not botanists may be glad to be reminded that in a monopodial stem the leaves are formed season after season at the end of the same stem, while in a sympodial growth the one season's growth bears a leaf or leaves at the end, but no further development takes place from that end, but only from the side beneath that end; the "laterals," however, generally turn upwards, so as to assume the same line of direction as the original stem. This kind of stem, therefore, may look continuous and unbroken, when in reality it is made up of a succession of "laterals" arranged one over the other to form a "sympode."

SLOW-WORMS IN ORCHID HOUSES.—Dr. PATERSON writes as follows:—"The Brittle Snake (*Anguis fragilis*, LIN.) or slow-worm, a native of Britain, common in England, not so common in Scotland; when full grown is about 12 or 13 inches long, generally of a dark glossy colour, moves slowly, and has a beautiful snake-like head with keen piercing eyes, and is perfectly harmless and can be made a pet. I find this snake a grand assistant to the green tree frog in the Orchid-house, as his principal food is snails. All Orchid growers hate snails, as they destroy flower-spikes and young bulbs. Some years ago a friend of mine purchased a rare *Phalenopsis* for 10 guineas; next morning, when he went to look at the rare plant, he found to his disgust that a snail had made his breakfast off the plant—a most expensive breakfast many will say. I would advise Orchid growers to give the slow-worm a trial, they can be purchased from any dealer in wild animals."

PASTURE LAND.—Mr. MARTIN J. SUTTON has recently published a detailed account of the experiments made by him in co-operation with Dr. AUGUSTUS VOELCKER on the effect of various manures on temporary and permanent pastures. The pamphlet is published at a low cost by Messrs. HAMILTON, ADAMS & Co., and is worth the serious attention of all concerned in the management of pasture-land. The experiments are conducted on a similar plan to those at Rothamsted; but whereas the experiments made under the auspices of Sir JOHN LAWES for the last twenty-five years or so have been made with a view of determining certain abstract questions in chemistry and physiology, they have often been made under conditions which would not arise in ordinary agricultural practice. Mr. SUTTON's experiments apply especially to the effect of artificial manures in such quantities and under such conditions as might reasonably commend themselves to the grass-land farmer. The plots do not all form part of one field as at Rothamsted, where the conditions of soil, exposure, and natural vegetation are fairly uniform throughout, but occupy six different positions in which the conditions are also different, one being old pasture, another has been laid down for five years, two others have been sown since 1884—the one with, the other without perennial Rye-grass; while the two remaining experiments have been made upon plots representing a three years' ley, with, and without Rye-grass. The manures employed consist of nitrogenous manures, such as ammonia sulphate, or soda-nitrate, superphosphate, farmyard manure, cotton cake, guano, coprolites, bone-meal, &c., each substance being used either alone or in various combinations. It is too early to arrive at definite conclusions from experiments where so much depends upon the varying amounts of light, heat, and rainfall in various seasons, but it is interesting to note that the Rothamsted experiments are confirmed in many respects, as in the effect of nitrogenous manures, in benefiting grasses and discouraging the Clovers, while potash manures do the reverse. We do not find any notes concerning the degree and date of ripeness of

the crop under varying conditions of manuring, but doubtless these will follow in due time. Decorticated cotton-cake is proved to be a valuable manure, and the value of Rye-grass is insisted on. An incidental point of great practical value comes out in the circumstance that sheep do serious injury to young pastures by destroying the Clover. It is possible that the trampling of the sheep does as much injury as the destruction of the foliage. The cost of the manures per acre varied from 14s. to £1 1s. 3d., with a nett gain on hay per acre of from 11s. 9d. in the case of plot 3 (nitrate of soda) to £1 8s. 3d. in plot 4 (superphosphate and kaitoi). We cite these figures merely by way of illustration, and to call the attention of our readers to a series of experiments of great interest to those concerned in the management of grass-land. The addition of tables showing the cost per acre, the increase or decrease in value of the hay per acre, and the nett gain or loss on the hay per acre will render these tables specially useful to the farmer. There is, however, so far as we can see, no indication of the cost of the labour employed.

MR. HARTMANN.—Mr. C. HARTMANN, the botanist and horticultural collector, has, we are sorry to say, succumbed to fever contracted in New Guinea. He died, as we learn from Baron von MÜLLER, in Queensland, on his return to his home. He and Mr. G. HENNER were the first who brought together a number of native tribes, before always at war with each other, and induced them to act as carriers of the luggage of the travellers at some portions of the Owen Stanley Ranges; and thus they also paved the way for the advent of Mr. ANDER by Messrs. CUTHBERTSON and SAYER. At Towamba, in Queensland, Mr. C. HARTMANN had a business as a vendor of plants and seeds, and for a long series of years he was interested in obtaining specimens of native plants for the elucidation of the local flora. In former years he had a good repute in Germany as a skilful grower of Orchids. The *Sarcocylus Hartmanni* (*S. rubricentrum*, Fitzgerald) was discovered by him, and at once named and described in his honour.

MEMORIAL TO THE ROSARIAN, FRANÇOIS LACHARME.—We have received the following from Mr. G. PAUL of Cheshunt:—"M. LÉVÊQUE, on behalf of the committee in Paris and Lyons, organised for the purpose of raising a memorial at the grave of this noted Rose grower, has asked me to distribute some circulars inviting the co-operation of the English Rose growers. Naming the request to some members of the National Rose Society, it was suggested that it would be a graceful act if the contributions of the English growers took the form of a medallion, with an English inscription on the tomb or monument, and on conveying this suggestion to M. LÉVÊQUE he writes that they would gladly accept such a contribution, and would give the English memorial a place of honour. Either Mr. D'OMERAIN or I would be happy to receive any contributions to this fund, which I need hardly recommend, so well was LACHARME's name known to all rosarians. Subscriptions of 5s. to 10s. would suffice for all that is necessary."

KEEP THE BORER OUT.—For twenty-five years my success in beating the Apple tree borer has been almost complete. I write of the flat-headed borer (*Chrysobothris femorata*). The eggs of the borer are deposited on the south or south-west side of the tree, and never on the opposite side, and they are laid in the places where the sun's rays fall most fairly on the tree. Now if the tree when planted is set leaning to the south-west, say 15° or more, the borers will not lay their eggs on them; nor can the sun's rays strike so fairly on the body of the tree. They must be kept in position by stakes if necessary. If set upright they almost always come to lean to the north-east, owing to the injurious effect of the above causes, which retards the growth on the south-west side. The eggs are scarcely ever laid more than 4 feet above the ground. If the tree is allowed to branch lower than that there will be places on the branches where the sun will strike, making it favourable for hatching the eggs. Therefore I think it advisable to have the trees branch at least 4 feet above ground. This has been my practice, and I find it effectual. Last summer I examined my trees for borers, and in three or four, which by neglect had been allowed to lean the wrong way, I found many. *American Paper.*

PHAIUS GRANDIFOLIUS AND RICHARDIA ÆTHIOPICA.

[SEE SUPPLEMENTARY SHEET.]

THE two examples of these plants shown in our supplemental illustration were grown at Workshop Manor Gardens by Mr. T. H. SUTTON, to whom we are indebted for the opportunity to figure them. The specimen of Orchid, *Phaius grandifolius*, is that of a plant that has been well managed for a number of years, as can be observed by the vigour of its growth and its floriferousness.

This species of *Phaius*, although wanting the brighter colouring of Dominy's hybrid *P. irroratus* ×, raised from *P. grandifolius* and *Calanthe vestita*, or that of *P. tuberculatus*, is yet a plant that has remained a favourite for a century, and is to be found in most collections of stove plants. The petals are white without, and chocolate-brown within. The oblong cucullate lip, the base of which is folded over the column, is white, with yellow stains on the throat and disc, the sides of the lip being marked with crimson both inside and out. It flowers in winter and spring, and is of easy growth.

The specimen of *Richardia æthiopica* (Calla) is an exceedingly good one, and would form a desirable decorative object in any collection of plants. So well known a plant needs no further remark than to caution our readers against the practice of drying-off the plant after growth is fully developed and the season of bloom over. Being a true aquatic from the Nile, this old practice could but prove injurious to growth and free flowering, as is shown by the fine examples produced under the more rational and generally adopted treatment of the present day.

NURSERY NOTES.

ORCHIDS AT MESSRS. F. SANDER & CO.'S

ON the north side of Messrs. Sander & Co.'s establishment at St. Albans a fine new Cattleya-house 300 feet long, 26 feet wide and 14 feet high is now to be seen, and as in it some new and useful ideas are worked out, its interior arrangements may be noted with advantage. The roof consists of a number of spans of low pitch running transversely, thereby obtaining the greatest possible amount of light. Each span is supported by a light iron pillar, and for the rest of the needful strengthening and support to hold the large building secure neat ornamental corner pieces and brackets of iron are used, the whole of the iron-work being supplied by Messrs. Measures, Bros., & Co., Southwark Street, S.E., and thus the entire interior is unobstructed by the girders and tie-rods generally employed; but in order to further strengthen the building, eleven rows of I-inch gas-piping are fixed to the woodwork of the roof over the side staging and walks, and these, while giving great strength to the building, afford means for hanging blocks and baskets. The side staging is of light angle-iron, placed at the proper distances to take ordinary red roofing tiles, thus forming an ideal staging—clean, moist, durable, and affording little or no harbour for insects. Fourteen rows of hot-water piping supply the necessary heat, and the centre bed of brickwork forms a pit in which freshly gathered fallen leaves are placed to maintain a healthy atmosphere in the house. Over the bed is placed the necessary open staging, rising in steps to the middle, and in connection with it a valuable innovation must be noted. The ordinary staging, constructed entirely of wood, is sooner or later sure to decay and cause mischief, but a staging of iron is cold, and generally disliked by plants; the idea, therefore, occurred to Mr. Sander that the framework or superstructure of the middle staging should be built with the house, and at each pillar supporting the roof, an arch (one brick thick) in brick and cement is thrown across the bed from wall to wall, the iron pillar forming the key in the centre. The upper surface of these arches rises in steps of the necessary gradation, and all that is required is to place on the usual wooden shelves at the proper distance apart.

The new Cattleya-house at St. Albans will give many valuable ideas to intending builders or renovators of old houses.

It is possible to note only the main things in flower in such a vast establishment, let us therefore proceed at once to some of the pretty and natural rockeries with which many of the principal houses are furnished, and about which the principal plants in bloom are suspended, to help out those planted on the rockeries in making an effective display. In the Lælia-house a splendid show is made by the many new white varieties of *Lælia anceps*, of which *L. a. Sanderiana* and *L. a. Stella* are the best; one fine specimen of the latter had several spikes of four to five flowers each; *L. a. Schroderæ* is a charming thing, with delicately pink-tinted petals, with crimson feather on the tips; and *L. a. Veitchiana*, a very distinct variety, with white segments, and decidedly blue-tinted labellum. On or over the same rockery among foliage and twining plants are some fine examples of *Lælia autumnalis atro-rubens*, *L. albidula*, *L. elegans*, and many other species.

In the large established Cattleya-house the same pleasing arrangement of flowers is found: there are many and varied forms of *Cattleya Trianae* with gorgeous flowers, the show of them also extending far into the house. Some selected forms of *C. Percivaliana* are also in bloom, and several fine plants of the best forms of pure white *Lycaste Skinneri*, a plant in which, perhaps, no one has yet found a fault. The next large intermediate-house has a similarly arranged display made up of the many fine fresh imported varieties of *Cypripedium insignis*, some having almost black markings, and one with flowers intermediate between that known as *syhetense* and the purple-spotted *C. i. violaceo-punctatum*; some fine sprays of *Oncidium tigrinum*, *O. prætectum*, *O. cheiroporum*, *O. Phalenopsis*, several good *Calanthe veratrifolia*, *Zygopetalum Burkei*, *O. varicosum cruentum*, equal to the best *varicosum* in size and form but with a blood-red base to the lip; several fine *Masdevallia tovarensis*, and plants of the lovely little *Ornithocephalus grandiflorus*, which has white flowers of very curious form.

Angraecums make a fine sight just now in their house, and no one who saw the scores of sprays of pure white flowers on the plants of the new *A. Sanderianum* could fail to pronounce it an acquisition of the highest merit. In size and form of its flowers it surpasses the fine old, but now rare, *A. bilobum*, and is, moreover, a weed to grow, to which indictment the old species cannot plead guilty. *A. sesquipedale* also has many flowers, *A. Scottianum* a few; *A. bilobum*, and *A. Leonis* are in flower; so also the new *Acranthus Grandidierianus* (Chb. f., *Gardeners' Chronicle*, January 21, p. 72), and the new *A. Kimballianus* and *A. Germinyanus* are showing for flower. Among the *Dendrobiums* are a fine show of imported *D. nobile* showing great variation in form, colour and odour; one has rightly been selected for naming, and has been called *D. nobile vernixium*; its colour is the same as the fine *D. n. nobiliss*, and the whole of the segments on both back and front are shining as if varnished, which certainly adds to the beauty of what would even without it be a sufficiently fine and distinct flower. Also in bloom are *D. Ainsworthii roseum*, the new *D. Friedericksianum* (*Gardeners' Chronicle*, November 26, 1887), *D. bigibbum*, *D. superbiens*, *Epidendrum Endresi*, and other *Epidendrums* and *Dendrobies*; and in one group a fine lot of all the varieties of *Celogyne cristata*.

The *Odontoglossums*, which have often been noted, fill several large and long houses, and as the question of the proper time to repot these plants is assigned by some to the summer, it will be well to note that here the repotting of the thousands of *Odontoglossums* is commenced with the new year, and is just now in active progress; Mr. Sander is convinced that this is the proper time to repot cool-house Orchids, and the condition of his stock bears out his practice. Among the many fine *O. crispum* and *O. Pescatorei* in bloom are the rare and pretty *O. Schillerianum*, *O. Mirandum*, *O. pardinum*, *O. Humeanum violaceum*, *O. Harryanum*, *O. odora-*

tum albidum—the form which Lindley named *O. nævium majus*—*O. Lindleyanum speciosum*, an unique plant, and a really ornate *Odontoglossum*; *O. bictoniense album*, and (not in flower) a little lot of the extremely rare and difficult to import *O. Warszewiczii*, which thrives best in a temperature a little cooler than does *Miltonia vexillaria*.

On the site of the old nursery in the town, taking the place of the old houses, there have been built a number of neat span-houses connected by a corridor. This establishment is much devoted to crossing and raising Orchids from seeds, and in several of the houses countless little hybrids appear, *Masdevallia Gelseniana* ×, Mr. Sander's first cross with *M. Shuttleworthii*, being in bloom.

In the *Cypripedium*-house there were in bloom the handsome *C. Tox*, *C. plumerum* ×, *C. cochiferum* ×, *C. cardinale* ×, *C. vexillarium* ×, *C. Arthurianum* ×, *C. grande* ×, *C. Harrisianum venustum* ×, *C. ænanthum superbum* ×, *C. Dayanum*, *C. Curtisii*, &c.; and in a house to themselves, planted out, are a large quantity of *C. caudatum* sending up scores of flower-spikes. The collections of *Phalenopsis* and *Masdevallias* are also in this nursery, and here, in a tolerably cool house of even temperature, the *Bolleas*, *Batemannias*, and *Pescatoreas*, which so many fail to grow, seem to luxuriate. In one of the cool houses will be found a splendid lot of *Oncidium macrothum* and the rare *O. undulatum* and many other scarce plants. *J. O'Brien*.

LAW NOTES.

MRS. REYNOLDS v. MESSRS. JACOB WRENCH AND SONS.

A CASE of considerable importance to seedsmen and growers came before Mr. Justice Denman in the High Court of Justice on Monday last. The action was brought by a Mrs. Reynolds, a seed grower in Huntingdonshire against Messrs. Jacob Wrench & Sons, seedsmen of London, to recover £350. This amount was admitted by the defendants, but they raised a counterclaim for damages under the following circumstances:—In 1884 they sent to the plaintiff some stock seed of Yellow Tankard Turnip and in due course received what they thought was the produce, amounting to about 60 bushels. This was sold in November, 1885 to Peter Lawson & Sons, Limited, of Edinburgh, as Yellow Tankard Turnip seed, and as such sold by them to various customers. It was afterwards discovered that the seed was Purple Mammoth Turnip, and claims were made by P. Lawson & Sons' customers against them, amounting to nearly £400, which they in turn claimed against Messrs. Jacob Wrench & Sons, who claimed the amount from Mrs. Reynolds by way of damages for the breach of contract to grow the stock seed sent her. The action came on for trial at the Huntingdon Assizes, when the jury found in the defendants' favour on the question whether Mrs. Reynolds had returned the wrong crop, and the case was adjourned to London on the question whether the defendants could claim from the plaintiff the amount for which they are liable to Peter Lawson & Son, Limited, or whether they were entitled to nominal damages. It appeared that the defendants' custom was to print on their invoices the following guarantee clause:—"Messrs. Jacob Wrench & Sons give no warranty, express or implied, as to description, quality, productiveness, or any other matter connected with the seeds they send out, and they will not be in any way responsible for the crop. If the purchaser does not accept the goods on these terms they are to be at once returned." This clause was on the invoice which accompanied the stock seed when sent to the plaintiff to grow, and was also on the invoice which was sent by the defendants to Peter Lawson & Sons, Limited. The contention on the part of the defendants was that, notwithstanding that clause, they were liable to Peter Lawson & Sons, Limited, as at the time the seeds were sold to them it was understood that they were selling Yellow

Tankard Turnip seed and no other, whereas the seed sold was Purple Mammoth Turnip, and evidence was adduced to prove a custom in the trade to the effect that when the words "seeds of sellers' own growth and stock" were used, it meant that the seed in question was grown from seed specially selected by the seed merchant, and consequently the non-guarantee clause did not apply, and that in the event of any other seed being supplied the seed merchant would be liable to all the consequences. But apart from this it was contended that the words in the non-guarantee clause could not be applied in this case, as the word "description" referred to the goods sold, which were Yellow Tankard Turnips, and not the Purple Mammoth Turnip, which was delivered.

On the part of the plaintiff, the alleged custom was repudiated, and her counsel relied on the non-guarantee clause used by the defendant, as showing that it was part of the terms on which the seed was sold, and that there was no liability on their part. He also contended that the question turned on the construction of the contract between the plaintiff and the defendant, and no damages could be given which were not in the contemplation of both parties to the contract at the time it was made. By the defendants inserting the non-guarantee clause on the invoice accompanying the stock seed sent to the plaintiff they had given her notice that they did not hold themselves liable to their customers, and consequently such damages could not be contemplated by her in the event of a breach of contract to grow the seed, and she could not know that any arrangement had been made when the seed was sold, which was inconsistent with the non-guarantee clause.

In the result the judge held that the defendants had failed to prove the alleged custom in the trade, and that the defendants must be held to their non-guarantee clause; and that there being no liability on their part they could only claim nominal damages against the plaintiff for the breach of her contract, which he assessed at one shilling. He gave judgment for the plaintiff for the amount claimed less the one shilling, with costs of action.

TREES AND SHRUBS.

ORNAMENTAL BERRY-BEARING SHRUBS.

(Continued from p. 19.)

Gaultheria procumbens must on no account be omitted from our list of hardy berry-bearing shrubs, for it is well worth looking after. The fruits are scarlet and edible, and the plant is highly ornamental with its white, pendulous, axillary flowers.

G. shallon has purple berries and white, rather inconspicuous flowers. It is of taller growth than the latter, under good cultivation attaining to a height of fully a yard.

The Common Privet (*Ligustrum vulgare*) is well worthy of attention on account of the great wealth of ebony-like berries it produces. A few twigs with the accompanying fruit arranged with the berried Holly is very effective, and even when intermixed with cut flowers in a vase the rich dark berries show well out against almost any colour of flower.

Benthamia fragifera, although somewhat tender, is really a first-class evergreen shrub for winter decorative purposes. The large Strawberry-like fruit is very ornamental and imparts quite a feature to the shrub for several months. We have noticed this Nepalese plant thriving well in sea-coast gardens in Wales, but inland it cannot be relied upon, hard frosts telling hard upon it.

Aucuba japonica is another excellent plant from which to cull a few berried twigs for the garnishment of the Christmas table. To have the berries in abundance either fertilisation must be resorted to artificially, or the male and female plants grown side by side, or at least, at a reasonable distance apart. The berries are large and, like the leaves, of good

substance lasting for a considerable length of time either in or out of water.

Shepherdia canadensis and *S. argentea* are highly ornamental shrubs with distinctly silvered leaves and an abundance of edible scarlet fruit. It is hardly correct to say that both species of *Shepherdia* have scarlet fruit, for those of *canadensis* are orange-red, while those of the latter, which is popularly known as the Buffalo-berry, are bright scarlet. This genus of plants is far too little grown when we take into consideration the beauty of both foliage and fruit.

Cotoneasters of sorts are highly ornamental plants during the winter months from the great abundance of conspicuous fruit which most of the species produce.

C. Simonsii is one of the best when considered in an ornamental aspect, for the large oblong vermilion coloured berries are produced in great abundance, and are remarkably persistent in character.

C. vulgaris has spherical shining black, yellow, or scarlet fruit, and is of interest as being the only native species. We have cultivated it from plants derived from its native habitat—the Orme's Head—and where it grows amongst calcareous rocks exposed fully to the scorching sun, and in company with two other rare natives—*Pyrus aria*, and that sweet little Orchid, *Epipactis ovalis*.

C. frigida, with its large clusters of conspicuous scarlet berries is well worthy of attention, and is quite a feature of the grounds in which it is cultivated.

C. microphylla, *C. buxifolia*, *C. thyrsifolia*, *C. Wheeleri*, and several others, are likewise highly ornamental fruit-bearing plants, and being of free growth are commonly enough to be found in our collection of trees and shrubs.

Crataegus pyracantha, or the Evergreen Thorn as it is usually styled, bears large clusters of orange-scarlet berries, which remain intact during the greater part of the winter, unless they are removed by birds. *A. D. Webster.*

(To be continued.)

JUNCTIONS OF PATHS AND ROADS IN THE GARDEN.

THE series of small figures at fig. 20 explain themselves, they being diagrams of good and bad examples of junctions, the bad being the two rectangular ones. Paths are much better looking when carried out with gentle curves, around the central plot of turf, or a shrub, or group of plants. Right angles in walks in common use are in bad taste, because erring against common sense, for we know how futile it is for the gardener to keep that obtrusive right angle in good order for any length of time. The rectangular junction can be employed when a gate opens into the lane beyond the boundary, or when a temple, summer-house, or other garden adjunct of an ornamental character stands at the point of junction.

The examples of serpentine and simple curves are in true taste, and are made pleasanter by the masking groups, large and small, of shrubs, and, if needs be, trees at their margin. To our English ideas the shrubs come a little too close to the path in some instances; but in sunnier France, whence these illustrations came, people are glad of the shade of the neighbouring groups, and would not think our wide foregrounds and expanses of free turf afforded any advantages.

FOREIGN CORRESPONDENCE.

OVERVEEN BULB SHOW.

JANUARY 13-16.—We learn that the show of flowering Hyacinths and Tulips, which was held at Overveen from January 13-16, was most successful, though the competition was not considerable, there being only two exhibitions of Hyacinths in pots, three for Hyacinths in water, and one for Tulips.

In the class for thirty-six Hyacinths in pots, Mr. P. W. Voet showed a very fine and well-grown collection, for which the 1st prize (Gold Medal) was awarded. This collection consisted chiefly of such

Grand Lilas, D.W. La Tour d'Auvergne, D.B. Charles Dickens, D.R. Prince of Orange.

In the class for eighteen Hyacinths in pots, the 1st prize was taken by Mr. Bos; in the class for twelve Hyacinths in pots, 1st prize went to the same; 2nd to Mr. P. W. Voet.

In the three classes, twenty-four, eighteen, and twelve Hyacinths, in water, all the 1st prizes were taken by Messrs. Peter van Velsen & Sons, who showed perfect and large flowers of S.W. La Grandesse, S.W. Mont Blanc, S.W. Madame van der Hoop, S.W. British Queen, S.R. Lord Macaulay, S.R. Incomparable, S.R. Charles Dickens, S.B. General Havelock, S.B. Argus, S.B. Climax, S. violet Haydn, S. yellow Ida, D.R. Dagmar, D.B. Charles Dickens, D. W. Prince of Waterloo. Second prizes were taken by Mr. W. Blom and Mr. L. Roozen, Bz.

Tulips.—Mr. T. W. Voet showed two collections of eighteen pots, for one of which, the 1st prize was awarded, and consisted chiefly of well known sorts, as Joost van Vondel, Proserpine, Pottebakker, Le Matelas, Canary Bird, Tournesol. La Parfaite (Keizerskroon, double).

Mr. E. Krayff showed a new single red Hyacinth; it has a very large compact spike of most distinct colour, and should be a useful addition to the dark red early Hyacinths. *Correspondent.*

FASCIATED PETUNIA.

A GOOD instance of fasciation is represented at fig. 21, which illustrates an abnormal growth of a Petunia, engraved from a photograph kindly forwarded to us from Brisbane by Mr. W. Souther of the Acclimatisation Society of Queensland, who states that there were thirty-four expanded flowers on the stem, and forty-three unexpanded. Fasciation, which consists of the production and development of an abnormal number of buds, which in growing into shoots do not separate one from another, but remain fused in one mass, is exceedingly common in all fast-growing plants.

USEFUL INVENTIONS.

MESSRS. CONRY, SOPPER, FOWLER & Co. have introduced a substitute for fumigating with tobacco-paper, in the shape of a hollow cone of charcoal containing a bottle of some liquid. The charcoal is set on fire, the bottle bursts, and a vapour is set free, which, it is alleged, is fatal to insects, but not injurious to plants. Should it bear out the expectations raised, it will indeed be a boon to gardeners. So far we can report favourably on its effects as regards greenfly, and we shall report more fully when our experience permits us to do so.

AMERICAN NOTES.

ORCHID JOTTINGS IN AND AROUND NEW YORK.

THE first collection I saw, during my recent visit to the States, was that of W. H. de Forest, Esq., of Summit, New Jersey, where there was at the time of my visit a good display of *Cattleya Trianae*, including some very fine varieties; one of them was the true *C. Trianae alba*, and another was quite a novel form, in which the sepals and petals were straw-coloured, and rosy-pink *Cattleyas* and *Laelias* are special favourites of Mr. de Forest, and of which he possesses a large number. The majority of them had made fine strong growths and flower-sheaths. Quite a rich display of *hiossom* was made by the *Cypripediums*, *Phalenopsis*, *Oncidium*, *Odontoglossums*, and other species; the condition of the plants doing much credit to Mr. W. Vollmer, who has the special charge of the collection. The entrance to the Orchid-houses was through a kind of rockery, filled with Ferns, Palms, &c., and having a winding path in the centre. The Orchids when in bloom are placed in this house, where they are seen to advan-

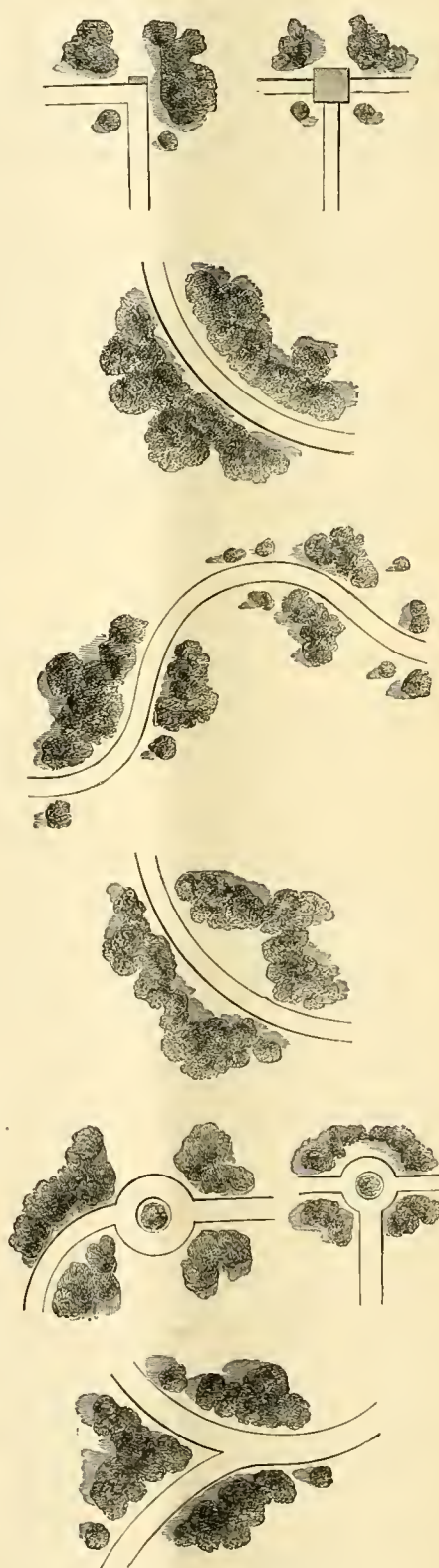


FIG. 20.—FORMS OF PATHS.

excellent sorts as S.R. Garibaldi, S.R. Général Pelissier, S.R. von Schiller, S.R. Cardinal Rampola (new), S.W. L'Innocence, S.W. Baron van Thuyll, S.B. Sir Henry Barkley, S.B. Charles Dickens, S.B.

tage, and have a very handsome effect. It may be stated that about 500 blossoms of *Cattleya Trianae* were cut from this collection before Christmas.

One of the enthusiastic amateurs of New Jersey, and who has a charming place, is James R. Pitcher, Esq., of Shorthills, President of the New Jersey Horticultural Society. In his estimation there is at the present time no species of Orchids to compare to the insinuating *Cypripedia*, of which he has a wonderfully rich collection; but the day is not far distant when all good Orchids will find a home in his houses, which are well adapted to the growing of these plants. The gardener, Mr. R. Brett, is an energetic and painstaking cultivator, very fond of the plants entrusted to his care. Many *Cypripediums* were in flower, and some very fine *Oncidium*, *Aërides*, *Phalenopsis*, &c., interspersed with *Nepenthes* and other foliage plants, of which there is a rich collection. On the day of my visit there were present

great size, beautifully grown, and almost priceless value. A handsome new house has lately been erected for the accommodation of the rich collection of *Cattleyas* and *Lælias*, and another adjoining for *Odontoglossums* and *Masdevallias*, both of them being admirably adapted to the requirements of these plants. Mr. Wm. Robinson, a well-known excellent gardener and cultivator of Orchids, has superintended this place for a number of years, and has laboured assiduously to bring it to its present state of perfection. It would be impossible to name here, in detail, all the fine Orchids I saw here. Some of the *Cattleyas* and *Lælias* are really of gigantic proportions, one plant of *L. anceps Sanderiana* having twelve finely developed flower-spikes. The *Odontoglossums* are as superb as the former, and as well grown as they are in England, which redounds to the credit of the cultivator, seeing that in America he has to contend with the great heat that prevails

one side by a large lake, the surrounding scenery being enchanting. It is unlike other places in America, inasmuch as it has the appearance of age about it, and more resembles what we find in old countries. A general collection of plants is grown here under the direction of Mr. Harris, who has had charge of the place for a great number of years. Everything bears evidence of skill both in and out-of-doors. Some handsome *Cypripediums*, *Cattleyas*, *Odontoglossums*, &c., were in bloom, as was a fine batch of *Calanthes*, some of the spikes bearing as many as forty flowers.

My next call was on De Witt S. Smith, Esq., of Lee, Massachusetts, where a pleasant surprise was in store for me. The morning was intensely frosty, with deep snow, but I found his houses ablaze with Orchid bloom, rich in quality and abundant in variety. The flowers of *Lælia anceps* were the largest I have ever seen; *Cattleya Percivaliana*, *Vanda Sanderiana*, *Oncidium varicosum cruentum*, *Odontoglossum crispum* in variety, were also very fine; to these may be added hundreds of *Cypripediums*, many of the *C. Spicerianum* having two flowers on a scape. Mr. Smith obtains more blossom from a given number of plants than is probably done elsewhere, which is doubtless accounted for by the extraordinary vigour of his plants, and the abundance of their strong roots. Mr. E. Norman, the gardener, has brought this collection into fine condition; the specimens of *Cypripedium niveum* were the best grown that I saw while in the States.

It was a matter of course that I visited the garden of Erastus Corning, Esq., of Albany, New York, who has one of the oldest established and most complete collections in America. The show of *Cattleya Trianae* here was far finer in variety and greater in number than in any other establishment that I visited. All the *Lælias* and *Cattleyas* were in superb condition, the leaves thick and leathery, and the long aerial roots in great abundance. The rare and distinct *Lælia Crawshayana* was in bloom, as was the new *L. Gouldiana*; both of them are apparently natural hybrids between *L. anceps* and *L. autumnalis*. *L. Gouldiana* is the finer of the two, and at the same time it is a really good and free winter blooming Orchid. The species of *Phalenopsis* are Mr. Corning's favourites, and of which he has probably the most complete collection in cultivation, all of which are doing well. *Cypripediums* in America are especially good, but here were some of the finest, such as *C. Harrisianum superbum*, *C. Arthurianum*, *C. vexillarium*, *C. Morganii*, all of which were in flower at the time of my visit, and in larger specimens than any I have seen elsewhere. The collection of *Odontoglossum* is also a very rich one, the plants being in excellent condition; in fact, the collection does great credit to Mr. William Gray, the gardener in charge, and who is ably assisted in the cultivation by Mr. Goulding, a well-known Orchid grower and writer, contributing to both English and American periodicals.

My next move was to Utica, to the horticultural establishment of Mr. Wm. Mathews, who has formed a large and well-grown collection of Orchids. He is a man who evidently understands the requirements of these plants. Most of the houses are sunk in the ground with simple wooden stages; as much of the virgin soil as possible is left inside the house, paths being dug where wanted. This plan insures natural humidity, and minimises the expense of frequent damping, while the growing conditions are secured. It would be difficult to find better cultivated *Cattleyas*, *Lælias*, *Odontoglossums*, *Cypripediums*, *Phalenopsis*, in fact anything seems to grow freely and sturdily. The show of bloom of the genera named was grand for the time of year, and included many fine varieties, all of which are cut for the New York market. Orchids are but a branch of this business; Carnations, Roses, Poinsettias, foliage and ornamental plants generally being grown in large quantities.

W. S. Kimball, Esq., of Rochester, owner of what I may call the "Peerless" collection, received my next call. His is, as far as I know, the most complete collection in America. Mr. Kimball is an



FIG. 21.—FASCIATED PETUNIA. (SEE P. 116.)

about forty representative horticultural men of New Jersey—gardeners and nurserymen—who, at the invitation of Mr. Pitcher sat down to an enjoyable luncheon; and, if I may judge from the speeches that were made, Mr. Pitcher has reason to be proud of the estimation in which he is held by them.

Among the trade collections Messrs. Siebrecht & Wadley, of New Rochelle, New York, claims special attention; large numbers of *Cattleyas*, *Lælias*, *Odontoglossums*, and *Oncidium*s being grown, the business done in these plants being extensive, especially in all winter-blooming Orchids, the demand for them at present being greater than the supply. At the time of my visit an enormous number of plants of *Lælia*s were in bloom; these were associated with almost equally numerous *Cattleya Trianae* and *C. Percivaliana*. Mr. Rose, a young beginner, is in charge of the collection, and handles the plants well.

My next visit was to the noted collection of F. L. Ames, Esq., of North Easton, where are to be seen the gems of the most showy species, the plants of

during the summer months. Mr. Robinson is a thorough worker, and has done a great deal to spread a taste for growing Orchids by manfully combatting every difficulty until success has crowned his efforts. Much good is also done by such amateurs as R. Fröhock, Esq., of Malden, Massachusetts, who well cultivates a small collection without the assistance of a gardener, and yet his plants will bear favourable comparison with any that I have seen for cleanliness and vigour. A splendid variety of *Vanda Sanderiana*, a novel form of *Cypripedium Spicerianum*, *Odontoglossums*, *Oncidium*s, *Coelogyne barbata*, &c., were in flower. At the time these notes were made, the overlapping portion of the pouch in Mr. Fröhock's *C. Spicerianum* was of a slaty-blue colour, and, so far as I know, the variety is remarkable and rare.

A general opinion prevails in America that the residence of H. H. Hannevell, Esq., of Wellesley, Massachusetts, is one of the most beautiful in the States. The grounds are planted with coniferous and other trees of great beauty, and are bounded on

amateur in the truest sense of the word; caring for the tiniest beauties as much as for the most gorgeous representatives of the order. He has done more to popularise Orchids in America than any other man, by growing a collection to which the public have free admission, and by continually publishing lists of his Orchids. In flower were grand specimens of Vandas, Angracums, Aërides and Saccolabiums, magnificent Cattleyas, Phalenopsis, Epidendrums and Schomburgkias, Lælias, &c., down to the minutest of Masdevallias, Pleurothallis, Megacelinium, &c.—Masdevallia muscosa being most charming. A great number of Cypripediums were in bloom, including Kimball's variety of *C. purpuratum*, the finest form of this species, twice the size of the ordinary one; a new and magnificent Schomburgkia in the way of *S. tibicinis rosea*, and the new *Lælia anceps Sanderiana*, with two spikes, one bearing four blooms the other five, all of large size. The new *Lælia Gouldiana*, named in compliment to Jay Gould, the "American Railway King," is also to be seen. But I have not sufficient space to enumerate all the plants in bloom; one cannot do justice to such a grand collection in a short notice. The condition of the plants leaves nothing to be desired, and Mr. George Savage deserves all credit for his management of the plants.

The accompanying photograph [which we hope to reproduce shortly. Ed.] comes from Fred. Scholes, Esq., of Brooklyn, who, in Phalenopsis culture, is the Partington of America. Mr. Scholes supplies his plants with liquid cow manure when they are in active growth—with marvellous results; on one plant I counted 14 leaves from 8 to 15 inches long, of good substance, and 3 large branching flower-spikes. These plants Mr. Scholes assured me were quite small three years ago. Mr. Gardiner, who has charge of this collection, propagates the plants by cutting up the old flower-stems, and inserting them in sand. There was a large number of Orchids in blossom here, including some fine varieties of Cattleya Percivaliana, all being in a clean healthy condition, and grown mostly in pure Sphagnum.

I saw, also, a fine lot of Orchids at Mr. John S. Bush's establishment, Tremont, one of the oldest collections in the State of New York; there were many fine species and varieties, Odontoglossums and Cattleyas being specially well done. Any one visiting New York and interested in horticulture should visit some of the magnificent Rose-growing establishments, notably those of Mr. May, of The Summit, New Jersey, and of Mr. Wood, of Natick, New York. Joseph Godseff.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—At the present critical juncture of the Society's affairs, every suggestion will, I feel sure, receive consideration from those who are endeavouring to reconstitute it. It has occurred to me that the sympathy and support of practical gardeners could be enlisted on behalf of the Society if some inducement were held out to them to take an interest in its proceedings. Now this, I think, may be done if it were decided to confer upon a limited number of the leading gardeners throughout the country the honour of Associate of the Royal Horticultural Society. This would cost the Society nothing, and might eventually bring much profit. It is well known that among the several thousands of gardeners whose names occur in the garden Directories there are men of various degrees of ability, and I think it would be to the advantage of horticulture if there were some authoritative body, such as the Royal Horticultural Society is, or should be, having the power of conferring some such distinction as suggested upon the best of these gardeners. The honour of such a distinction would, I feel sure, be much appreciated, and the Society would be a gainer. Suppose that from among the 6000 or 7000 gardeners the Directories tell us there are in the country 500 of them were selected as Associates, it would, I think, excite the interest and draw the support of an influential class of practical horticulturists—the backbone, in fact, of horticulture in the country, who by their position

and influence would be able to help the Society in many ways. If selected from every part of the country a knowledge of the doings of the Society would be disseminated. The Associates would, in fact, be in a sense the provincial representatives of the Society. The honour of an Associateship of the Royal Horticultural Society, if conferred only upon those gardeners who had attained to a considerable degree of eminence in their profession, would, I believe, be highly appreciated by the recipients, and coveted by those who aspire to become masters of their art. An Associateship would be looked upon as a certificate of ability—would, in fact, be equivalent to the best of testimonials, and would prove of real value to a man under various circumstances in which the best of gardeners are sometimes placed. All Associates should have the privilege of a free pass to the Society's gardens, to its committee meetings, and also to its exhibitions up to a certain time in the morning of the shows; but he should have no vote in the management of the Society unless he became a member, and this I think he should be allowed to do by payment of half-a-guinea yearly; he should then enjoy all the privileges of a one-guinea membership, which I consider ought to include a voice by vote in the management of the Society's affairs. An Associate paying half-a-guinea yearly might be styled an Associate Member, there would then be Fellows who pay two guineas or more, members who pay one guinea, Associate Members who pay half-a-guinea, and Associates who pay nothing. Such are my suggestions, which I venture to think, if carefully carried out, would result in the interests of the Society, and the advancement of horticulture. J. Woodbridge.

—Is Mr. Burbidge becoming Hibernianised that he should have adopted such an unhappy metaphorical object as the *Great Eastern* in likening the Society to that doomed and useless vessel? It seems suddenly to have dawned upon the writer that he had made a mistake, but striven to show that, if the *Great Eastern* is to be destroyed, her material is to be utilised in some other fashion. Here again he is in unhappy form, because the friends of the Royal Horticultural Society have no desire to see its component parts broken up for reconstruction. Once disintegration is accomplished, "not all the king's horses and all the king's men" will be able to put the Society together again. The "old ship" may be all the better for fresh manning, but the want just now seems to be some deep water into which she can freely float. It will take a lot of gushing sympathy to furnish that desideratum. It seems to be a time when a little practical help is worth a lot of sympathy. Amongst officials it is so natural a belief should exist that only more of the same article is needed to regenerate this society in particular as well as societies in general. I am rather disposed to think that the Royal Horticultural Society has been rather too much "officialised" already, and that a little less restraint would do it a lot of good. Spade.

CULTIVATION OF AMARYLLIS.—The remarks I wrote on Mr. Douglas' treatment of the Amaryllis have brought from him, no doubt, what he really meant to say at p. 56, and a long article very interesting to many of your readers. I have no old books in which to hunt up an article on the Amaryllis, but I have grown the older varieties for nearly forty years, and have found them to throw up flowering stems more freely than some of the stronger kinds [new?]. The points I took exception to in Mr. Douglas' letter were that he recommended a 5-inch pot to grow the bulbs in, without any reservation; the other was the shaking out and repotting. In my opinion the plants want no shaking out, but should be rested without any loss of the roots; that is my reason for advocating the potting of the bulbs soon after flowering, and by so doing, and growing on, the pot becomes full of roots, and the plants very strong in consequence. The resting should take place, then, in a gradual manner, with full exposure to sunlight, and no more water given than is sufficient to keep the roots alive and healthy. With this treatment the plants start into growth with great vigour, and can be forced or retarded as may be required. I grew the older varieties largely at one time, and found them very useful as cut flowers in large vases. Unfortunately I was cleaned out of nearly all my stock—Vallotas as well—by the Eucharis mite; but I saved the Eucharis mostly by using lime-water, and now my stock is quite healthy. I think Bentley's Insecticide will be found a perfect cure for the Eucharis mite; we have also used it for the Gardenias; it destroys mealy-bug by the slightest touch, whereas all others that I have

used required to be brushed in when applied, otherwise no effect was apparent. Wm. Culverwell, Thorpe Perrow.

"TURNER MEMORIAL" PRIZES FOR 1888.—An idea prevails that the prize money available from this fund should be set apart to give prizes for florists' flowers only. This is an error. The expressed wishes of the committee were, that as the late Mr. Turner had a mind in active sympathy with every branch of horticultural work, and had introduced new varieties of fruit and vegetables as well as flowers, prizes should be given for fruits and vegetables. Acting on this assumption the trustees have decided to give a 1st prize of £10 at the Grand Yorkshire Gala, York, June 13 to 15, for a collection of ten distinct varieties of fruit. The Society will give £5, £3, and £2, as 2nd, 3rd, and 4th prizes. At the Crystal Palace, on October 11 to 13, the following prizes for twelve dishes of vegetables, distinct—1st prize, £4; 2nd, £3; 3rd, £2; 4th, £1. These prizes are open to gentlemen's gardeners only. Jas. Douglas, Hon. Sec. to the "Turner Memorial" Fund.

VERONICA LYCOPODIODES.—My recent article in these columns (see p. 20) upon Veronica cupressoides affords an excellent example of the easy manner in which one may sometimes jump at a wrong conclusion. A few days after its publication I received from Mr. R. Lindsay, of the Edinburgh Botanic Garden, a specimen of the plant of which I have represented a twig at fig. 5 r, and which I then thought was merely another variation of *V. cupressoides* var. *variabilis*. In this conjecture I was wrong, for the specimen that Mr. Lindsay has now sent—taken from the same plant as the twig represented by fig. 5 r—proves that the name under which it was cultivated (namely, *V. lycopodioides*) is correct. But the adult and normal states of the plant are very different from the condition I figured, and except for the evidence Mr. Lindsay has afforded me, would never be recognised as belonging to the same plant. Mr. Lindsay writes as follows concerning it:—"Our plant is now about 8 inches in diameter, and 6 inches in height. Until quite recently it did not answer to any description that I had seen of *V. lycopodioides*, and those who have seen the true plant in New Zealand failed to recognise our plant. At first the leaves were all long and subulate, now they have assumed a different appearance, being much shorter and more imbricated." On a future occasion I shall hope to give a figure of a branch of *V. lycopodioides*, but for the present I will content myself with saying that in its adult form the leaves are very broad and short, with a mucronate apex, closely imbricated, and arranged in four rows, so that the twigs are square with sharp angles. It may be well to explain what perhaps I did not make quite clear in the article alluded to, that I do not regard the forms given under fig. 5 as distinct varieties of *V. cupressoides* var. *variabilis*, but as merely transient conditions of growth due to some cause of which at present we have but an imperfect knowledge. They are not permanent, and so far as I have seen it is only some of the twigs on the plants that show such variation, and not the whole plant. Mr. Lindsay states that he regards these variations "as being due to feeble health in the plants producing them. Healthy plants, so far as I have seen, do not vary; but by weakening the plants—that is, by placing them in a warm house, or by striking cuttings of them in heat—they then show variations;" but I fear that this theory will scarcely apply to the Kew plants, which are quite healthy, and are growing out-of-doors, but yet produce variations, which would seem to me due, to some extent, perhaps to soil and the amount of moisture received, but I have one specimen from a dry soil, showing the same variation as I have seen on a plant grown in wet soil, and both healthy plants. Probably many factors combine to cause this variation, but to whatever it may be due it is most interesting to study, and one is tempted to speculate whether the pinnatifid-leaved variations do not give us some idea of the ancestral form or forms from which these plants have descended. It would be interesting to know if seedling plants of these species go through similar variations, and also if New Zealand botanists have observed any similar variations on these plants in a wild or cultivated state in New Zealand, I can find no evidence of anything of the kind upon the specimens preserved in the Kew Herbarium. N. E. Brown, Kew.

THE SCAB OF THE POTATO.—Dr. J. Brunchorst, of Bergen, has recently published his observations on the "scab" of Potatoes. This disease, known in

Norway as "*skurv*," and in Germany as "*schorf*," or "*grind*," so far from being due to unsuitable chemical or physical conditions of the soil, as Schacht, Sorauer, Frank and others have supposed, is caused by a parasite fungus allied to *Plasmodiophora*, and which the discoverer proposes to call *Spongospora Solani*. Scab, as is well known, consists in the formation of pustules on the skin of the Potato, which then dry up and crack, or give access to damp; these pustules may be eaten out, and crater-like depressions left in the place. Brunchorst finds that the pustules are due to the presence of a plasmodium in the cells which are about forming the corky covering, and in consequence of its presence the development of the cells is accelerated, hypertrophy results, and the wart-like pustules are formed. The writer states that he has not been able to trace the whole life-history of the parasite, but he figures the spores. The disease is very common in Europe, and in West Norway the author says it is almost impossible to find a Potato without it: at the same time the existence of a few of the pustules does not injure the tuber, and it is only when they increase enormously in wet soils or seasons, that they render the crop unsaleable. Moreover, even in bad cases—except in so far as insects or fungi have entered the diseased spot and destroyed the tissues—the parasitic *Spongospora* does not enter cells far below the surface, and the removal of the skin leaves the tuber good to eat. The matter seems to deserve further investigation. *M. W.*

PLANTS CERTIFICATED BY THE ROYAL HORTICULTURAL SOCIETY.—In your report of the Royal Horticultural Society's last meeting you report a First-class Certificate for double lilac *Primula Eva Fish*. Would you allow me to ask, Why and for what the certificate was granted? as we exhibited it in Birmingham Town Hall show six years ago, and it has been exhibited most years since, and so cannot be called new; and I should like to suggest to the Royal Horticultural Society committee that, when a certificate is granted to a plant the exhibitor should say who raised it, and how many years it has been known to the public, or has been in commerce, and then honour would be given to whom honour is due, instead of as it appears now. Certificates are granted to any one who chances to show it, and frequently it is passed as of their own raising. My attention was called last spring to a First-class Certificate granted to a semi-double zonal scarlet *Pelargonium Paul Carboneare*: this variety had been long enough in our possession to grow it thoroughly, try it, and discard it as useless. When will the Royal Horticultural Society committee wake up and grant it a certificate presumably as a new sort? I could readily enumerate many other cases, but this will suffice to show the value or valuelessness of the Royal Horticultural Society's certificates as at present granted. *John Pope.*

CHRYSANthemum JUDGES.—I shall not imitate the verbosity of "*Spade*," and will refer him to his dictionary for a definition of the words "*theorist*" and "*practical*." As regards being a disappointed exhibitor my best reply is—I have been awarded a goodly number of 1st and 2nd prizes at some of the recent shows. The necessity for practical men as judges I contend is due to the fact that to make a man a good judge he should possess a thorough knowledge of the characteristics of the different varieties he is called upon to adjudge to enable him to arrive at a correct decision. Wherever men of ability, as Messrs. Molyneux, Mease, Archard, and Douglas are appointed the utmost confidence amongst exhibitors prevails. Questionable awards have been very frequent of late. I am glad, however, that at last it has come to be a question of "*the writing on the wall*." In the future I myself shall certainly require to be furnished with the names of judges beforehand, and if "*Spade*," or indeed anyone in whom I have not sufficient confidence as a *Chrysanthemum* judge is appointed, I shall not be an Exhibitor.

A RIDGE-AND-FURROW-ROOFED ORCHID-HOUSE.—There has been a great deal written from time to time in favour of or against ridge-and-furrow-roofed, or, as some choose to call them, Paxton-roofed plant-houses. After weighing the opinions on both sides it seems to me that the advantages claimed for the ridge-and-furrow principle are outnumbered by the disadvantages, so far as ordinary greenhouses or conservatory structures are concerned, the extra cost of construction and ultimate maintenance being among the chief objections. But how far the argu-

ment affects hothouses for special kinds of plants such as Orchids, does not appear to have been considered. I had not met with an Orchid-house built on the ridge-and-furrow principle until the other day, when at St. Albans I found that Mr. F. Sander is building a huge Orchid-house, which is to be devoted to *Cattleya* and *Laelia* culture, and the roof of the house is constructed quite on the ridge-and-furrow principle. Mr. Sander has not adopted this principle in ignorance of what has been said for and against it. He knew all this, and yet he maintains that for the special culture of Orchids, and particularly *Cattleyas*, such a roof is advantageous for several reasons which appear obvious. He contends that by the roof of a plant-house being interrupted in such a way as a ridge-and-furrow is by dips and rises, the sun never strikes the plants so fiercely as under a plain roof, but that every moment almost the shadows of the rafters and sash-bars are passing over them. Hence it is clear that the plants will not need to be so heavily shaded while they can enjoy the maximum amount of light. This, to me, seems a very feasible argument, and one that should be considered, as it is well known that in *Cattleya* culture the error is more often made in shading too much than otherwise. Mr. Sander proposes to shade the plants when necessary by awnings stretched under the roof inside so as to break the sun's rays on the brightest days. The atmosphere of the house in the winter will be influenced by the ridges and furrows as the ascending warm currents will be broken in rising, and so become more equally distributed. One of the difficulties in ridge-and-furrow roofs has been the rain gutters, but this, as well as the clearing away of collected snow has been considered. The ridges and furrows run across the house, not longitudinally, as is commonly the case; and from its position with relation to the sun the intermittent shadows from the roofs will pass over the plants in the way described. The house is 300 feet in length, by 26 feet in width. The width of each transverse span is 12 feet, and the height of the ridge is about 15 feet from the floor line. The pitch of the spans is not very sharp, but quite enough to shoot water off quickly, while provision is made to prevent drip by grooved sash bars. One side of the house runs at right angles to numerous span-roofed houses, each 300 feet long, while the outer side is glazed. There are two rows of handsome supports on either side of the central stage, which will be raised in the usual way in the centre with a bed beneath for evaporating material. The side stages are supported on arched walls, the reason for this being that bricks retain more moisture than wood, and give it out slowly. The pathways are trellised with wood, and beneath them are the trenches for the hot-water pipes—a principle that Mr. Sander has adopted in all his new houses, as he has proved it the best plan. There are four rows of pipes beneath the paths all round the house, four beneath the central stage, and one above the plants on both sides of the house, in order to circulate the air above the plants on the side stages. This heating power will be augmented by the heated air passing from the numerous houses that run at right angles to the new *Cattleya*-house, for as these are all built on a sloping level with a fall of several feet, the moisture-laden heated air from these houses will obviously rise to the highest end, and so into the *Cattleya*-house. It is indeed a noble house, and one that would repay a visit by all about to build an Orchid-house, as they would be sure to gather hints upon construction—the little things, in fact, that hothouse builders do not think of. They will see that no paint is used, but all the wood is the best Pitch Pine, varnished, and will also see that the particular evil guarded against is that of having, as is too often the case, the hot-water pipes too near the plants, which is, no doubt, the ruin of many Orchids. This house being the latest addition to this vast establishment—a veritable village of glass—it is, of course, the outcome of the experience the owner has gained during the many years he has been engaged in building for himself his houses and his great business. *W. G.*

SANITARY EFFECTS OF TRANSPLANTING.—It not unfrequently happens that a disease assails some choice plant which one would give much trouble to preserve. It may be a really scarce plant, or one that has some special association connected with it—perhaps the gift of a departed friend, or the happy "*find*" on some distant mountain top—the recollection of which is a constant pleasure; and to witness the growing sickness of our favourite from the attack of a destructive fungus without knowing how

to cure it is exceedingly vexations. I observe that the usual advice is—destroy it at once, or it will affect others. But this requires much courage and self-denial to carry out, and I am not sure that to recommend such drastic treatment is in every case wise advice. Certain I am that he who has such an afflicted favourite will be thankful for any suggestion which offers a chance of success. Let me recommend transplanting it to a new soil and a new situation. That disease will very often disappear by this treatment is absolutely certain, as any one accustomed to introduce diseased plants into his garden for the sake of studying the features of the disease perfectly well knows. I may give two examples of the enervate effects of transplanting in illustration of this. Some years ago I had in a border some clumps of *Star of Bethlehem* (*Ornithogalum umbellatum*), the leaves of which were annually destroyed by a black mould, *Heterosporium ornithogali*. I removed them to another situation in the same garden a hundred yards distant, and the fungus has never appeared on them since. The second case is that I saw in a friend's garden six miles from here: some Chives (*Allium schoenoprasum*) badly suffering from a severe attack of *Puccinia mixta*, and begged some to bring home to plant near my Onion bed, to see if the Onions would catch the disease. The result was that the Onions did not take the disease, and the Chives were cured. *W. Phillips, Shrewsbury.*

AN EXCELLENT VARIETY OF POTATO.—If "*North Norfolk*" would try the Mayor Potato as a field cropper variety it might suit him. It has been raised by Mr. James Anderson, Mains of Parkhill, Arbroath. This gentleman is working with Mr. Nicoll, the raiser of the Champion, in raising and selecting new sorts from seed. This one was selected from a batch of seedlings and promises to become a very useful variety. It is flattish oval in shape, grows to a good size, and is a very heavy cropper. The skin is roughly netted, flesh white and of splendid quality when boiled. It is an improvement on *Magnum Bonum*, and, unlike that sort, can be used when dug. Those who grew it last year speak very highly of it. Some weeks ago I saw the produce of Mr. Anderson's seedlings, but this one is far in advance of the other and promises to become a standard sort. *W. R.*

FREESIAS.—With regard to your correspondent's ("*R. H. L.*") remarks on the Freesia, I have also observed the same tendency of the bulbs to remain dormant; they will, however, usually start again the following season. I suggest as a slight alteration of his treatment to allow the bulbs to ripen slowly in a temperature similar to that in which they bloom best, say 55° to 60°, keeping them in the old soil until they are repotted, which should be done in successional batches during June and July, but not later. The rest of my treatment of the bulbs accords entirely with that of "*R. H. L.*," and with what I consider good results, some of the spikes this season having carried nine or ten flowers at the top, with two and three spikelets bearing five and six flowers each, all of which expanded when left uncut. *G. A.*

APPLES TO PLANT IN NEW ZEALAND.—Seeing an inquiry in your columns from Mr. J. N. Lawless (p. 57), I venture to offer my advice to him. First, as to the number of Apples he contemplates planting; the choice seems to be far too great, unless he wishes to plant a very large area of land. With so many varieties there would not be enough fruit of each on a small area to make it worth while carefully gathering and packing the fruits; added to which there are, I would venture to say, not twenty-four varieties of Apples which would be suitable for his purpose. I should recommend the following, which, I think, would pay him far better than a larger number:—*Dessert*: Ingram's Improved Herefordshire Pearmain, Golden Reinette, Ribston Pippin, Cox's Orange Pippin, Sturmer Pippin. *Cooking*: New Northern Greening, New Caldwell, Dumelow's Seedling, Alfriston, Bramley's Seedling. There is an Apple which is extensively grown in New Zealand called Bismarck, but from what I have seen of it I should not say it is not very good for long carriage, as, the skin being thin and delicate, it would probably show bruises. *A. H. Pearson, Chilwell, Notts.*

ODONTOGLOSSUM CRISPUM (BLUNTI, ALEX-ANDRÆ).—In your obituary notice last week of Mr. John Day you credit him with being the first to

flower the above-named plant. This is a mistake. It was originally introduced by Messrs. Low & Co., of Clapton, from whom we both procured plants; but my late gardener, Mr. Wilson, was successful in blooming the first one, and it was exhibited by him at one of the meetings of the Floral Committee, and received a First-class Certificate under the name of O. Blunti. Mr. Bateman subsequently named it O. Alexandra, and Mr. Thistleton Dyer afterwards proved it to be synonymous with O. crispum, Lindl. *W. Marshall, Bexley.*

SOCIETIES.

MANCHESTER HORTICULTURAL IMPROVEMENT.

At the meeting on Thursday evening, January 19, Mr. Leo H. Grindon delivered an address on "Trees adapted for Manchester." Mr. Bruce Findlay, President of the Society, was in the chair.

Mr. Grindon, who has recently had an accident to his right arm, and is consequently disabled from writing, apologised for not coming before them with a carefully prepared paper. He said that, although the majority of those present lived in the country, he supposed there was not one of them to whom the subject of town gardening and town trees was not of some interest. What he was about to say would have reference to Manchester, because trees in towns would be far too comprehensive a subject to be dealt with at this meeting. But his remarks would be founded on the observations made in other large manufacturing towns, including Leeds, Sheffield, Halifax, Huddersfield, Wigan, Bolton, and Bury. Their main object, of course, is to make the city more healthy for human beings, but they could not do that without garden-loving folk benefiting from it, because wherever human beings do best plants do best. The purification of the atmosphere was, however, by no means the only thing that required attention in this matter, for the nature of the soil, the influence of drainage and noxious gases must be taken into account. He was not going to include Whalley Range and Alexandra Park in speaking of Manchester, but should confine his remarks to those districts which are more or less affected by smoke. We can never expect to have in Manchester such noble trees as they have in London and Bath. Nor can we expect to see Planes here such as those which ornament the great squares in London, nor the Elms which do the same for Bristol. Noxious Vapours Associations notwithstanding, for the simple reason that the climate of this district is unfavourable to their growth. If, then, we cannot have the majestic Oaks, Elms, and Planes, we must see whether there are not fifty other trees which, though of smaller dimensions and less ambitious, will, by a little judicious mingling, afford us as much delight as the grand old Oaks and Chestnuts. The plants to be considered fall under three heads:—1. Those which have already grown in Manchester, and are now doing well. 2. Those which refuse to grow altogether, which he need not dwell upon. 3. Those which are worthy of a trial: and it was to these he desired to direct their particular attention. The Balsam Poplar, Black Poplar, and the Hawthorn are amongst those which will grow here. He wished they could have seen the Hawthorn which he had in his Rumford Street garden three years ago loaded with its summer snow, and such a delightful spectacle that many persons stopped to admire it. Willows also, when they have a fair chance, do well. The common green Willow has had a wonderful growth in his little garden in Cecil Street, Greenheys, during the last four years. The common Sallow may also be included in the list of those which do well.

He now came to trees which are waiting to be made more use of than they have been hitherto. Amongst these are the Fig tree, the Mulberry and the scarlet-berried Elder. Of the last named, he could say that he never saw a finer specimen than one that was growing almost in the midst of the Wigan smoke three or four years ago. He had seen this tree cultivated in nurseries, but why not introduce it within two miles of the Exchange? The common Siberian Crab is also very well adapted for town culture. The *Aralia spinosa*, commonly called the Angelica tree, blooms abundantly in the Botanical Gardens at Old Trafford, and he had seen it doing wonderfully well amongst the smoke of Bristol. Then there is a tree known as "the tree of heaven" (*Ailantus*), which is exceedingly well adapted

for towns, being proof against both smoke and insects. We must be thankful if we can get fine foliage in town; never mind the flowers, and if we cannot have what we would like, to make the best of what we can have. The Mountain Ash, White Beam, and Horse Chestnut were amongst others he could recommend for Manchester. Some thirty or forty years ago there was a noble-looking Horse Chestnut growing at the foot of New Bridge Street, whose branches spread almost into the middle of the roadway, and was every year laden with flowers, but it had to give way to street improvements. If it would grow there he should think it would grow at a similar distance from town. The Tulip tree is another capital town tree, and there was one which did remarkably well in a garden in Arlington Place, Oxford Road, until its roots were damaged by the men employed on some drainage works there. The Nyssa, or Tupelo, has also proved itself able to stand the injurious influences of a town atmosphere. The Almond will also flourish and produce a load of bright pink flowers in early spring. Of the Lentisk-leaved Ash Mr. Stansfield had a good specimen in his garden on the edge of Kersal Moor, where it no doubt gets the full flavour of the Salford smoke. Of the sweet Bay-leaved Willow, which grows wild about Marple in abundance, there are two beautiful examples in Plymouth Grove. Turning now to shrubs, he said the yellow Azalea may be seen at many points along Stretford Road, and close to the church of the Holy Name, Oxford Road, there is a grand specimen of the American Bramble, which is covered with bright red flowers every year. There is also one in Mr. George Milner's garden, close to Harpurhey, which seems to hold its own like a sturdy Briton who was determined not to be driven from his position. In his own garden, in Rumford Street, a *Rhododendron* flourished wonderfully, and in his present garden in Cecil Street there is a spotted Laurel (*Aucuba*) growing and thriving. Every autumn a house in Burlington Street, Greenheys, is made beautiful by a white Jessamine which is growing there. If we want glorious foliage, the Grape Vine is an admirable plant for the purpose, and he was surprised that it is so much neglected as a decorative plant for gentlemen's gardens. He next referred to the *Pyrus japonica* and the Sunflower, of which latter a splendid specimen is to be seen every season in Grosvenor Street, London Road: common Gourds and Pumpkins, which he had successfully cultivated in his Rumford Street garden, and other varieties.

Mr. Stansfield said he could not recommend the Mountain Ash, the "Service tree," Horse Chestnut, or Lime, for towns.

Mr. Upjohn said he thought the Lime could be made to succeed under certain conditions. The Horse Chestnut does well at Worsley. *Manchester City News*, Jan. 21.

THE WEATHER.

THE PAST WEEK.

THE following summary record of the weather for the week ending Jan. 23, is furnished from the Meteorological Office:—

"The weather has continued cloudy or dull generally, with a good deal of mist or fog locally. Towards the end of the period, however, brief intervals of exceptionally fine weather for the season were experienced in some parts of England.

The temperature was low during the earlier part of the period, but subsequently rose decidedly; and, on the whole, the average for the week has not differed materially from the normal. The highest of the maxima, which were generally recorded on the 20th in Ireland, and on the 23rd, varied from 51° in 'Scotland, N.' 'England, S.W.' and the 'Channel Islands,' to 55° in the Midland Counties of 'England, S.W.,' 56° in 'Ireland, N.,' and 58° in 'Ireland, S.' The lowest of the minima, which were recorded either on the 18th or 19th, ranged from 12° to 18° in Scotland, from 18° to 26° in England, and from 25° to 27° in Ireland; in the 'Channel Islands' the lowest reading was 31°.

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

"Bright sunshine has again been very deficient in most districts, the percentage of the possible amount of duration ranging from 7 to 23 over the greater part of the kingdom; in 'Scotland, E.,' however, 32, and in the 'Channel Islands' 46 were recorded.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING FEB. 4. (AVERAGE OF FORTY-FOUR YEARS.)

Jan. 29	38°.8	Feb. 2	39°.2
„ 31	38°.9	„ 3	39°.2
„ 31	38°.9	„ 4	39°.4
Feb. 1	39°.1	Mean for the week ...	39°.1

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	Above or below the Mean for the week ending Jan. 23.	TEMPERATURE.			
		ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	1 below	1	40	+ 12	- 35
1. SCOTLAND, E. ...	1 above	3	43	+ 15	- 45
2. ENGLAND, N.E. ...	0 (aver.)	1	32	+ 6	- 39
3. ENGLAND, E. ...	0 (aver.)	0	33	+ 6	- 37
4. MIDLAND Cos. ...	0 (aver.)	1	34	+ 1	- 17
5. ENGLAND, S. ...	1 below	2	33	- 3	- 11
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 above	3	27	+ 3	- 48
7. ENGLAND, N.W. ...	2 below	0	32	- 2	- 26
8. ENGLAND, S.W. ...	0 (aver.)	9	23	- 11	+ 1
9. IRELAND, N. ...	0 (aver.)	10	21	+ 10	- 40
10. IRELAND, S. ...	2 above	25	8	+ 8	- 42
— CHANNEL ISLANDS	0 (aver.)	22	5	+ 2	- 15

DISTRICTS.	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	BRIGHT SUNSHINE.	
				Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1888.
				Inch.	Inch.
Principal Wheat-producing Districts.					
0. SCOTLAND, N. ...	2 less	12	1.8	16	12
1. SCOTLAND, E. ...	4 less	8	1.3	31	23
2. ENGLAND, N.E. ...	3 less	6	0.4	10	14
3. ENGLAND, E. ...	3 less	6	0.4	18	20
4. MIDLAND Cos. ...	4 less	6	0.3	16	16
5. ENGLAND, S. ...	3 less	5	0.5	22	15
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	6 less	9	2.9	7	7
7. ENGLAND, N.W. ...	4 less	8	0.8	9	8
8. ENGLAND, S.W. ...	3 less	10	1.3	23	13
9. IRELAND, N. ...	4 less	8	1.8	8	11
10. IRELAND, S. ...	5 less	7	2.6	19	22
— CHANNEL ISLANDS	2 less	13	1.2	46	28

Obituary.

PROF. DE BARY.—We grieve to say that the death, on the 19th inst., of Professor de Bary, of Strasburg, is announced. As an anatomist, and an authority on the morphology of fungi, De Bary was unrivalled, while his personal qualities endeared him to all with whom he came in contact. The Botanical Institute at Strasburg—a palatial edifice—was constructed under his superintendence.

DR. H. J. GIRAUD.—The death is announced of Dr. Herbert John Giraud, Inspector-General of the Bombay Army. He was born at Faversham, in 1817, and after graduating at Edinburgh entered the medical service of the East India Company in 1842, in which year his *Observations on Vegetable Embryology* were published in the *Transactions* of the Linnean Society, and were subsequently embodied in many of the textbooks. He was afterwards Professor of Chemistry and Botany, and eventually Principal of the Grant Medical College, Bombay.

ENQUIRIES.

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

CHRYSANTHEMUMS.—Would any grower kindly give me the six best Japanese for exhibition? *An Anxious Enquirer, Carlyon.*

HYBRIDISATION.—A. B. asks for instances among hybrids of a tendency to reproduce themselves vegetatively (*i.e.*, by buds) to a greater degree than do their parents, and whether this tendency, if it exist, has any relation to their degree of sterility. [It is frequently observed that hybrids are more robust in "habit" than the parents from which they originate, and this being so, the presumption is that the buds and shoots would partake of the increased vigour. We presume, however, our correspondent wishes to know, further, whether the tendency to produce buds is greater under such circumstances than usual. The experience of those of our readers who practise hybridisation (not mere crossing) is solicited. Eo.]

NOTICES TO CORRESPONDENTS.

BOOKS: *J. H.* There is a book on church decoration published at *The Bazaar Office*, 170, Strand, W.C., price one shilling.

CAMELIAS: *J. G.* We must adhere to our former statement as to the cause of leaves turning brown. Soil was full of healthy roots.

CARNATIONS DISEASED: *G. D.* The example sent is badly attacked by a fungus named *Helminthosporium* (or *Heterosporium*) *echinulatum*, described and illustrated in the *Gardeners' Chronicle* for August 21, 1886. This genus of fungi has been extremely destructive in Britain for several years past attacking the Carnation, *Ornithogalum* Tomato, and other plants. We have seen bad attacks upon Cloves, and upon Carnation Gloire de Nancy, and other varieties. The better plan is perhaps to destroy affected examples, and although diseases of this class do not invariably spread, yet they often do so, and cause great loss. *W. G. S.*

CHRISTMAS ROSES: *L. S., Banbury.* A fine form apparently of the angustifolius variety, the flowers being flat, of great size and purity. Please send a leaf.

GARDENERS' ORPHAN FUND: *A. J. Brown.* We are informed that the subject noted in your letter has already received attention from the committee.

GRAFTING ROSES ON THE BRIER AND MANETTI STOCKS: *S. D.* The roots, if young seedlings of the former or rooted cuttings of the latter, may be grafted in December, January, and February, the earlier months being preferred. The stock being cut over just above the rooted portion is cleft or tongue-grafted with a well-ripened scion, 2½ inches in length. The graft may be clayed, or smeared with grafting wax over the tie. The grafted stocks are potted, and then are usually packed close together in tan or sawdust over a bottom heat of 75° to 80°.

HERBACEOUS BORDER: *B. O.* It is somewhat late to replant the border, still if you begin at once and carefully lift everything, especially such plants as have made advance in growth, much may be done for this season. When the plants are dug up lay them in by the heels on a spare piece of ground, and double dig the border if the soil is deep enough and good enough, working in plenty of new loam, leaf-mould, and but little rich manure. Those plants requiring rich food must be specially treated. After digging the border choose a dry day to make it level and firm, and plant the

occupants as much as you may in colonies, and do not repeat the same group or feature twice. Let the taller plants occupy the back or centre of the border according as the border has two faces or only one. Give strong growing plants plenty of space, and no others should be crowded. Carefully pull asunder or cut with a knife the larger fibrous root clumps. Be careful not to multiply the rapid growing commoner plants. These borders are best rearranged in September and October, and should never be dug over.

LILY OF THE VALLEY: *Disappointed.* There are important points left out of your description of the treatment afforded the crowns. To force these roots at an early date the boxes or pots in which they are planted must be covered over with moss or cocoa-nut fibre to a depth of 4 or 5 inches, and the bottom-heat must be kept steadily at 88°–90° at the beginning of the forcing season, and may be put weekly a degree or two lower as the natural period of the root to grow approaches. The roots sent were good in every way.—*G. N.* See above reply to "Disappointed."

MANETTI ROSE: *S. D.* These usually stand in the propagating bed till well rooted, and then may be used for budding or grafting.

MOSS LITTER FOR HOTBEDS: *Southcoote.* The litter, containing, as it does, the excreta of the horses, should form an admirable material to supply bottom-heat for growing Melons and Cucumbers. The addition of undecayed leaves of the Oak, Beech, or Sweet Chestnut, would cause a more rapid rise of the heat, and would, if used in the proportion of one-half, make the heat very lasting. In any case the materials should be mixed thoroughly, and be thrown into a conical heap for four or five days, until strong fermentation takes place, and again be turned over and placed in a heap as before for a few days, until the more rank vapours are dispersed, when it would be ready for use. The thickness of the bed, when finished and made moderately firm in every part, should be about 4 feet, and in any case should almost touch the glass. It will afterwards sink lower, affording space for the Melon or Cucumber mounds, and for the growth of the plants. Stable litter is not a necessity.

NAMES OF FRUITS: *J. H. G. Pears:* 1, Chaptal; 2, Beurré Rance; 3, not recognised—too much bruised.—*No letter or number.* *Pear:* Josephine de Malines.—*A. G. K.* and *X. Y.* Examples sent in both cases so much bruised and decayed that they cannot be recognised. There is no use in sending rotten fruits.

NAMES OF PLANTS: *J. H. G.* *Onychium lucidum.*—*Lost.* Probably *Statice Limonium.*—*Lymington.* *Pinus excelsa.*—*H. Wilks.* 1, *Juniperus communis*; 3, *Biota elegantissima*; 4, *Picea* sp.; 5, *Pinus excelsa*; 6, *Abies Tsuga canadensis*; 7, *Taxodium sempervirens*; 8, *Biota orientalis*; 10, *Abies Pinsapo*; 11, *Juniperus sinensis* var. *aurea*; 12, *Retinospora pisifera aurea*; others doubtful.—*W. D.* *Cyrtodeira fulgida*; the red fruits are those of the Bladder Cherry, *Physalis Alkekengi.* *Ferns:* 1, *Davallia cucariensis*; 2, *Asplenium Belangeri*; 3, *Blechnum occidentale*; 4, *Nephrolepis*, probably—send fertile frond.

PRIMULA: *J. B. W.* The development of the calyx with a perfect leafy cup is by no means uncommon, but yours are unusually fine specimens. They make pretty button-hole flowers.

CATALOGUES RECEIVED.

NUTTINO & SONS, 106, Southwark Street, London, S.E.—Wholesale Seed List.

J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex—Seeds, &c.

HENDERSON & SONS, Brechin—Garden Seeds, &c.

WOOD & INGRAM, Huntingdon—Vegetable and Flower Seeds.

W. B. HARTLAND, 24, Patrick Street, Cork—Seeds.

DONIE & MASON, 66, Deansgate, Manchester—Seeds.

J. BACKHOUSE & SON, York—Garden Seeds.

R. H. POYNTER, Castle Green, Taunton—Seed List.

WM. BULL, 53½, King's Road, Chelsea—Seeds and Bulbs.

DONNIE & CO., Rothesay, N.B.—Seed Catalogue.

JOHN R. BOX, North End, Croydon—Seeds and Sundries.

WM. PELL & CO., Hexham—Trade Seed Guide.

AGRICULTURAL AND HORTICULTURAL ASSOCIATION (Limited), Creek Road, Deptford, S.E.—Vegetable and Flower Seeds.

V. DÖPFLEB, Erfurt, Germany—Seeds and Plants.

HOOPER & CO. (Limited), Covent Garden, London, W.C.—Seeds.

W. STRIKE, 62, High Street, Stockton-on-Tees—Vegetable and Flower Seeds.

H. CANNELL & SONS, Swanley, Kent—Seed Catalogue, and "Floral Guide" for 1888.

FOWLER & SON, Northallerton, Yorkshire—Vegetable and Flower Seeds.

J. LANGERT & SÖHNE, Trier, Germany—General Trade Seed List.

CLARK & CO., 85, Bedford Street, North Shields—Seed List.

PENNY PACKET SEED COMPANY (BIDDLES & CO.), Loughborough—Seeds.

R. CLEAVER, 47, Bore Street, Lichfield—Seeds.

JAMES COCKER & SONS, Aberdeen—Seeds and Plants.

P. J. KANE, Kells, co. Meath—Seeds.

CLARK BROTHERS & CO., 65, Scotch Street, Carlisle—Garden Seeds.

PETER HENDERSON & CO., 35 and 37, Cortland Street, New York—Garden Manual.

BEN. REID & CO., Aberdeen—Seed List.

WM. SAMSON & CO., and **W. T. SAMSON**, 6 and 10, Portland Street, Kilmarnock—Seeds.

M. BRUANT, Poitiers, Vienne, France—New Plants.

W. SMITH & SON, 18, Market Street, Aberdeen—Seeds and Plants.

ROBERTSON MUNRO, 33, St. Andrew Square, Edinburgh, N.B.—Seeds, &c.

W. PIERCE, 89, West Road, Forest Hill, London, S.E.—Chrysanthemums.

JOHN PERKINS & SON, 52, Market Square, Northampton—Vegetable and Flower Seeds.

THOS. DAVIES & CO., Wavertree Nursery, Liverpool—Vegetable and Flower Seeds.

SAMUEL YATES, 16 and 18, Old Millgate, Manchester—Seeds and Accessories.

DANIELS BROTHERS, Norwich—Amateurs' Guide for 1888.

WILLIAM RUMSEY, Joyning's Nurseries, Waltham Cross, London, N.—Seeds, &c.

MICHAEL CUTHBERTSON, Rothesay, N.B.—Seeds.

COMMUNICATIONS RECEIVED.—*J. B. W.*—*E. Bergman*, Ferriers.—*B. S. W.*—*W. C. Thorp*, Thorpe Perrow (with many thanks; please send height, &c.).—*J. V. & SONS*.—*T. W. B.*—*E. Pyruart* (in a day or two).—*G. B. Wallastou*.—*Udo Damm*, Berlin (many thanks).—*A. B.*, Cambridge.—*D. T. F.*—*W. S.*, Banbury.—*P. B.*—*F. S. Bruant*, Poitiers.—*G. Savage*, Rochester, U.S. (many thanks).—*A. F. B.*—*J. R.*—*J. Roberts*.—*W. Wood & Son*.—*W. S.*—*R. A.*—*R.*—*Pteris*.—*M. Ward*.—*J. M.*—*A. D.*—*W. A.*—*A. C.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, January 26.

BUSINESS dull, with supplies quite equal to the demand. Good well-kept Apples are in request. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Aralia Sieboldi</i> , doz. 6 0-15 0		<i>Ficus elastica</i> , each. 1 6- 7 0	
<i>Azalea</i> , per dozen ... 24 0-34 0		<i>Foliage plants</i> , vari-	
<i>Bouvardia</i> , per dozen 9 0-12 0		ous, each ... 2 0-10 0	
<i>Cyclamen</i> , per dozen 12 0-12 0		<i>Hyacinths</i> , doz. ... 8 0-10 0	
<i>Cyperus</i> , per dozen 4 0-12 0		<i>Lily of Valley</i> , 12 pts. 15 0-24 0	
<i>Dracena terminalis</i> ,		<i>Marguerites</i> , doz. ... 9 0-12 0	
per dozen ... 30 0-40 0		<i>Myrtles</i> , per dozen ... 6 0-12 0	
— <i>viridis</i> , per doz. 9 0-24 0		<i>Palms</i> , in var., each 2 6-21 0	
<i>Epiphyllum</i> , doz. ... 12 0-24 0		<i>Pelargoniums</i> , scar-	
<i>Ericas</i> , various, doz. 9 0-15 0		let, per dozen ... 6 0- 9 0	
<i>Euonymus</i> , in var.,		<i>Poinsettias</i> , doz. ... 12 0-18 0	
per dozen ... 6 0-15 0		<i>Primula sinensis</i> , doz. 4 0- 6 0	
<i>Ferns</i> , in var., doz. 4 0-18 0		<i>Solanums</i> , per dozen 9 0-12 0	
<i>Evergreens</i> , in var.,		<i>Tulips</i> (pots off), doz. 8 0- 9 0	
per dozen ... 6 0-21 0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Arum Lilies</i> , 12 blms. 4 0- 6 0		<i>Narcissus</i> , paperwhite,	
<i>Azalea</i> , 12 sprays ... 9 0- 1 0		Fr., 12 bunches ... 2 6- 6 0	
<i>Bouvardia</i> , per bun. 0 6- 1 0		— <i>Various</i> , 12 bun. 1 6- 4 0	
<i>Camelias</i> , 12 blms. ... 2 0- 5 0		<i>Pelargoniums</i> , 12 spr. 1 0- 1 6	
<i>Carnations</i> , 12 blms. 1 0- 2 0		— <i>scarlet</i> , 12 spr. ... 0 8- 1 0	
<i>Chrysanth.</i> 12 bun. 12 0-21 0		<i>Primulas</i> , double, 12	
— <i>large</i> , 12 blooms 2 0- 6 0		sprays ... 1 0- 1 6	
<i>Cyclamen</i> , 12 blms. 0 6- 1 0		— <i>single</i> , 12 bun. ... 4 0- 6 0	
<i>Eucharis</i> , per dozen 4 0- 6 0		<i>Roses</i> , Tea, per doz. 1 6- 4 0	
<i>Gardenias</i> , 12 blooms 12 0-18 0		— <i>coloured</i> , dozen. 2 0- 4 0	
<i>Heliotropes</i> , 12 spr. 0 6- 1 0		— <i>red</i> , per dozen ... 2 0- 3 0	
<i>Hellebore</i> , or <i>Christ-</i>		— <i>Safrano</i> , dozen ... 1 6- 3 0	
<i>mas Rose</i> , 12 blms. 0 6- 2 0		<i>Tuberose</i> , 12 blms. ... 1 6- 2 0	
<i>Hyacin.</i> , Rom., 12 spr. 0 9- 1 6		<i>Tulips</i> , 12 blooms ... 0 6- 1 0	
<i>Lily of Valley</i> , 12 spr. 0 6- 1 0		<i>Violets</i> , 12 bunches ... 0 1- 6 0	
<i>Marguerites</i> , 12 bun. 3 0- 6 0		— <i>French</i> , bunch ... 1 6- 2 0	
<i>Argemone</i> , 12 bun. 3 0- 6 0		— <i>Fr. Parma</i> , bun. 5 0- 7 0	
<i>Poinsettias</i> , 12 blms. 4 0- 6 0		<i>White Lilac</i> , French,	
		per bunch ... 6 0- 7 6	

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	2 0-4 0	Melons, each	0 6-2 0
Grapes, per lb.	1 0-2 6	Pears, per dozen	3 0-6 0
— Channel Isl., lb.	1 0-1 6	Pine-apples, Eng., lb.	1 0-2 0
Kent Cobs, 100 lb.	50 0-50 0	— St. Michael, each	2 0-5 0
Lemons, per case	12 0-21 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz.	6 0-...	Mustard and Cress,	...
Beans, Kidney, lb.	0 9-...	punnet	0 4-...
Beet, red, per dozen	1 0-2 0	Onions, per bushel	6 0-...
Brus. Sprouts, lb.	0 4-...	Parsley, per bunch	0 6-...
Carrots, per bunch	0 6-...	Potatoes, per cwt.	4 0-5 0
Cauliflowers, each	0 6-...	— kidney, per cwt.	4 0-5 0
Celery, per bundle	1 6-2 0	Rhubarb, per bundle	0 6-...
Cucumbers, each	1 0-2 6	Senkale, punnet	1 6-2 0
Endive, per dozen	2 0-...	Shallots, per lb.	0 6-...
Green Mint, bunch	1 0-...	Spinach, per bushel	3 0-...
Harbs, per bunch	0 4-...	Spruce, per bundle	1 0-...
Leeks, per bunch	0 6-...	Tomatoes, per lb.	1 0-2 0
Lettuce, per dozen	1 6-...	Turnips, per bunch	0 8-...
Mushrooms, punnet	1 0-1 6		

POTATOS.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton.

SEEDS.

LONDON: January 25.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that there was a very scanty attendance on the seed market to-day, with a limited business passing. As regards values no change of any importance can be noted; prices generally keep very steady. Stocks meantime are moderate, and quotations low. French Italian continues exceedingly firm. Perennial Ryegrasses show no variation. Sainfoin still remains scarce. For spring Tares the demand is increasing. Hemp seed is still advancing. Canary seed steady. Full rates are realised for Haricot Beans. Blue Peas sell slowly. Rape seed commands an advance of 1s. per qr.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended January 21:—Wheat, 30s. 11d.; Barley, 30s. 2d.; Oats, 16s. 1d. For the corresponding week in 1887:—Wheat, 36s. 4d.; Barley, 27s. 1d.; Oats, 17s. 2d.

FRUIT AND VEGETABLES.

COLUMBIA: January 25.—Moderate supplies of all kinds of vegetables; demand fair. Potato trade slack, except for best samples. Fruit trade dull. Quotations:—English cooking Apples, 4s. to 7s. per bushel; do., dessert Apples, 4s. to 8s. do.; American cooking Apples, 14s. to 22s. per barrel; do., dessert do., 15s. to 26s. do.; Brussels Sprouts, 3s. to 3s. 6d. per sieve; Spinach, 2s. do.; Sprouting Broccoli, 2s. do.; Turnip-tops, 1s. 3d. to 1s. 9d. do.; Cauliflowers, 2s. to 3s. per dozen; Cabbages, 1s. 3d. to 1s. 6d. do.; Savoy, 2s. 6d. to 3s. per tally; Turnips, 2s. per dozen bunches; Carrots, 2s. to 2s. 6d. do.; Greens, 2s. do.; Leeks, 3s. do.; Horse Radish, 1s. 9d. to 2s. per bundle; Celery, 8d. to 1s. 4d. do.; English Onions, 6s. to 9s. per cwt.; foreign do., 6s. to 8s. per bag.

STRATFORD: January 25.—Trade and supply good, at the following prices:—Cabbages, 4s. 6d. to 5s. 6d. per tally; Savoy, 5s. 6d. to 6s. 6d. do.; Turnips, 3s. to 3s. 6d. per dozen bunches; do., 35s. to 50s. per ton; Carrots (household), 40s. to 50s. per ton; do., cattle feeding, 28s. to 34s. do.; Parsnips, 6d. to 1s. per score; Mangels, 18s. to 22s. per ton; Swedes, 20s. to 22s. do.; Onions (Dutch), 6s. 6d. to 8s. per bag; do. German, 8s. 6d. to 11s. 6d. per case; Apples (English), 3s. to 7s. per bushel; Watercress, 6d. per dozen; Celery, 8s. to 10s. per dozen; Rhubarb, 2s. to 3s. per dozen; Beetroot, 6d. to 8d. do.; Carrots, 2s. 6d. to 3s. per dozen bunches; Sprouts, 3s. to 3s. 3d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: January 25.—Full supply, best samples fair demand, others dull. Quotations:—Regents, 70s. to 105s.; Magnum Bonums, 50s. to 100s.; Hebrons, 80s. to 120s.; Champions, 50s. to 70s. per ton.

COLUMBIA (East London): January 25.—Quotations:—Regents, 70s. to 100s.; Beauty of Hebron, 90s. to 120s.; Champions, 50s. to 65s.; Victorias, 60s. to 70s.; Magnums, 50s. to 90s. per ton.

STRATFORD: January 25.—Quotations:—Scotch Magnums, 70s. to 85s.; English, do., 60s. to 70s.; fenland, 45s. to 55s. per ton.

Victoria Lily of the Valley.

MESSRS. HAWKINS AND BENNETT, Lily Gardens, Twickenham, Middlesex, for the first time offer to the Public this beautiful variety, superior both in its blooms and foliage to any other yet offered. The stock is limited. All Orders will be sent in rotation, with an engraving and instructions for planting, &c. Price 25s. 5d. per square yard. Cash with Order. Apply as above.

BRUCE FINDLAY PEA, the sweetest and most prolific. See testimonials in KELWAY AND SON'S Manual for 1888.—Langport, Somerset.

PALM SEEDS.—Write for Special Offer to the Trade, and samples, to H. DAMMANN, Jun., Breslau, Germany. Fresh to hand now are Areca, Kentia, Phoenix, Ravenala, Sabal, &c.; also Araucaria imbricata.

FOR SALE, a few Thousand GENISTAS, well rooted Cuttings, at 6s. per 100. Sent by Parcel Post for cash by T. BALDWIN AND SON, Edith Nursery, Burchell Road, Leyton.

AFRICAN TUBEROSE BULBS.—A large Stock. Special quotations on application. JAMES DICKSON AND SONS, 103, Eastgate Street, Chester.

COCOA-NUT FIBRE REFUSE, newly made. Truck-load (2 tons), 20s.; in bags—20, 14s.; 40, 25s. Free on to Rail. Cash with order. J. STEVENS AND CO., Cocoa-Nut Fibre Merchants, Greyhound Yard, and 133, High Street, Battersea, S.W.

SEED POTATOS—SEED POTATOS.

I can offer as follows:—

BEAUTY OF HEBRONS, grown in Kent	140s. per ton.
IMPERATORS, the best cropper of the season, grown in Germany (splendid change),	90s. do.
EARLY ROSES, grown in Germany	90s. do.
EARLY ROSES, grown in England	90s. do.
MYATT'S PROLIFICS, grown in Lincolnshire	80s. do.
FORTYFOLDS	100s. do.
EARLY BORDER	100s. do.

W. N. WHITE,

COVENT GARDEN MARKET, W.C.

GARDEN MATS, LOAM, &c.—New Archangel MATS (large size), 10s. per bundle of ten mats; Large Heavy Russian, 7s. 6d. per dozen. Yellow Fibrous LOAM, Silver SAND (coarse and fine), Brown Fibrous PEAT, at lowest prices, by the ton or truck. RAFFIA, 7s. 6d. and 9s. per dozen pounds.—BRINKWORTH AND SONS, Reading.



GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.) PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d. PEAT, best black fibrous ... 4s. 6d. .. 5 sacks for 20s. PEAT, extra selected Orchid ... 7s. 6d. .. 5 sacks for 35s. LOAM, PREPARED COMPOST ... 1s. per bush, 3s. per sack LEAF, or PEAT MOULD ... (sacks included.) SILVER SAND, coarse, 1s. 6d. per bush, 14s. half-ton, 24s. ton. RAFFIA FIERE, best only ... 8d. lb., 28 lb., 18s. TOBACCO CLOTH, or PAPER ... 8d. lb., 28 lb., 18s. SPHAGNUM MOSS, all selected, 3s. per bush, .. per sack. CHUBB'S "PERFECT" FER- IN BAGS. TILIZER (the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. ... 1/6 3/- 5/- 8/- 14/- 22/- CRUSHED BONES, or Bone Dust 1/2 2/- 3/6 6/- 12/- VIRGIN CORK (Best Quality only) — 3/- 5/6 10/6 17/- RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE OF SODA, HORTICULTURAL CHARCOAL, &c. PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, 42 per ton. Extra large Sample Bales, 6s. each. COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 3d. each; 10 sacks, 11s.; 15 sacks, 15s.; 20 sacks, 18s.; 30 sacks, 25s.; 40 sacks, 30s.; Truck-load, loose, free on rail, 28s. Limited quantities of G. special quality granulated, in sacks only, 2s. each. Terms, strictly Cash with order. (Bankers, Union Bank of London.)

CHUBB, ROUND & CO., WEST FERRY ROAD, MILWALL, LONDON, E.

PEAT for ORCHIDS,

AZALEAS, HEATHS, FERNS, RHODODENDRONS, and other choice Plants.

The Best in the World.

A. JOHNSON AND CO., 23, Leadenhall Street, London, E.C., continue to receive the highest of testimonials (unsolicited) from large Orchid Growers, stating the ORCHID PEAT supplied by A. J. & Co. is by far the best they have ever used. Samples can be seen at above address, or forwarded on application, free of charge. A. JOHNSON AND CO. have NO Authorised Agents representing their Peat Estates.

To Nurserymen, Seedsmen, and Florists.

W. PETERS AND SONS, 44, Tenter Street, South Goodman's Fields, London, E., are now Selling, at extremely Low Prices, Finest Quality Platted RAFFIA, New, Heavy, Full-size ARCHANGEL MATS, ST. PETERS-BURG MATS, and PACKING MATS. Prices on application.

SUSSEX and BEDFORDSHIRE SILVER SANDS. Sussex, Kent, and Hampshire PEATS. Sussex and Surrey Loams, Rockery Stone, &c., for sale at moderate quotations.—W. SHORT, Horticultural Depot, Midhurst, Sussex.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each. LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each. BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each. COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 25s. per ton, in 2-bushel bags, 4d. each. YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel. SPHAGNUM MOSS, 8s. 6d. per sack. MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury Lane (late called 17A, Coal Yard), W.C.

HORTICULTURAL GLASS.

A large quantity of all descriptions and sizes in stock, at the lowest possible prices.

NICHOLLS & CLARKE, SHOREDITCH, LONDON, E.

THE BEST REMEDY FOR INDIGESTION.



CAMOMILE PILLS.

Are confidently recommended as a simple but certain remedy for

⇒ * INDIGESTION * ⇒

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CROYDON, 1885.

"Having been a sufferer from Indigestion for many years, I am happy to say that I have at last not only been relieved but perfectly cured by using Norton's Pills, and confidently recommend them to all suffering from the same."

"J. WILKINSON."

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WILLIAM J. VIAN, Secretary.

HOW TO GROW ASPARAGUS. A popular explanation of the best Method of Culture. By WILLIAM EARLEY. Price 1s. stitched.

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OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations. Non-Poisonous Paints for Inside Work, Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C. BACHELOR'S WALK, DUBLIN.—Discount for Cash.

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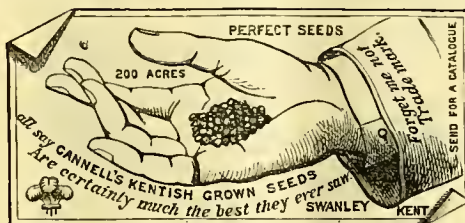
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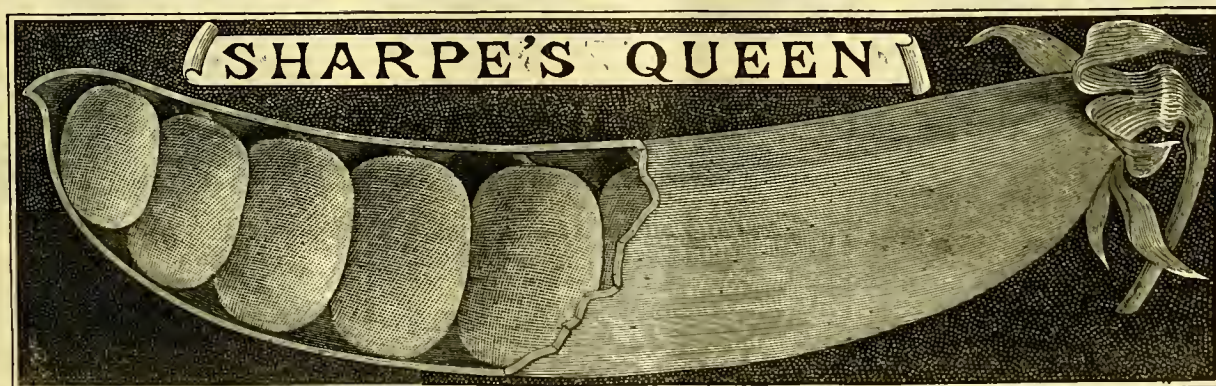
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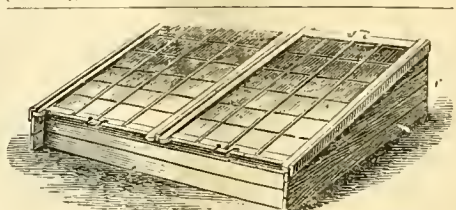
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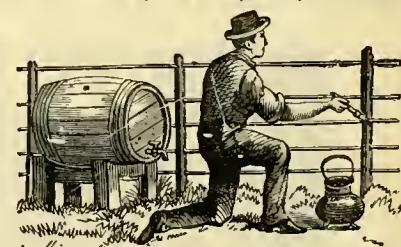
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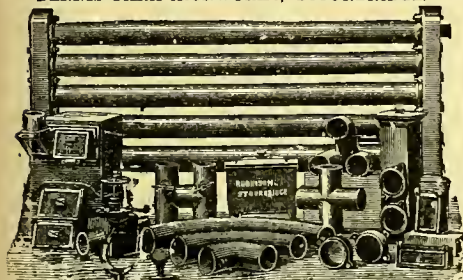
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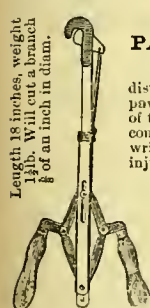
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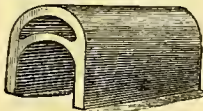
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- V. Structures for Grape Growing.
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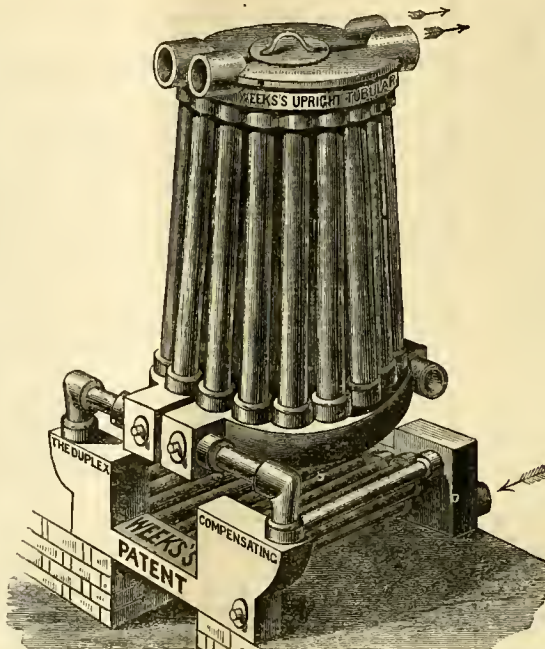
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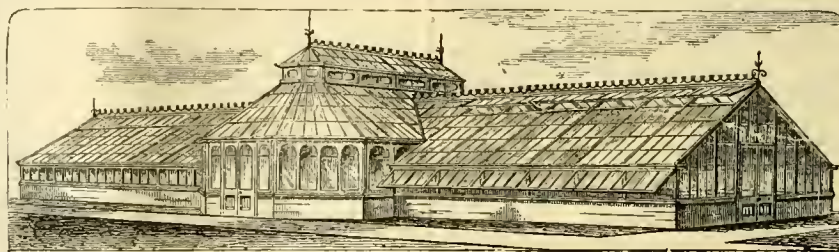
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BELFAST.

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Back Numbers of the "Gardeners' Chronicle."

NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

Now ready, in cloth, 11s. 6d.

THE GARDENERS' CHRONICLE,
Vol. II., Third Series, JULY to DEC., 1887.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE GARDENERS' CHRONICLE
IN AMERICA.

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ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.

The ANNUAL GENERAL MEETING of the ROYAL HORTICULTURAL SOCIETY will be held in the East Crush Room, Royal Albert Hall (entrance N.E. Orchard House, Exhibition Road), on TUESDAY, February 14, to Receive the Report of the Council and of the Auditors, for the Election of Council and Officers, for the Removal from the Society of certain Fellows under the provisions of "Bye Law 22," for the Election of New Fellows, and other Business. Chair to be taken at 3 P.M. N.B. As this is an important meeting, Fellows are earnestly requested to attend.

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

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT.
SPRING EXHIBITIONS:—WEDNESDAYS, March 21 and April 18.

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Schedules of Prizes and Tickets now ready.
EVENING FÊTE (probable date), WEDNESDAY, July 4.

Gardeners' Royal Benevolent Institution.
MRS. ELIZABETH HORTON desires to thank most heartily those numerous FRIENDS who so kindly RECORDED THEIR VOTES in HER FAVOUR at the Late Election of Pensioners.

LILIAM AURATUM.—The finest Selected Bulbs of this charming hardy Lily are obtainable at the following low prices, direct from the importers, plump and sound as English-grown Roots:—Price 4s., 6s., 9s., 12s., 18s., and 24s. per dozen, carriage free.—CARTERS' Seedsmen by Royal Warrants to H.M. the Queen, and H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

FINEST LILY OF THE VALLEY
CROWNS for Early Forcing, by Gustav A. Schultz, Berlin. For price write to JACOB AND VALENTIN, 56, Cheapside, London, E.C.

1000 BEAUTIFUL MIXED DAFFODILS
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FLOWER SEEDS for the present season is now published, and should be seen by all Amateurs of New and Rare Plants. It includes Seeds not to be found in any other European Catalogue. Post-free.
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Fresh to hand now are Arecia, Kentia, Phoenix, Ravanala, Sabal, &c.; also Araucaria imbricata.

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LAING'S BEGONIA SEED.—Awarded Four Gold Medals. From Prize Plants. Unequalled quality. Choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Order direct from us, to procure the genuine seed.
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WEBBER'S "EARLY WHITE BEAUTY."
First-class Certificate, Royal Horticultural Society.
See Advertisement on p. 131.

W. H. LASCELLES AND CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement on p. 151.

SALES BY AUCTION.

Tuesday Next.

CAMELLIAS, AZALEAS, Standard and Dwarf ROSES, FRUIT TREES, HARDY EVERGREENS, PALMS, FERNS LILIES, &c., in choice assortment.

MESSRS. PROTHEROE AND MORRIS will sell the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 7, at half-past 12 o'clock precisely.

Catalogues had at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Tuesday Next.

CATTLEYA MENDELII.

A magnificent Consignment for Sale, without the least Reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 7, at half-past 12 o'clock precisely, a magnificent consignment of **CATTLEYA MENDELII**, collected by Mr. Melican, and received in unusually fine condition. The importation will be found to contain a large number of extra fine masses, and the whole will be sold without the least reserve; together with two Cases of **EPIDENDRUM MACROCHILUM**.

The Sale will also include a choice selection of well-grown **ESTABLISHED ORCHIDS**.

On view morning of Sale, and Catalogues had.

Wednesday Next.

10,000 **LILIU AURATUM**, splendid Bulbs, from Japan.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION on WEDNESDAY NEXT, February 8, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

Sales of Standard and Dwarf ROSES, GREENHOUSE PLANTS, PALMS, a consignment of CAMELLIAS, AZALEAS, and other plants from Belgium; **LILIU AURATUM**, from Japan; an extensive assortment of English-grown LILIES, including most of the principal varieties; **IRIS**, **DAFODILS**, **LILY of the VALLEY**, **TUBEROSES**, **DUTCH BULBS**, &c.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, February 8 and 11, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Friday Next.

ODONTOGLOSSUM HARRYANUM.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Charlesworth, of Heaton Bradford, to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 10, a fine consignment of **ODONTOGLOSSUM HARRYANUM** in good condition, and containing many large pieces. Also a few nicely grown plants of **CATTLEYA MENDELII**, mostly in sheath.

On view morning of Sale, and Catalogues had.

Friday Next.

ODONTOGLOSSUM ALEXANDRE, splendid importation.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth, Carder & Co. to include in their SALE by AUCTION on FRIDAY NEXT, February 10, at half-past 12 o'clock precisely, a splendid importation of **ODONTOGLOSSUM ALEXANDRE**, of the best type and in fine condition.

On view morning of Sale, and Catalogues had.

Eltham.—Expiration of Lease.

Important CLEARANCE SALE of General NURSERY STOCK, extending over upwards of 30 Acres of Ground.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Mr. J. W. Todman to sell by AUCTION, on the Premises, the Eltham Nursery, Eltham, close to the railway station, on MONDAY, February 13 and two following days, at 12 o'clock precisely each day, the First Portion of the valuable NURSERY STOCK, including about 50,000 Evergreen and Conifer Shrubs in various sizes, consisting of 10,000 Laurels, 2000 Hollies, 1500 Rhododendrons, 4000 Cupressus and Thuas, 1500 Firs, 5000 Privet, &c.; 5000 Deciduous Shrubs, 10,000 strong Quick, a fine assortment of handsome specimen Border Shrubs, 4000 Standard Roses, 6000 Standard, Pyramid and Trained Fruit Trees, 3000 Forest Trees, and 150 loads of Manure and Loam.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Wednesday and Saturday Next.

A consignment of choice named **INDIAN AZALEAS** and **AZALEA MOLLS**, well set with buds; Hybrid **RHO-**
DODENDRONS, **PALMS** of sorts, **DRACENAS**, **RETINO-**
SPORAS, &c., from Ghent; also Standard and Dwarf
ROSES, Pyramid and Dwarf-trained FRUIT TREES,
Ornamental SHRUBS and CONIFERS, Hardy BORDER
PLANTS, Home-grown LILIES, GLADIOLI, and other
BULBS, &c.

MR. J. C. STEVENS will sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, February 8 and 11, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7615.)

10,000 Grand Bulbs of **LILIU AURATUM**, **L. SPECIOSUM** ALBUM, and **L. ROSEUM**, and many other LILIES from Japan.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 9, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7615.)
VALUABLE IMPORTED AND CHOICE ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 9, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a fine lot of **ESTABLISHED ORCHIDS**, in extra health and condition, together with importations of the following species, in fine order:—

ODONTOGLOSSUM HALLII **XANTHOGLLOSSUM**,
" **DOMINIANUM**,
" **CIRROSUM**.

Vanda cœrenlis, **Masdevallia Roezlii**, the rare and beautiful **Oncidium undulatum**, **Cologyne ocellata**, **Epidendrum vitellinum majus**, **Odontoglossum Rossi majus** and **rubescens**, in large and fine masses; **Palumbina candida**, fine lot; **Odeutoglossum grande**, **Angraecum Scottianum**, in bloom; **Plœione Wallichiana**, **P. humilis**, **Colax jugosus**, **Zygopetalum Mackayii**, **Z. maxillare**, the scarce and beautiful **Oncidium Russellianum**, in bloom; **Cymbidium giganteum**, and many other Orchids.

On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 16, at half-past 12 o'clock precisely, and he will be glad if gentlemen desirous of entering plants for this Sale will send lists not later than Thursday next

Chiswick, Middlesex.

MR. E. P. NEWMAN has been instructed by the Executors of the late Mr. Joseph Jessop to sell by AUCTION, at the Auction Mart, London, on FEBRUARY 7, 1888, the exceedingly valuable Interest in the Lease of the GROVE PARK FARM, Chiswick, of about 174 acres, held at a nominal yearly rental for an unexpired term of 15 years, the whole within 6 miles of Covent Garden Market.

Particulars can be obtained of Messrs. FINNIS AND WYLIE, Solicitors, 19, Surrey Street, Strand, W.C., and Chiswick, Middlesex; and of the Auctioneer, 42, High Street, Uxbridge, Middlesex.

TO BE SOLD, 8 miles from Covent Garden, a SMALL LEASEHOLD NURSERY, about 1 acre, comprising good Dwelling-house, 14 Greenhouses, Coach-house, Stabling.

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TO LET, a SHOP, near Notting Hill Gate Station—handsome, spacious and lofty; five Bedrooms, noble Drawing-room, Parlour, &c. Private entrance. Good opening for superior class Florist and Fruiterer, Hairdresser, Chemist, Draper, &c. Rent to a substantial tenant would be very low, £50 on Lease (worth £200). The Premises are in beautiful condition, inside and out.

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TO LET, a good roomy DWELLING-HOUSE, with Four Greenhouses out of repair. Pipes throughout, Boilers, &c., complete. Nothing to take to. Rent only £25.

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A CAPITAL NURSERY, comprising 4 Acres of Land, with Small House and Shop, Greenhouse with Four Divisions: good light soil. Rent only £40. Small Valuation.

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

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

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PULHAM AND SON,

BROXBORNE.

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NEW ESTATES.

and putting in Order Neglected Gardens. Having many years' experience in this branch of Horticulture, and a good knowledge of all the best Shrubs and Trees grown in our largest nurseries, and being able to Buy by Special Quotation, and personally Superintend the Work, enables me to do it well with economy. Can advise, plan, and estimate.

JOHN TINSLEY, Garden Contractor, North Finchley.

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A LARGE IMPORTATION OF EAST INDIAN ORCHIDS

In Grand Condition,

HAS JUST BEEN RECEIVED BY

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,
THE VINEYARD & NURSERIES,

GARSTON, near LIVERPOOL.
FULL PARTICULARS ON APPLICATION.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 13, next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next.

A. F. BARRON, Hon. Sec.,

Royal Horticultural Society's Gardens, Chiswick.

LARGE SPECIMEN PALMS FOR SALE.

Livistona borbonica, **Scaevola elegans**, **Chamerops excelsa** and **Fortunei**. Fine plants, suitable for large Show-house. Address, **HEAD GARDENER**, Plas Gardens, Dinas Mawddwy, Merionethshire.

20,000 Extra fine **LARCH**, 2 to 4 feet cheap, to clear the ground.
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OUR CATALOGUE OF KITCHEN GARDEN and FLOWER SEEDS, containing many Novelties and Specialities, also Horticultural Requisites, &c., has been Posted to our Customers. Any failing delivery, Copies may be had free upon application.

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CARNATION "GLOIRE DE NANCY", without doubt the grandest Carnation ever sent out for Cut as well as Conservatory and the Open Border. Flowers from 2 to 3 inches across, pure white, and strong Clove-scented. More robust than the old red Clove, and freer. Good rooted Layers, 25s. per 100, 15s. for 50, 8s. for 25. Cash with order. E. COLLINS and SONS, Cumberland Park Nursery, Willesden Junction, London, W.

"PERFECTION" is the best and most valuable new distinct CABBAGE, producing as it does splendid "conical heads" of very superior quality. It is unequalled both for market and private gardens. 1s. per packet, post-free. "JAMES DICKSON & SONS" 108, Eastgate St. Chester.

SEEDS.—**RICHARD SMITH & Co.**, Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the best possible quality.

New Plant.

FESTUCA CRINUM URSIS, used for small lawns and edging.

This species will be a first-class plant for ornamental purposes; it grows rapidly, makes up a grass of an incomparable effect, and resists as well cold, dryness, wetness, Rapid propagation by division. For sale in March.

Price, each, 2s. 6d.; five tufts, 8s. Packing free.

Send Post Order to **MERLAL**, Nurseryman, Charpeunne, Villeurbanne, Lyons, France.

EUONYMUS.—20,000: all nice bushy well grown specimens, 9 to 30 inches, 15s. to £7 per 100; about 150 large ones, 3s. 6d. to 5s. each.

J. J. CLARK, Goldstone Farm, West Brighton.

The New Raspberry.

LORD BEACONSFIELD. (A Seedling.)

The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883. Strong Canes, £3 per 100; 9s. per dozen. Smaller Canes, 6s. per dozen.

Trade supplied. Cash with order.
A. FAULKNER, Inkpen, Hungerford.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.

H. and F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

Trade Price Current Seeds, 1888.

PETER LAWSON AND SON (Limited), Edinburgh, have now Posted their Annual CATALOGUE of VEGETABLE and FLOWER SEEDS to their Customers, but should there be any not delivered Copies will be sent upon application.

The ANNUAL CATALOGUE of AGRICULTURAL SEEDS will be published later on, meanwhile special offers will be made upon application.

ASPARAGUS, grand Roots for Forcing, 2s. 6d. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. **SEAKALE**, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Victoria Lily of the Valley.

MESSRS. HAWKINS AND BENNETT, Lily Gardens, Twickenham, Middlesex, for the first time offer to the Public this beautiful variety, superior both in its blooms and foliage to any other yet offered. The stock is limited. All Orders will be sent in rotation, with an engraving and instructions for planting, &c. Price 25s. per square yard. Cash with Order. Apply as above.

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RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

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£25 IN PRIZES.—Exhibitors should send for T. Laxton's LIST of upwards of 100 Novelties and Specialties in Vegetables and Flowers, the best only selected for quality and exhibition, with particulars of prizes.
T. LAXTON, Seed Grower, Bedford.

To the Trade
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RASPBERRY CANES. Selected Fastolf, 30s. per 1000.
STRAWBERRY PLANTS, Sir Joseph Paxton, 12s. per 1000.
RED CURRANTS, 2-yr. old, 8s. per 100. Terms Cash.
R. BATH, Osborne Farm, Wisbech.

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"I have much pleasure in testifying to the excellence of your new Potato. I planted the sets on May 20, and showed the produce in my winning collection at Dover on August 27."

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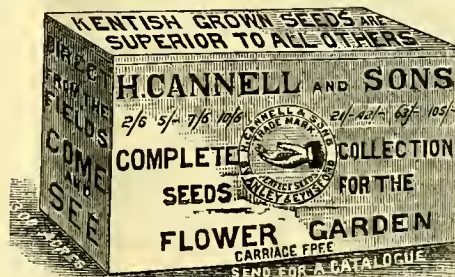
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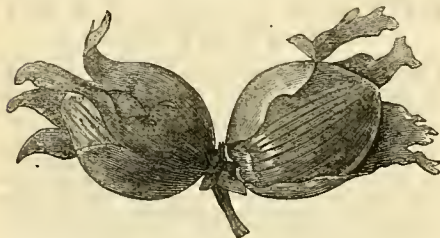
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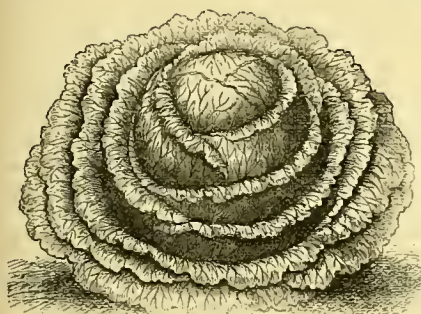
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This fine new variety is a cross between *Golden Perfection* and *Victory of Bristol*. The raiser speaks very highly of it, and says that it does as well in a pit as in the Melon-house. It is a first-rate setter and a very strong grower, and never shows any sign of canker at the collar. It is round in shape, very handsome, and beautifully netted. The flesh is of a very pale scarlet colour, about 3 inches in depth, with very delicious flavour. The fruit weighs from 4 to 8 lb. each.

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THE Gardeners' Chronicle.

SATURDAY, FEBRUARY 4, 1888.

STRAWBERRIES.

ONE is continually asked nowadays for an earlier Strawberry than Black Prince or Vicomtesse Hélicart de Thury, or for a later one than Eleanor or Elton Pine; and the seekers for this kind of information seem to think that if there were such, they would, as the phrase goes, supply a long-felt want, and be the means of lengthening the somewhat brief Strawberry season.

So far so good: but has it never occurred to the seekers after these earlier and later varieties that there would be some very great difficulties in growing them to perfection, supposing that they could be obtained? I do not mean to say we shall never possess them, for there is scarcely any limit to possibilities in that way, and even now there are varieties which claim to be earlier than even Black Prince. What it is desirable to point out is the fact, that the earlier the plant puts forth its blossoms the more surely will they be destroyed by the frosts of May; or, in other words, we have in Black Prince as early a Strawberry as climatic circumstances will permit. The frost, except in very exceptional seasons, always destroys the most promising and largest bloom of what is termed the king berry—i.e., the berry which originates earliest, and is the lowest on the flower-scape. Artificial protection is here left out of the question; the best berry is lost, and others, somewhat later, take its place. If the flowers appeared much earlier, we should most likely lose the whole or the greater part of the blooms by frost, unless we had a plant of great vigour and hardiness, such as we may possibly obtain in an improved Black Prince or Vicomtesse Hélicart de Thury. The earliest Strawberries we now possess are certainly the hardiest grown, and exhibit a true instance of the survival of the fittest.

It may also be observed that our earliest varieties do not produce large berries, but medium-sized ones; indeed, the fruit of Black Prince may be classed as small. It takes longer to mature a large berry, hence the smallness of the early varieties, for even some of the large mid-season Strawberries flower as early in the

season as Black Prince, although the period that elapses from blooming to ripening in their case is much longer. Unless, therefore, we have a vigorous plant, and a comparatively small berry, our would-be earliest will be handicapped by the adverse influences of our climate before mentioned.

I may remark that young plants are constitutionally stronger, and hence with them we can and do obtain much earlier fruit than with old plants, the latter of the same sort being usually a week later in ripening their fruits.

As regards late kinds, another, though similar difficulty, presents itself. It may be noticed that most of our late Strawberries—Sir Charles Napier, Eleanor, Elton Pine, and many others—possess so much brisk acid flavour, as by some to be regarded as wanting in sweetness. This may be of great advantage, for the wasps (which usually appear in numbers at that time) are deterred by reason of the flavour from working such havoc amongst them—these pilferers being not impartial judges, but always choosing the sweetest and best-flavoured varieties; and whilst late berries of the sweet mid-season kinds are spoiled by wholesale, the more acidulous late ones are left untouched.

Again, late ripened fruit of the Strawberry is very liable to quick decomposition. Whether this is by reason of the immature ripening consequent on the great strain the plant has borne, oftentimes in hot, scorching periods, or whether it is a peculiarity of the berry at that season, I cannot say; presumably again climatic conditions have an effect in reducing the vital powers of the plant, which largely influence the ripening and keeping qualities of the fruit. From what has been said, therefore, it will be seen that to obtain a late Strawberry that shall possess good ripening and keeping qualities the plant should be endowed with much vigour, and be able to withstand in the fullest measure the effects of drought and long continued sunshine that we occasionally experience. If any raiser, therefore, is intent on raising a really good kind that shall be earlier or later than those we already possess, he will do well to bear the above facts in mind. *John Lovel.*

NEW OR NOTEWORTHY PLANTS.

ESMERALDA BELLA, n. sp.*

THIS is a very unexpected discovery, as nothing like it was known in herbaria. I have to thank for this grand pleasure my old and indefatigable correspondent, Mr. W. Bull, whose No. 1022 it is among the Orchids sent me out of his large stores.

To give an idea of the plant, take a raceme of four flowers which combine the shape of those of *Esmeralda Cathcarti* (though they are much narrower) with nearly the colours of those of *Esmeralda Clarkei*, and in lieu of the long narrow leaves of both species suppose very broad, very short shining leaves, which are unequally bilobed at the apex, one lobe being shorter, blunt, retuse, the other produced and dimidiate round outside, straight inside. The pollen apparatus is that of *Esmeralda Clarkei*. The colours are much finer and brighter, the side-lacinia of the lip are rounded on the anterior side, not angulate. The tumid multi-lobed mariculate margin of the anterior lip is much broader than in *E.*

Clarkei. The flower is very elegant. The spreading sepals and petals are all straight, light ochre with fine bars of warm cinnamon. The lip is white-coloured; side-lacinia with purple-brown stripes; mid-lacinia very broad, tumid; margin horse-chestnut brown. The basilar roundish callus is white with brown spots. Then comes a long, longitudinal, tumid, ligulate body that extends to the front of the apex, where there is another semiglobular callus. Four furrows divide the anterior part, one furrow the superior end. The column is ochre coloured, full of eddish spots. Caudicula crescent-shape. *H. G. Rehb. f.*

LAELIA TRESSEDERIANA X, n. hyb. artif.

Messrs. Heath & Son, Exotic Nurseries, Cheltenham, have sent me this lovely novelty. It is the result of a cross between *Laelia crispa* and *Cattleya Loddigesii*, raised by their junior partner, Mr. J. S. Treseder. The seed was sown in January, 1881, and on last Christmas day the flower expanded. It is a great pleasure to dedicate it to Mr. J. S. Treseder, who is, as I learn from Mr. Heath, very diligently engaged in hybridising in a good way. The bulb is fusiform, and may be compared to that of *Laelia crispa*. I have a pencil sketch before me, showing the sheaths still covering the bulb. There are two leaves, 5–6 inches long by 2 inches broad, cuneate-oblong, blunt acute. The peduncle is strong, and appears to have been two-flowered. The sepals and petals have the shape of those of *Laelia crispa*, but the petals are far less wavy; they are of an elegant light rose colour. Lip cordate at the very base, expanded, trilobed; side lobes spreading, blunt, triangular, much shorter than broad, triangular wavy mid-lobe, is deep rose coloured, covered with dark purple reticulations. The disc of the lip is light yellow, with white margins to the side lobes; there are some purple nerves on the basilar disc. Column white. Two broad rows of purple spots extend in front of the column under the fovea. Pollinia unequal. *H. G. Rehb. f.*

MAXILLARIA HÜBSCHII, n. sp.*

This was discovered by Mr. Hübsch, a Sanderian collector, when in search of *Maxillaria Sanderiana*. It was introduced with this, and flowered with Mr. R. H. Measures, of Streatham. The plant is quite like that of *Maxillaria fucata*. The peduncle has a few inflated sheaths. Bract shorter than the ovary. Lateral sepals much rounded, like a goitre. Petals linear rhombic acute. Lip transverse, rhombic. There is a transverse yellow emarginate callus on the disc, and strigose hairs behind. Flower white, as large as that of *Masdevallia molitor* and *fucata*. Lip with mauve-purple margin inside, and two blotches of that colour and a few purple dots at the base outside. Column white, with nearly parallel mauve stripes in front. *H. G. Rehb. f.*

CATASETUM TAPIRICEPS, n. sp.†

Messrs. Linden, of Brussels, have just flowered a Brazilian *Catasetum* of a rather new shape. It may be compared generally to *Catasetum macroglossum*. Sepals green; petals brown; lip trigono-sacciform, free margin, neatly toothletted; side-lacinia revolute, mid-lacinia with a transverse emarginate keel not far from the margin. Colour orange. Column with a large apex, leaning over, reminding me of a Malayan tapir with its curved trunk. *H. G. Rehb. f.*

SCHOMBURGKIA RHIZODORA KIMBALLIANA, n. var.

A fine inflorescence, with numerous branches and light purple flowers, was brought over by Mr. Godseff,

* *Maxillaria Hübschii*, n. sp.—Aff. *M. fucata*: pedunculo baud et distanter vaginato; mento valde gutturoso; seu rotundato; tepalis ligulato rhombeis; labello rhombeo acuto transverso; callo depresso emarginato in disco; pilis strigosis non fractis in disco posteriori. *H. G. Rehb. f.*

† *Catasetum tapiriceps*, n. sp.—Multiflorum, sepalis tepalisque ligulatis acutis; labello conico saccato obtuso, margine libero subtiliter denticulato, marginibus lateralibus revolutis, margine antico obtuse retuso, carina transversa emarginata intus apposita; columna retro apiculari bene evoluto deflexo, setis infimis bene evolutis. Ex Brasiliæ imp. ch. Linden. *H. G. Rehb. f.*

Mr. F. Sander's assistant, from the grand collection of Mr. W. S. Kimball, Rochester, near New York. From the photographs kindly sent me by this gentleman, the riches of this mighty expansion of glass must be extraordinary. I was delighted to see the *Vanda cœrulea*, that cannot grow better in its native haunts (see *Gardeners' Chronicle*, 1888, fig. 8). Thus, it is satisfactory to have a wonderful *Schomburgkia* bearing Mr. W. S. Kimball's name. *H. G. Rehb. f.*

PHAIO-CALANTHE SEDENIANA X, n. hyb.

Phaio-Calanthe irrorata, or, as it was originally called, *Phaius irroratus*, was raised from *Phaius grandifolius* crossed with the pollen of *Calanthe vestita*, and thus furnishes an example of a genuine bigeneric hybrid. The subject of the present note is another very interesting plant, though the parentage is slightly different from that of the first-named. Both were raised from *Phaius grandifolius*, but in the present instance the pollen was obtained from the hybrid *C. Veitchii*, so that three species of two distinct genera are concerned in the parentage. Both have the evergreen habit of *Phaius*; and it is a very interesting fact that an evergreen and a deciduous species have been successfully hybridised together. I am not certain that this has never been effected before, but Mr. Harry Veitch tells me that several similar crosses in other groups of plants have been attempted in the Chelsea establishment, though success has only been attained in the above-named instances. A fine inflorescence from Baron Schroder's magnificent collection has been sent to Kew by the Messrs. Veitch, the plant which produced it having been raised about six years ago by Mr. Seden. The flowers are large, with much of the general appearance of *Phaius*, though the lip shows a distinct approach to that of the *Calanthe*, while the bract also is very similar to that of the pollen-parent. The segments are of a pale delicate primrose tint, the basal portion flushed with pale rose, the lip pale primrose, bright yellow at the base and along the three keels, each of the three lobes conspicuously flushed with rose on their upper portions. The side lobes are large, and the front one very distinctly emarginate; it might be described as four-lobed, with two large side and two smaller front lobes. It has already been mentioned as *Phaius Sedenianus*, and as *Phaio-Calanthe* is a hybrid genus no confusion will arise by retaining the trivial name under which it is already known. It is an extremely interesting, and, to my taste, a decidedly pretty plant. It would be a most interesting experiment, and not unlikely give rise to some decidedly novel results, if Mr. Seden would give us some inverted crosses between these two genera, by making *Calanthe* the seed-parent. It would naturally be expected that in this way a deciduous *Phaio-Calanthe* might be produced. *R. A. Rolfe.*

TYING AND TRAINING PLANTS.

WINTER is the best as well as the most convenient season for training and tying most kinds of indoor plants, a few remarks on the subject may therefore not be out of place. Those who are old enough to remember the way in which pot plants at one time were grown will not require to be told what was their general appearance. Little or no thought was given to the form which the plants naturally assumed, or to the desirability of attempting to cultivate them in a way that would convey some idea of their true character. Glass was dear, and steam-power had not come into use in preparing the timber needed for the construction of horticultural buildings, consequently these erections were costly, only the wealthy indulged in them, and to a limited extent only. The aim was directed more to the possession of a large number of kinds than to any attempt at superior cultivation. In the early stages of a plant's existence stopping the shoots with a view to the formation of a bush-like habit, was little practised; in fact, with the limited glass accommodation which gardeners then had at command, it would not have answered to

* *Esmeralda bella*, n. sp.—Folii brevibus quinquepollicaribus prope pollicem latis, apice inaequaliter bilobis; racemo quadrifloro; bracteis bene evolutis; sepalis tepalisque cuneato-oblongis obtuse acutis, labelli lacinia lateralibus rotundatis, lacinia media oblonga, margine papuloso lato, callo in basi rotundo parvo a basi ante apicem lineari pandurato, basi unisulcato, antice quiquefalcato, callo globoso anteposito; columna trigona caudicula hippocrepica. Ex col. exc. W. Bull. *H. G. Rehb. f.*

treat plants in a way that would make them occupy much room. The re-pottings were few and far between, comparatively little root-room being allowed, which, combined with the prevalent idea that pot plants, especially the slow-growing, hardest wooded kinds, would not bear manurial stimulants, resulted in the growth being weak and puny. This was further aggravated by the way in which the plants were crowded together, far from the glass, in the dark badly constructed houses that plant growers of the past were compelled to make shift with, and which, even at the present day, when their bad influence is better understood, are much more common than they should be. As a matter of fact, all that could be said for pot plants in the condition they were generally met with was that they were interesting more or less from their being indigenous to countries where the climatic conditions differ widely from ours.

Cheap glass and a better acquaintance with the requirements of the numerous plants that are kept wholly or the greater part of the year in glass-houses, brought about a disposition on the part of gardeners to grow them in a way that would give some idea of the habit and character of the plants they cultivated, and of their flowering capabilities. Yet it is only just to say that the pioneers, who inaugurated a better system of cultivation, did not wait for the advent of cheap glass, and well constructed houses, but set to work with the indifferent structures they had at command, and thus led the way that has since been followed with more or less success by all who aspire to do something better than reproduce the pot grown starvelings that used to fill our plant-houses. The greater portion of the plants that are subjected to pot culture, that have not a climbing habit of growth, are naturally of a dwarf bushy character, many of them being to some extent procumbent, that is, with their lower branches usually resting partially on the ground in the way of our native Heaths. When plants of this description are grown under glass, no matter how skilfully they are treated, and how well constructed and light the houses may be, the branches will be longer jointed and somewhat weaker; hence, with many, the necessity for some support in the shape of sticks and ties. But in this the object of the grower should be to shape his course so that no more will be required than the natural habit of the plant renders necessary, for at best supports of any kind are only necessary evils. Plants that are naturally of a bushy habit, when naked at the bottom are intolerable in the eyes of the grower who aims at a high standard of cultivation. To avoid this and reduce the need for much tying, when the specimens get large, it is requisite to attend to the training during the early stages of the plant's existence by timely stopping the shoots so as to get the future specimen well furnished with branches at the base. Where this is neglected too many sticks are required after the plants have acquired size. In addition to stopping, whilst they are quite young, the strongest shoots should be brought down to the rims of the pots and there secured, leaving the weaker ones in a more or less erect position, by which means they will gain strength, so that the growth collectively will be more equal. Where the reverse of this course is taken, it naturally follows that the strongest branches so far take the lead that the weaker ones, which are less favourably placed for getting their share of the sap, are rendered still weaker: the outcome being, that the latter perish, leaving the specimen naked at the bottom—a condition found in half the plants one meets with before they get old.

This timely training applies to plants of all kinds, from a Pelargonium to a Heath or New Holland shrub. It does not require a very intimate acquaintance with the plants that are usually grown in pots to enable anyone to see that there is a wide difference in the amount of support needed by different species, not only whilst they are young, but equally so when they get large. When only required for ordinary purposes such things as Azaleas, Epacris, or Gardenias, and others of a like character, require little in the way of sticks or ties; whilst weak-

wooded species, such as *Dracophyllum gracile*, *Aphelexis*, *Chorozemas*, *Boronias*, most of the *Ericas*, and many others, cannot possibly be grown without sticks, however well their early training has been attended to. Plants like these, the branches of which are naturally too weak to maintain erect or partly erect habit, not only need assistance to keep them in shape whilst they are young, but the larger they get the more they require in this way. The shape that plants are trained in has to do with their continuing to maintain a healthy vigorous condition from the bottom upwards than is often taken into account. Unless a plant is broader at the base than above, the lower branches are sure to get weak, and ultimately perish for want of the necessary light, which those above prevent their getting.

Nothing is more objectionable than to see a collection of specimen plants of various kinds resembling each other so much that they might all have been cast in one and the same mould. The pyramidal shape, somewhat rounded, and not too much pointed, answers best for many things, varying the form so that some are equal in diameter at the bottom to that of their height, whilst others are more erect. The rounded bush-shape suits most of the *Ericas*, and others of a like character of growth. In all cases a plant of this description should be furnished with shoots and healthy foliage down to the rim of the pot; without this it is defective.

STAKING AND TYING.

The way in which this is often done, especially with plants that require a good deal of support, would lead to the supposition that those who carried out the work forgot that there were roots in the soil, or else had an idea that it did not matter to what extent they were bruised and broken. It is a common thing to see such of the plants above named as need a good deal of support, with numbers of sticks stuck deep in the ball, the insertion of which, in the way the work was done could not fail to have injured many of the roots. I feel convinced that to this cause the death or unhealthy condition of many valuable plants is directly traceable, though it often happens that the effects may not be apparent soon enough after the staking has been carried out to rouse suspicion as to the cause. This may easily be avoided if only a little forethought be brought to bear on the matter. When shifting hard-wooded plants that require more or fewer sticks into larger pots, the additional new soil round the ball is unoccupied by roots: this gives a chance for re-tying. As soon as the potting is completed, if the sticks necessary to support the outer branches are put in, no injury can be done. This is the practice I have always followed, being careful, when re-tying was required to put the new sticks into the holes which the old ones have occupied. To make sure of this, in place of taking the old sticks out in the usual manner when a plant requires re-tying, I cut them off an inch or two above the soil with a strong pair of *sécateurs*; in this way each stump can be drawn out as the work proceeds, to make way for the new stick.

As already said, there is a wide difference in the amount of support which some plants require as compared with others. And the purpose for which the plants are wanted makes a still greater difference. When only intended to stand in greenhouses and conservatories comparatively few sticks are needed or should be used, as anything in the way of stiff training is highly objectionable, and quite unnecessary. The tops of the shoots should be left loose, so as to hang in the natural position. A skilful hand will tie plants in this way, so that the sticks and ties are scarcely perceptible; in fact, a good many things which, like Azaleas, form branches strong enough to hold their position when the plants have not to be moved far when in bloom, require no support at all further than perhaps a single stick to the leading stem. When plants are required for exhibition, and consequently have to be conveyed a greater or less distance, the case is very different, as many a young hand at showing has discovered to his sore disappointment; for unless all the shoots are secured

so that they cannot thrash or rub each other, the flowers chafe so as to be completely spoiled. The tying which is thus indispensable gives the plants a more or less stiff formal appearance, and has caused a good deal of meaningless criticism, for if flowering plants of the character in question are to be exhibited at all they must be tied, so that the flowers will not get injured. *T. Baines.*

PLANT DISEASES.

FINGER-AND-TOE.—Dr. J. Brunchorst,* of Bergen, states that the best way of coping with the disease of Cabbages, Turnips, &c., known as Fingers-and-Toes, is to change the seed as frequently as possible; but he has also found that in the case of certain more valuable sorts, which have to be carefully raised in frames, and which are very apt to be attacked by the slime-fungus, *Plasmodiophora Brassicae*, which causes the worst form of Fingers-and-Toes, it is possible to prevent the ravages of the parasite by other means.

The seedlings of these plants are infected while still in the soil of the hothed frames, and in some cases only 10 per cent. of the plants survive. In a certain garden planted with Cabbages, he observed that whereas the majority of the plants were badly infested, there was one strip in which a much greater percentage of the plants were healthy; the plants and the soil were the same all over. It turned out that the seedlings which gave rise to the plants in this strip were from a portion of seed which had remained over from the sowing in the hot-bed frames, and which had been in a box separately. No Cabbages had been raised in this box before, as they had been year after year in the frames. The explanation was simply that the soil in the box in which the seedlings were raised contained no fungus.

Experiments showed that it is possible to disinfect the bad soil. Two clean boxes were taken, holes bored in the bottom, and the boxes sunk in the badly infected soil of the frames, and the boxes then filled with the infected soil. By means of a rod, the experimenter then bored six deep holes in the soil of each box; one in the centre of the box, and five others in a circle round it. Into each hole were placed 50 grains of carbon-bisulphide, the holes filled with soil, and the disinfected boxes left for a week in order that the carbon-bisulphide might diffuse in the soil, and the surplus evaporate. Cabbage seed was then sown both in the two disinfected boxes and in the soil immediately around—the latter was the same as the soil in the boxes, but not disinfected.

After two months he lifted the plants, and found that while only 2 per cent. of the plants from the boxes were attacked by *Plasmodiophora*, at least 80 per cent. of the plants from the soil outside were infected with that fungus, and badly affected with Fingers-and-Toes. *M. W.*

THE ROT IN GRAPES.

Dr. L. Savastano, in studying this disease, has proved the presence of a special bacterium. He has cultivated this organism, and has reproduced the disease in all its characters by inoculation, and thus concludes that the bacteria are the direct cause of the malady. In the yellow spots and even in the leaves the experimenter has found the same bacteria. Inoculation made in the bunches gave results comparable to the preceding. These two bacteria may be, according to the Doctor, considered as the same organism, producing different effects according to the medium in which it develops.

EXPERIMENTS ON THE PARASITISM OF AGARICUS MELLEUS, VAHL.

The opinions of pathologists differ greatly on this question. Some maintain that the *Agaricus* is a mortal enemy of the host-plant, being able to attack it while in good health and to kill it; others deny it this power, and declare that it has not the strength to attack a healthy plant, but only one already

* *Bergens Museums Aarsberetning*, 1886, pp. 2.9—231.

weakened; it can only give the finishing touch. Dr. L. Savastano arranged that the battle between the parasite and its host should be fought out. He planted or sowed plants which are commonly attacked by the parasite—some in pots, some in the open ground, into which were plunged pieces of wood containing the spawn of the fungus. The experiment was conducted with thirty-nine different plants belonging to fourteen species (Peach, Walnut, Olive, Fig, Chestnut, Plums, Vines), and continued for two years. During the periods of infection and reproduction the plants grew normally, and were not injured by the fungus. Dr. Savastano therefore thinks it proved that the parasite is unable to attack young and healthy plants.

WOUNDS AND GUMMING.

Dr. Savastano has previously ascertained, in a study of the phenomena of gumming in Amygdalaceæ, Aurantiaceæ, &c., that in his country (South Italy) a wound to the plant almost always causes a proportionate amount of gumming. M. Carrière denoted the accuracy of this observation as regards Peaches round Paris. Dr. Savastano states that he has been experimenting, and finds that a plant is more liable to gum in the south of its cultural area than in the north, and that this way the discrepancy between M. Carrière and himself may be explained.

THE RECONSTITUTION OF THE ROYAL HORTICULTURAL SOCIETY.

It to serve and suffer for a society qualifies one to write or speak of its affairs, such a privilege will probably be granted to myself as the only practical gardener in the United Kingdom who won and lost a Forty Guinea Life Fellowship through my efforts to popularise its institutions and extend its usefulness. Believing for years that most of the evils that fettered its freedom and curtailed its influence arose from the giving to metropolitan centres and interests what was meant for the horticulture and horticulturists of the United Kingdom, I had the honour and privilege some twenty years ago of helping to launch the Society on its provincial campaign, the main objects of which were the endowment of the old Society with new resources and wider capacities of service, its reconstitution on a wider and a more popular basis, and the general stimulation of national horticulture. The new start towards renewed prosperity and enlarged usefulness proved most propitious. The first provincial show of the Royal Horticultural Society, held abreast of the Royal Agricultural Society of England at Bury St. Edmunds in 1876, proved a brilliant success alike financially and horticulturally. But somehow or another the metropolitan and local elements of the Society seemed to paralyse the energy of its provincial enterprise, and hence, after a few timid, cold, mistrustful advances, provincial horticulture was tossed aside, and the Society took to lawn tennis to keep her going. It will not help the Society out of its present difficulties to discount all these difficulties as over and done with, having little or no bearing on the present circumstances. The exact contrary of this is true. Now, as then, success or failure turns on the previous question—of its localism or its nationalism. If the former, it is doomed to fail, as it has done in the past, though it has had the advantage of three very potent local centres—Regent Street, Chiswick and South Kensington. If the latter, it is bound to succeed, for a horticultural society, truly national in name and aim, must embrace the nation.

AFFILIATION OF LOCAL SOCIETIES.

The system of affiliation strongly advocated by many of us many years ago has been fairly successful. But the very loose tie of affiliation needs tightening into something akin to amalgamation in the government, work, honour, of a national society. By such gradual evolution from localism into nationalism the Royal Horticultural Society might yet aspire to lead the horticultural enterprise,

science, and practice of the nation on to conquests and yet higher achievements.

A NEW CONSTITUTION.

To this end, however, it must be endowed with a more popular constitution, establish a perfect equality of status and privilege among its Fellows, secure freedom of action, and from encumbrance obtain and maintain thorough independence, and cherish lofty views of service and of duty to the nation at large. The very first step necessary in pursuit of these objects is a lowering of the franchise, or a reduction of the terms of Fellowship; for a national horticultural society with the rank and file left out is a misnomer, if not an absolute mockery. Neither need the Society lose in prestige, power, usefulness, through a lower money-rate of Fellowship. Then talent might surely be allowed to purchase Fellowship as well as money. It does so to some extent now, only Fellowships so granted are denuded of all powers of government, as if the Society were actually afraid of the ability of its few honorary Fellows. What more honourable reward for unusual cultural, botanical, decorative, or literary merit, or for extraordinary excellence in the designing, furnishing, and management of garden and landscape than the Fellowship of a truly national horticultural society?—such Fellowship to be equal, as a matter of course, in honour, privilege, and voting or governing power to purchased Fellowships. A truly national Horticultural Society should know of no inequalities among its Fellows. It needs hardly be added that a national horticultural society must be governed by its peers, that is, by horticulturists. Having placed the right men in the right place by careful selection of duly qualified and discreet Fellows, we must safeguard the Society against the most frequent source of bad government hidden beneath the plausible phrase and practice, "eligibility of re-election." In practice this really means government in perpetuity by the same set of Fellows or their nominees. That frequent change and constant accession of fresh blood, which is as essential to the robust health and youthful vigour of societies as of individuals, might readily be ensured by insisting that one-third of the Council should absolutely retire annually, none of such retiring members to be eligible for re-election till after three years. The simplest possible means should also be devised for the nomination and election of Councilors, so as to keep the governing body in close touch and complete accord with the wants and wishes of the Society. No society can prosper with a Council in antagonism with itself, nor in ignorance of the wants and wishes of its constituents; and the secret of all good government, alike in the State and societies learned or unlearned, is to keep the executive power in harmony with the representative. In pursuit of this vitally important end, and as the shortest cut towards it, it might be needful to adopt voting by proxy, as it is difficult to see how otherwise anything like an equality of voting privileges and powers could be established among Fellows, some of whom could impress their will on the policy of the Society by a walk of a few yards, while others to do likewise might have to journey 50, 100, 200, or 500 miles.

A GARDEN OR NO GARDEN.

Considerable difficulties will doubtless be encountered in reconstructing the old Society, or forming a new one on a truly broad and national basis. On the very threshold the knotty question of garden or no garden would have to be grappled with and settled. It would be presumption in me to attempt to determine such a weighty matter. No one can, however, fail to see that for societies gardens, either for experiment or illustration or as a nucleus for distribution, are less needed now than when the gardens at Chiswick were established. Commercial horticulture especially, to say nothing of private gardening, has advanced so rapidly, that a national horticultural society, endowed with unlimited resources, would have great difficulty in running abreast with it, either in selection, cultivation, or results. Besides, the Government do a good deal for botany at Kew, Edinburgh, and Glasnevin, and as

much as can well be done for decorative gardening in the London parks; while municipal and other public bodies, learned societies, and private gentlemen vie with each other in the formation of parks and pleasure grounds, and the girdling of our towns with sanitary cordons of verdure and beauty. True, we have no horticultural or experimental garden excepting Chiswick and it would be in some sort a national misfortune to lose it. But that surely need not follow. Should the Horticultural Society prove unwilling or unable to sustain it, the Government might step in and find the money, and keep it a going concern worthy of our national renown, or its fruit and vegetable treasures might be engrafted on to Kew just as ample space is reserved at Versailles for the utilities of horticulture in close proximity to the almost bewildering profusion of its artificial and natural embellishments. But this is rather anticipating. The chief objections to the possession of a garden by a national horticultural society are the cost and the tie—the latter perhaps proving the greater hindrance to truly national work.

In this connection it is impossible to ignore the fact that the Royal Agricultural Society of England has virtually revolutionised our national agriculture without either hiring or owning an acre of land, either for experiment or illustration. It has been the great teaching authority, and its other two mightiest stimulating forces have lain in its discovery and certification of merit. In the early history of the Royal Horticultural Society it attempted little more than this. So far I agree with Sir Joseph Hooker in the *Gardeners' Chronicle* of January 7, that something like a revival of its old home and haunts in London, with a central heart to move and a head to guide and advise might prove a long step forwards as well as backwards in the history and policy of the Society.

PUBLICATIONS.

In any case, a local habitation and name in such a central place as the metropolis will be essential as a convenient rendezvous for horticulturists; a home for the Lindley Library and other literary and art treasures; meetings of Scientific and other committees, exhibitions of rarities, novelties, and horticultural or botanical subjects of exceptional merit, &c. Subordinate to the question of garden or no garden would naturally follow that of Journal or no Journal. There will doubtless be a general consensus of opinion among horticulturists that there must either be no Journal, or that alike in get-up and internal quality it must furnish the highest possible example of the literature of horticulture—cost what it may for contributions or editorship. Our societies are now so fully and faithfully reported and so well served by our Press that mere records of their proceedings in special journals have become unnecessary and superfluous. Still, it is an open question whether a horticultural Quarterly, somewhat on the high educational and literary lines of the *Journal of the Royal Agricultural Society of England*, might not create a large field of usefulness for itself, and prove a source of power as well as of profit to a truly national horticultural society.

THE DUTIES OF THE SOCIETY TO THE STATE.

Such a society might also patronise literature in other forms—such as, for example, by issuing or offering prizes for essays on semi-horticultural subjects, as, for instance, the importance of making horticulture a recognised branch of our national education, and its introduction into the curriculum of our parochial, board, boarding, commercial, middle-class and other schools and colleges; the sanitary and pecuniary importance of having gardens attached to dwelling-houses; fruit and vegetables as food; the reclamation of waste and Crown lands and their devotion to horticultural use, the allotment system in its social, moral, and material bearings; plants and flowers in the home, and shrubs and trees in towns; the preservation of open spaces, waste products in relation to horticulture, foreign climes and products, national and international exhibitions and their effects on horticulture and the peace and prosperity of nations, &c. The chief mission of a truly national society would be stimulatory, the collection, distribution, exhibition and certification of merit over the widest possible area—all its work at home and abroad—should be national in its scope, character, and objects, and in harmony with the wants of the times.

EXHIBITIONS AND MEETINGS.

One or more great shows a year should be held in the provinces, and probably also one great and as many little ones as seemed good in London. Conferences, Congresses should be held, and popular lectures with telling expositions and illustrations given at these shows on the science and practice of horticulture. Prizes might also be offered for the best gardens in the districts visited—design, furnishing, keeping, culture, products, and cost relatively to size—all to have due consideration in determining the awards. Possibly, too, it might be possible to establish Educational and Literary in addition to the Fruit, Floral, and Scientific Committees, and for these to test and certify the merits of thinkers and workers in other fields than fruit and flower growing. As to the privileges of Fellows, Fellows' tickets should admit to all the meetings of the Society, confer the right of nominating and voting for all the members of the Council and committees, and ensure a copy of all the Society's rules and publications.

STATE AID.

Some contend that the Government ought to find the ways and means, and also provide Professors for teaching horticulture at the Universities. It has been said, and with reason, that there might be a Board of Horticulture, as there is a Board of Trade and of Works, such board to include Agriculture and Arboriculture as branches of horticulture, and that to such Board might be relegated the formation and working of a national horticultural society. Well, all this may come, but I am somewhat sceptical of the benefits of Government departments. We had a taste of it once and did not like it, and the Government of the day, when Mr. Ayrton ventured to assume the functions of State gardener, aroused such a hornet's nest as to sting him and his colleagues out of office. Besides, where is the benefit of having done for us what we can probably do much better for ourselves? Nor can there be any question about the ability and power of horticulturists with easier terms of Fellowship to establish and support such a society as shall be a credit to us and furnish one more striking example of British self-help to other lands. Self-government and self-support are, after all, the highest forms of life—horticultural or other, and in the end these generally prove the most successful as well as durable. *D. T. Fish, an ex-Life Fellow of the Royal Horticultural Society.*

NURSERY NOTES.

TREE PEONIES AT MR. WARE'S NURSERY.

This beautiful group of hardy Japanese shrubs is now receiving more attention from growers than was formerly done. The re-introduction of these plants has been welcomed by Mr. Bateman, of Worthing, and other admirers of Tree Peonies; the former gentleman, who some years ago used to grow them extensively, endeavoured greatly to get them to become popular. There is no doubt but that their re-introduction is mainly due to Mr. T. S. Ware, of Tottenham, whose display of these magnificent flowers was always a great feature, and one which was much appreciated during the last few years. The improvement made on the old *P. moutan* and other sorts like *Banksi*, *papaveracea*, &c., is worthy of notice, some of the huge double blooms being 24 inches in circumference, and including a great range of colour, from the purest white to the most brilliant scarlet and the deepest purple-violet. It is the opinion of good judges that the white and delicate pink forms are the most attractive, while some of the dark rich purple varieties have the additional merit of being deliciously fragrant. They have proved to be quite hardy in milder parts of the country, especially the European garden forms, but as a rule they do best in a sheltered position facing the south or west, thriving in any good deep soil when it is enriched with decayed manure. As regards their employment in gardens, they can be advantageously used between low growing shrubs, in the mixed border, or as single specimens on the lawn. The best time for planting is undoubtedly in autumn, as they form a quantity of white fibrous roots during the autumn and winter

months. If good plants are planted they will produce quantities of flower the second and third year after planting. They may also be grown in large pots for greenhouse and conservatory decoration, and I do not know anything to equal them when in full flower; of course they will then flower a month or so earlier, and are better kept in a cool house after the flowers are fully expanded.

To assist those who desire to form a collection of these I will enumerate a few of the choicer sorts which flowered last year:—*Athlete*, large double flowers of a delicate lilac-rose, with guard petals of a rich dark maroon; *Bijou de Chusan*, a lovely Chinese variety with large delicate rosy-white flowers: the centre petals are loosely folded, and glisten like crumpled satin; *Carolina*, full double flowers of a lovely nankeen-flesh colour; *Fragrans maxima*, pl., a large double flower of a coral-pink, edged with rose-salmon, and very sweet-scented; *Lactea*—this is the best variety I have seen, well-established plants produce gigantic blooms, fully 8 inches in diameter; *Lord Macartney*, a Chinese variety with brilliant cherry-carmine flowers; *Louise Monchelet*, nice globular flowers of a delicate flesh-pink, with a fine satiny lustre; *Osiris*, another charming Chinese form of a rich deep salmon-pink, and is sweetly scented; *Reine Elizabeth*, large double flowers of a rich deep salmon, shading to pink towards the margin; *Zenobia*, semi-double flowers of a dark purplish-violet with a beautiful bluish metallic lustre. *C. S.*

NEW NURSERY, RICHMOND, SURREY.

This nursery will probably be best remembered as having been once in the possession of Mr. Herbst, and when under his proprietorship it was well noted for market Palms, Lily of the Valley, &c.

A peep into a market-plant nursery of any note usually gives us a pretty good insight into what may be called the "commercial side" of horticulture. We see therein quantity combined with good quality—a combination unfortunately not always to be met with in these hurrying times. The nursery is now occupied by Mr. K. Drost. One of the features at the time of my visit was a great number of forced English Lilac in splendid condition. It was of the nature of a pleasant revelation to see a house of Lilac, the plants filling it from end to end, many examples being 5 to 6 feet in height, and crowned with their snow-white blossoms. Glancing along the tops of the plants gave one the idea of a veritable snow-field!—and the perfume emitted from such a number of plants I must leave the reader to imagine. Mr. Drost has been cutting for market since October last, and will continue to do so for some time yet—indeed, he assured the writer that last year he cut a month after the Lilac had done flowering outdoors.

Hitherto we have depended upon the French for our Lilac supply, but Mr. Drost has now for the third year very successfully demonstrated that we can produce Lilac of equal quality. It may be remarked that the individual flowers are about the same size as the French Lilac, but the spikes are larger, and are said to "travel" better than the French.

Of Lily of the Valley we noted a fine batch in flower; single and double-flowered Tulips, in the most popular varieties, in quantity. These, with the Lily of the Valley, have furnished a good market supply for some time. The useful old double-flowered white *Primula*, with its charming rosettes of flowers, is much grown here, the flowers and plants finding ready sale in the market.

A good thing may be noted in *Viburnum Opulus* Snowball, with handsome globular heads of flower, forming a charming decorative subject when cut, as distributed from here, in shoots of 5 or 6 feet in length.

By way of conclusion, a few words on the Palms and other foliage plants. Some idea of the extent of the trade done in Palms may be gleaned from the fact that about 55,000 are grown, to be seen in all stages of growth, from innumerable dots in 60's to the shapely and well-foliated specimens for furnish-

ing purposes. In such a nursery of course only the most popular kinds are grown, a list is therefore totally unnecessary. The *Kentias* are found to stand best for general furnishing purposes, while one of the hardiest is *Latania borbonica*. We observed a wonderfully fine lot of that best of table Palms, the graceful *Cocos Weddelliana*.

Of Ferns a good and select collection is grown, the now well-known and beautiful *Pteris cretica* Mayi being remarkably well done. *B.*

MR. B. S. WILLIAMS.

Time was when Upper Holloway, and the Archway at the foot of Highgate Hill, were a full day's outing for the citizen; but now houses line the whole way from Islington, and fog plays sad havoc with flower and foliage, causing the utter loss of the former, and besmirching the latter. Blacks are so thick in the air in that neighbourhood, and stick to the roofs of the glass houses so pertinaciously, that nothing less than scrubbing with a brush will remove them. This is an additional expense, a roof-washer, who does but little else, being a necessity of successful plant growing there.

Being in search mainly of flowers that open during the winter months, the inspection extended to the greater number of the houses. In the lean-to house at the end farthest from the high road there were found in full bloom several plants 3 feet or more in height of the double-flowered *Sparmannia africana*. Every one knows the old favourite inmate of the greenhouse, which almost every one possessed, but none grew into a nice-looking plant. This double form, with its corymbs of full rosette-like blooms, is much handsomer than the single ones, and its rosettes with the purple anthers inserted among the centre petals, will be much admired either on or off the plant.

In an intermediate temperature plants in flower of *Tabernaemontana coronaria flore-pleno*, and *T. camassi*, were observed. These are such charming pure white perfumed flowers, that they should never be absent from collections of warm-house plants. They are preferred by many to whom the scent of the *Gardenia* is unpleasant. In the same house plants of *Toxicophloeæ spectabilis* were opening their spikes of white blossoms. Of *Cyclamens* a very good strain were in full flower, as was also a fine large specimen, such as is rarely seen, of *Daphne indica alba*. This was a specimen which had never been spoiled by the use of the knife, either in pruning, which *Daphnes* dislike, or that minor form of it consisting in snipping off the flowers; and as a consequence it was crowded with flowering wood and ample foliage.

In the fernery one of the most conspicuous plants is *Adiantum Williamsi*, the fronds of light fresh green showing up distinctly amongst the more or less rusty-looking ones of other varieties and species. The habit is like that of *A. scutum*, but is still more open and slender.

In the Orchid-houses a number of species were observed in bloom, but there were few that had not suffered loss of flowers during the days of fog in January. *Oncidium sarcoodes* was coming into flower in quantity: the rich brown flowers of this species are very ornamental; *O. macranthum*, an autumn flowerer, had been pushed on in strong heat, and was just opening its buds. Some few *Calanthe* blooms still remained on the plants; the white and lilac *Miltonia Kramerii*; *Dendrobium heterocarpon*, whose pale yellow flowers, densely packed on the pseudobulbs, were unaffected by fog; and *Epidendrum ciliare*, were each objects to admire; presently they will be put in the shade by the *Cattleya Trianne*, *C. Mossii*, *Aérides*, and other gorgeous species, of which only the sheaths of bloom and raceme spikes are yet visible. It is a pity growers so much neglect the species of *Aérides*, seeing how much grace and beauty are found in their flowers. We think that other East Indian Orchids are under a cloud just now, and ought to be more prominently brought out at exhibitions. A large specimen of *Cymbidium Lowianum* was throwing up strong

flower-spikes, and another of the Chatsworth variety of *Cologne cristata* was loaded with its handsome flowers; and *C. pandurata*, the species with green and black flowers, was observed in large examples.

The *Vandas* in the house we are now in are a wonderfully healthy lot, feathered with leaves down to the pot; and *Calanthe veratrifolia* was more healthy-looking than we are accustomed to see it. The plant gets, as a rule, too much heat at all seasons, hence its comparative scarcity. It was a disappointment to discover not a flower on *Phalenopsis Schilleriana*: all open flowers had been swept off by fog. A big specimen of *Cymbidium eburneum*, with twenty-seven flower-spikes, will be worth seeing when in flower. Many species and hybrids of *Cypripediums* were bearing open flowers, amongst them being *C. Dautheri*, *C. macrochilum*, *C. porphyreum*, *C. nitens*, *C. Amesianum* (a hybrid to be sent out this year), *C. Morgania*, *C. Dayanum*, and *C. politum*.

A few plants of *Odontoglossum crispum* rewarded a peep into their compartment.

THE ALGERIAN FIR.*

ADIES NUMIDICA.—It seems strange to those of this generation who have the opportunity of comparing the living plants in cultivation that this Fir should ever have been confounded with the Spanish Fir, *A. Pinsapo*. It is really nearer to the common Silver Fir, *A. pectinata*. The surprise will, however, be transient to those who remember, on the one hand, the imperfect materials and defective information which botanists commonly have when they are first called on to describe a species, and, on the other, the remarkable variations exhibited by these plants, sometimes even in the same plant at different stages of growth. The name here adopted is the one most in accordance with accepted views as to the allocation and affinities of the species.

The tree in question was first discovered by Captain De Gibert, in 1861, in the mountains of Babor, at an elevation of from 4000—6000 feet, intermixed with the Atlas Cedar, on limestone soil, and was mentioned by Cosson as *A. Pinsapo* var. *baborensis*. M. de Lannoy also found the plant in the province of Constantine, sent specimens in 1862 and in 1864 to the Jardin des Plantes, which M. Carrière described in the *Revue Horticole* as *A. numidica*.

It is not necessary in this place to give a full botanical description of the tree such as may be found in the books which have treated of this species. It may suffice to add a few particulars observed in the cultivated plants at Pampisford, Kew, and elsewhere.

It forms a handsome pyramidal tree, with the habit of *Pinsapo* or *cilicica*, rather than of the common Silver. The young bark is cinnamon-brown, glabrous. The leaves come off on all sides but are twisted so as to lie in one plane, densely set, very deep green, flat, linear oblong, sometimes emarginate, sometimes pointed; those on the sterile branches generally rounded, but slightly pointed at the apex on the fertile branches. There are about eight rows of stomata on either side of the midrib beneath, and a few near the tip on the upper surface. A transverse section of a leaf (see fig. 23, p. 141), shows a double layer of hypoderm cells which give rigidity to the leaves, then two layers of deep green palisade-cells, in which the work of the leaf is mainly done. Then comes the ground-tissue of the leaf, through the centre of which runs the vascular bundle, of a kidney-shaped form, with the concavity upwards. The bundle-sheath and pericycle are well defined, and the xylem or woody portion divided into two wedge-shaped masses, converging towards the upper surface. The resin-canals

are placed in contact with or just above the epidermis on the underside, not free in the ground tissue, as generally in *Pinsapo* (fig. 22). The leaf-buds are ovoid-acute, resinous, brown, the constituent scales oblong-ovate acute, cartilaginous, the upper ones larger and more membranous. When the shoot commences to grow it bursts through the lower scales, which form a kind of sheath or tube longer than in most of its allies, while some of the thinner scales are torn at the base by the force of the growing shoot, and lifted up on its extremity in the form of a small cap. During active growth the shoot curves downwards (epinastic), owing to more rapid growth on the upper as contrasted with that on the lower surface. The male flowers of the cultivated plant we have not seen, but we are glad to have the opportunity—thanks to Mr. Nicholson—of figuring the cone (fig. 23), which he obtained from the courteous and energetic M. Pavart, the superintendent of the State Nurseries at Trianon, Versailles. The figure shows better than words can do what the cone is like. In colour it was of a dull brown, the bracts projecting beyond the scales (not concealed within them, as in *A. Pinsapo*). It is worth notice that in the Algerian specimens in the Kew herbarium the bracts are shorter than the scales, though otherwise quite like those of the cultivated plant. The relative length of bract and scale is known to vary in other species of the genus, and can therefore not be relied on as a distinctive character. Each bract has an oblong ribbon-like stalk dilated above into a spatulate limb, generally more indented at the edges than shown in those represented and prolonged into a long slender acumen. The seed-scales are brown, covered outside near the tip with felted down, obovate or rounded at the top, wedge-shaped at the base where they are inseparable from the bract. The seeds, are obliquely obovate of a rich, deep glossy brown colour, and surmounted by an oblong retuse membranous wing of a curious tint of drab.

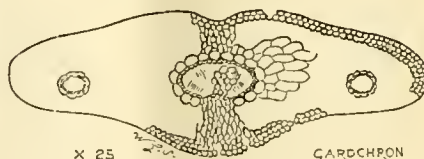


FIG. 22.—ADIES PINSAPO.

Leaf section from nature, showing resin canals free in the substance of the leaf.

There was a good deal of controversy when the plant was first made known as to what name it should bear and as to whether it was to be considered a distinct species, or a variety of the Spanish *Pinsapo*. M. Carrière's last word is that there are two forms in Algeria—one the *A. numidica*, here described; the other truly a variety of *Pinsapo*, which is the *A. Pinsapo* *baborensis* of Cosson. Our own impression, from the study of herbarium and cultivated specimens, is that there is but one species, and that one not *Pinsapo*. The appearance of herbarium specimens is, however, very often very different from that of the plant in the fresh state, thus the cylindric leaves of the living *Pinsapo* spreading on all sides are in some cases hardly recognisable in the shrunken flattened leaves of the dried specimen.

Of late years the anatomical structure of the leaf has been employed to discriminate between different species, but this character, like most others, is not free from variation. Thus, while Bertrand finds the resin canals of *A. Pinsapo* free in the tissue of the leaf (parenchymatous), McNab figures them as in contact with the lower epidermis. Our own preparations from undoubted *Pinsapo* are mostly in accord with the observations of Bertrand (see fig. 22), but our preparations show some variations in this particular. In *numidica* Bertrand and McNab described the resin canals as in contact with the epidermis, and so we also find them to be.

In Algerian specimens the old bark is ash-grey, the young rind orange, glabrous; the leaf cicatrices are very densely set, circular, depressed. The leaves are in one plane, the uppermost shorter than those beneath, linear oblong obtuse, deeply channelled in the middle above, and with stomata in the

groove; margins reflexed, midrib very prominent beneath. Bud ovoid, conic, scales not resinous, oblong-lanceolate, persistent, forming an unusually well-marked sheath at the base. In *Pinsapo* the scales are rounder, shorter, and more resinous, and the leaves under no circumstances have such a deep narrow furrow in the centre. The variation in the relative length of the bract and the seed-scale has already been alluded to.

As an ornamental tree, *Abies numidica* may be highly commended for its shapeliness, its bright cheerful foliage, and unassailed hardihood. On this latter point Mr. Nicholson has favoured us with the following details:—The tree from which the cone here figured was taken was planted in the park at Trianon about 1859, having been raised from seed a few years previously. Its height is now about 25 feet, and as it survived 29° C.—that is, say, 20° below zero of Fahr., or 52° Fahr. of frost—in 1879, its hardihood had a pretty good test. In the same year numerous fine trees, including some originally introduced by Michaux, were destroyed. The species is, however, reported to have been injured in 1879—80 at Zurich and at Orleans, where the tree was subjected for three weeks to a temperature of —18° to 25° C. (zero to —13° Fahr.), and on one occasion to —18° Fahr.

Turning to the elaborate Frost Report published under the auspices of the Scientific Committee, by Rev. G. Henslow, we find that it was uninjured at Clitheroe, in the West Riding of Yorkshire, where the temperature went down to 12° Fahr. and 9° Fahr. respectively in the near neighbourhood. It was slightly injured at Pampisford, Cambridgeshire, by a temperature of 1° Fahr. At Coombe Wood, Surrey, according to Veitch's *Manual*, it was not injured in the least, although the temperature at Wimbledon (close by) was recorded as low as 11°.

FERTILISING MOSS.

At the risk of being charged with plagiarism we beg leave to repeat what we wrote just a year ago with regard to this interesting subject. We do so because what we then urged has been so amply verified during the past year by your correspondent, Mr. Roberts, and others, that a little repetition may incite and encourage further investigation in the direction indicated. We do not wish it to be inferred that the improvement we have introduced on the old-fashioned plan of packing small bedding plants in balls of moss where pots or room, or both, were scarce, is anything more than an innovation brought about by intelligent research, assisted a little, perhaps, by scientific knowledge, but certainly much more by necessity—the mother of invention.

The broad problem that plants could be manufactured, by using the self-contained elements in the seeds was solved by the eminent chemist, M. Ville. Having provided a simple means of supporting the roots of plants in an element containing no fertilising properties—pure silica—he proceeded by the use of distilled water to germinate seeds of grain; succeeded, that is, in producing in the first instance from seeds weighing 15 grains, a crop weighing about 90 grains by the help of air and water alone. His future experiments when adding the soluble plant foods in the various forms to the distilled water were much more successful. His conclusions amount to this: that complete development of plant life can be brought about by using a few chemical products of definite purity, some distilled water, and a few seeds, the result being a crop that will in every respect bear comparison with those obtained from good soil.

The principle being established, that calcic-phosphate, potash, lime, and nitrogenous material are the elements requisite to form a perfect natural soil, it is not difficult to vary the proposition by ascertaining what elements, combined with a given medium, are necessary to promote plant life apart from soil altogether. In the case in question, that of fertilising moss—this is simply a question of experiments. Basing these experiments on the knowledge that all mosses contain an excessive amount of silicate, and that the analysis of the ash gives a considerable pro-

* *Abies numidica*, De Lannoy, ex Carrière, *Rev. Hort.*, March 18, p. 106, (descriptio); May 14, 1866, p. 203; *Conif.* ed. 2, p. 305 (1867). Lavalley, *Arbor. Segrezium* (1877), p. 258, (name only); Veitch, *Manual* (1881), p. 103; Beissner, *Handbuch*, d. *Conif. Benennung* (1887), p. 68 (name only). ? *Abies Pinsapo* var. *baborensis*, Cosson, in *Rev. Hort.*, April 16, 1866; *Bull. Soc. Bot. France*, viii. (1861), p. 607 (name only); Karl Koch, *Botanologie*, ii. (1873), p. 227; Wilkomm, *Forstliche Flora*, ed. 2 (1887), p. 111. *Pinus Pinsapo*, Parlatore, in *D. C. Prod.*, xvi. (1868), p. 423, haud Boissier. *Picea numidica*, R. Smith, ex Gordon, *Pinetum*, ed. 2 (1875), p. 221.

portion of potash, the question of decomposition is the one that needs first working out. Next, it is important experimentally to learn what absorbing properties the moss may have in collecting ammonia

is also dependent on another and quite different point—that of the retention of the fertilising properties that have been, or are about to be, imparted to the moss. In fact, the ability of the moss to

unfertilised moss. We do not state or wish it to be inferred, that in the case of the French or "Dumesnil" manufactured moss these lines have been followed. We think it is very probable that they have not, as we observe in that moss no proofs that it has been put through any process, our own being bleached and made tougher and more durable by the mode of treatment. We also find that sphagnum is the only moss we can so treat, as it has the absorbing properties we require in a marked degree above other kinds. We note a plain word well applied by your able correspondent, Mr. Roberts—the word "ramification." That is just exactly how the benefit of moss culture can best be expressed—"the rapid ramification of the roots!" Plant growers should seek to encourage roots that take hold of every particle of the food matter, and get into close contact with all the moisture within reach. This is at least a part of the admitted course of root action under skilful cultivation, and we think Mr. Roberts expresses his convictions about aëration very lucidly. *W. Wood & Son.* [M. Ville can hardly be credited with the fact of having been the first to solve the problem alluded to. *Ep.*]

CAPE BULBS AND CACTI.

THESE singular and, in some respects, unattractive objects are seldom seen in private gardens. Occasionally at botanical gardens there are opportunities for a leisurely examination of them, but such a short study of the plants is of little value if one is anxious to acquire a wider acquaintanceship with the various species. Though so ungainly in appearance, and, in fact, repellent, on a closer examination it will be seen that there are many whose flowers display extraordinary beauty, and features of interest that are not met with in other classes of plants. At Fern Bank, Cadley, Preston, the residence of Mr. J. Atherton, Hon. Secretary to the Preston and Fulwood Horticultural Society, there are many species to be met with, Mr. Atherton having made this class of plants his pet study for many years.

During the month of September last, at one of the meetings of the Society, he brought a fine plant of *Brunsvigia Josephina* in full flower—a plant whose flowers many of the members present had never before seen, and all expressed indebtedness to Mr. Atherton for giving them the pleasure of seeing so rare and interesting a plant. Calling at Fern Bank a few days since I was enabled to see many other rare plants, some of which, though they have been cultivated for years, have not as yet attained to a flowering stage. Some fifty species and varieties of Cape bulbs are grown here, and it is needless to say that the flowers of many in the estimation of the proprietor far exceed in beauty those of any other plants grown.

The *Brunsvigia* is now finely in foliage, having twelve leaves upon it, which are 3 feet long and 6 inches in width. This plant has been at Fern Bank twelve years, and has bloomed three times during that period. Its history can be traced back for twenty years previous to its coming into Mr. Atherton's possession, so that here is a plant that has been watched and tended for over thirty-two years. The bulb measures 29 inches in circumference at the level of the top of the pot, and is 14 inches high from the soil to the crown.

Hæmanthus albiflos was just gone out of flower; *Hæmanthus pubescens*, pure white; and *H. tigrinus*, scarlet; and *H. coccinea* have bloomed during the past season. Another lovely thing in the autumn was *Eucomis regia*; a new *Blandfordia* grown for the past four years, is still unflowered. Other good things were *Baphane toxicaria* major, *Veltheimia glauca*, *V. viridiflora*, *Lycoris radiata*, four years in cultivation, still unflowered; *Habranthus Hendersoni*, a large plant of *Himantophyllum miniatum splendens*, with seven spikes—a most beautiful dark coloured form; many *Crinums*, and *Amaryllis*. Among the latter were a large number showing their flower-spikes. Among the Cacti we noticed a grand specimen of *Echinopsis formosa* thirty years old, *Cereus peruviana monstrosa*, *Echinopsis cristata*, *Pilocereus fossilata*, *Opuntia monacantha*, and *O. cylindrica*.

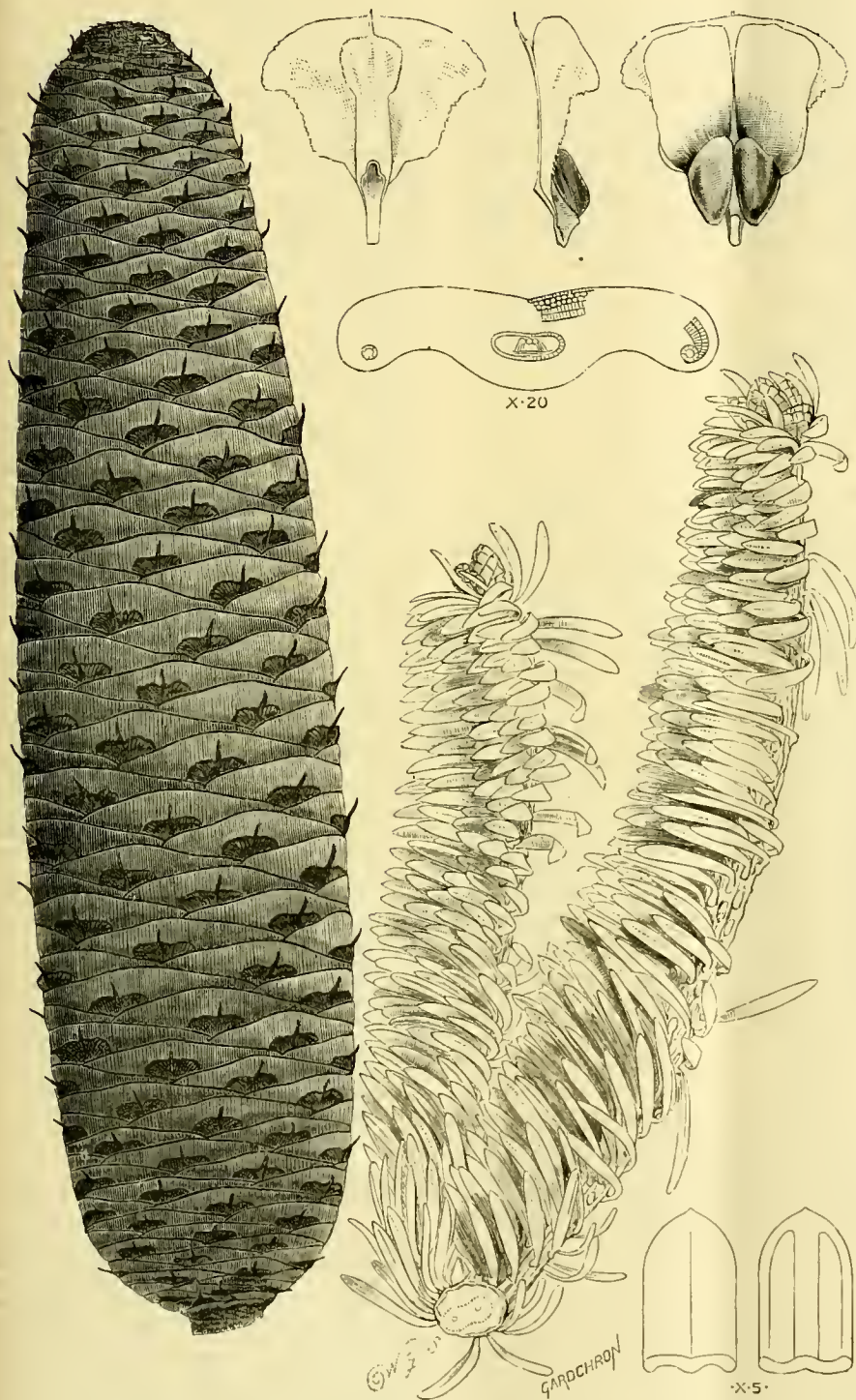


FIG. 23.—THE ALGERIAN FIR (*ARIES NUMIDICA*). (SEE P. 140.)

Foliage, cone, bract, seed-scale, and seed real size; diagram of leaf-section $\times 20$.

and nitrogen, and in storing the same. Then comes the consideration of the requisite proportion of chemical plant food it is necessary to charge the moss with in addition to that which it already contains. But the further perfecting of this medium

retain, and also to give off slowly, the elements of plant-food depends greatly on this treatment. That this point has been thoroughly mastered will, we think, be admitted by those who have tried the durability of fertilising moss in comparison with

Yucca filifera, *Y. quadricolor*, *Y. aloifolia* variegata, were well represented, as also the following Aloes:—*A. glaucescens*, in fine form; *A. albo-spina*, *A. soccotrina*, the last-named a grand plant with three crowns; *A. africana*, *A. albo-cincta*, very rare; and *A. albo-spinus*.

Echeveria agaveoides was a good plant, and *Doryanthes Palmieri* is a grand specimen of 4 feet in height, full of fine foliage, many of the leaves measuring 4 feet in length. Many choice varieties of *Scolopendrium vulgare* are here grown, a major form named *Athertonii* being very conspicuous among the many crested ones.

A number of plants of *Osmunda regalis cristata* were at present at rest. This is a very desirable variety. *W. Swan, Preston.*

THE HERBACEOUS BORDER.

A SELECTION OF COMMON HERBACEOUS PLANTS.

(Continued from p. 75.)

PAPAYER orientale is one of the showiest plants, producing large scarlet flowers. It is an easily grown and propagated Poppy, whose average height of bloom stalks is 3 feet.

Physalis Alkekengi, or Winter Cherry, is chiefly remarkable for its scarlet capsules, which appear in autumn, and as the winter progresses, make a cheerful display of colour in the border. Planted in a sunny situation the plant will extend itself underground, pushing up shoots all around, hence it is easily increased by division.

Polygonatum multiflorum, the British variety of Solomon's Seal, a very free flowering plant, well worth growing and doing well under the shade of trees. Though there are many species in this and other countries, the one enumerated above alone has a place in home catalogues. Continental catalogues, however, enumerate two or three other species. The value of *P. multiflorum* is greatly enhanced by the fact that it can be forced into bloom in pots, and then is a highly decorative subject.

Potentilla argrophylla, both double and single-flowered, may be classed amongst the most showy of hardy perennials, the colour of the blooms varying from yellow to scarlet and dark red. The average height is 12 to 15 inches, and the time of flowering the months of May, June, and July.

Pyrethrum roseum, the original form whence the many beautiful double-flowered forms have been derived, is a summer flowering plant that is easily grown and should not fail in the border.

Pyrethrum uliginosum, the Hungarian Marsh Daisy, is increasing in popularity, being a late flowering plant. It is suitable for border display and for cutting, as the large white flowers appear at a time when blooms are getting scarce.

Ranunculus aconitifolius flore-pleaus, or Fair Maid of France, a lovely pure white double flower of fine form, flowers during the early summer. The average height is 2 feet, and the plant has the merit of succeeding well in a partially shaded situation.

Rudbeckia Neumanii is a hardy plant, resisting the effects of heat and drought, and being of dwarf habit than some other yellow-flowered forms, is to be preferred. It flowers during July and August, and is readily grown and propagated in ordinary soils.

Saxifraga granulata flore-pleno—a double-flowered form of British Meadow Saxifrage—is a free blooming variety, worthy a place in every garden.

Spiraea filipendula flore-pleno, or double-flowered Dropwort, is a charming plant for cutting, and should not be absent from any border. The plant has an average height of 12 inches, and the white flowers are very showy when seen in masses.

Schizostylis coccinea, a Kaffrarian Irid, sometimes called Winter Gladiolus. The plant produces spikes of scarlet flowers at a very acceptable season; it is hardy, and suitable for any outdoor border. Increasing with rapidity, it requires a well enriched soil and frequent transplantation to insure full and free growth and fine bloom.

Thalictrum adiantifolium.—This and the glaucous-leaved form of the same, are very ornamental, resembling in their foliage the Adiantums. The growth is crowned with large heads of yellow, pink, or purple-tinted flowers, according to the species. They are easily grown, and the foliage is admirable for bouquets.

Tritoma nobilis and the lesser forms, *T. grandis*, *T. Saundersi*, and *T. uvaria*, known as Torch Lilies, are not excelled for brilliancy of colouring and massive habit by any herbaceous plant, and should be found in all large borders.

Veronica longifolia sub-sessilis, a Japanese species of vigorous growth and beauty, has leaves of a deep olive colour, and spikes of flower which are of a deep rich blue tint. The flower-spike is a foot in length, and several inches in circumference, albeit the whole height of the plant rarely exceeds 2 feet.

Matricaria inodora flore-pleno is of free growth and blooming as well as a very enduring plant, producing its flowers perfectly during the most arid weather. The double white flowers may be used for cutting, and it is readily propagated by cuttings and division.

Monarda didyma (scarlet), and its white-flowered counterpart, commonly known as Oswego Tea, are very showy neat plants for the border, averaging 3 feet in height. They bloom in summer. *W. Earley, Ilford.*

FORESTRY.

THE DOUGLAS FIR AS A TIMBER TREE.

CONSIDERING the widespread interest awakened by the first thinning of the Douglasii plantation at Taymouth, perhaps the following will be of interest to a large number of your readers. The plantation of Honey Hill, Scone estate, consisting of 13 acres, was laid down in 1857, and is, therefore, now 31 years of age. The soil is moor, with a strong retentive subsoil, and is much exposed to the sweep of the west and north winds. It was enclosed with an upright paling proof against hares and rabbits. The Douglas firs were planted in lines at 9 feet apart, and 9 feet between the lines. The nurses were of Larch and Scots Fir in equal numbers. All made a successful and rapid start, but during the Tay Bridge gale ninety-six trees of the Douglas Fir were blown over. Some of these were set up again; but the greater number were cut over, and their places were supplied with fresh plants. In consequence of so many Douglas firs having been blown over, the nurses are not all removed as yet. This plantation is at present undergoing a regular course of thinning, which consists chiefly in removing nurses that are interfering with Douglas firs. The difference in the comparative growth of the Douglas and Larch is worthy of notice. Yesterday I got three Douglasii trees measured:—

First tree ...	30 by 11½	Cubic feet.
Second tree ...	30 by 12½	27 6 7
Third tree ...	30 by 12½	32 6 7

The largest Larch tree in the plantation contains 12 cubic feet, which for the age is a large growth in Larch; but the Douglasii trees yield a cubic foot for each year of their growth. The sale of the thinning of the Douglasii plantation at Taymouth took place on the 23rd ult., and they sold at about the same rate as Larch. The largest class sold at about 1s. per cubic foot. *William McCorquodale, Jeanie Bank, January 11, in the "Perthshire Constitutional."*

THE WALNUT AS A TIMBER TREE.

A CONSIDERABLE amount of attention has lately been bestowed on the merits of the black Walnut (*Juglans nigra*) as a profitable timber tree on this side of the Atlantic. That it is well adapted for extensive culture in this country we have long ago pointed out; indeed, it is a well-known fact to those who have interested themselves in the matter, that under favourable circumstances in this country it grows more rapidly than it does in its native wilds in the United States, while it produces timber that is quite as valuable, and that sells at nearly as high a price at our British seaport towns.

The question is, however, not so much about its adaptability for planting in this country, but as to whether or not the quality of soil required to produce this Walnut would not be more profitably employed in growing other kinds of crop. Now,

from personal experience, we know that only the strongest and heaviest loam will produce this tree to perfection; in fact, it may be stated that only such land as will produce a good crop of Wheat is of any value for planting with the Walnut. We have, then, the choice of producing Walnut timber, which sells at from 4s. to 5s. per foot (three times the price of any other native wood), or Wheat, which many of our farmers grumblingly say does not pay the seed and labour!—for both plants require similar strong and substantial loam—that is, if the best results are to be obtained. It certainly seems strange that so much money should be paid annually by this country to some others on the Continent for Walnut timber for gun and rifle stocks, when it is an undoubted fact that it could be produced of quite as good quality at home; but the high price of plants, and quality of soil required to produce the best class of timber, have no doubt been the chief deterrents. A few enterprising English landowners have, however, planted the Walnut in considerable quantity, and let us hope that the results obtained will ere long induce others to follow the example, and bring this handsome tree to the front as a valuable timber producer.

The Walnut is difficult to transplant with safety, for it produces a stout tap-root, and but few of a fibrous nature, and upon which latter planters depend greatly for ease in removal. Great care is therefore necessary in the nursery management of this tree, so that it may be induced to form fibrous bushy roots, and this can only be accomplished by frequent removals, and by growing the plants in moderately rich soil.

Raising the plants *in situ* from nuts has been practised in various places, and with a great amount of success; indeed, this is the method of getting up a plantation of the Walnut that we can with the fullest confidence recommend. The method usually adopted is as follows:—Plough and harrow the ground when convenient, but, if possible, during winter or early spring; and in the following autumn plant the nuts, these being placed in lines at from 6 inches to 12 inches apart, and 18 inches between the rows. [Too near.] Careful weeding and cleaning of the ground will be required for the first few years, after which time the size and strength of the plants will kill out and quite exterminate these. Blanks in the lines may be filled up by carefully lifting the young plants from where, from their thickness, they can best be spared, and transferring them to the open spaces. Pruning and thinning at an early stage of the plant's growth is to be recommended, as these do away with the necessity of having such to perform at an advanced date, and when the trees have attained to more bulky proportions.

By paying particular attention to the young plants whilst in the nursery border, and by frequently transplanting inducing the formation of fibrous roots, perfect success in the planting out of the Walnut is a by no means difficult task; indeed, in our own opinion, forming a plantation in this way is to be recommended in preference to planting the nuts in the positions which the seedlings are to occupy as forest trees. We have planted the Walnut in quantity when a yard in height, and with perfect success, but then the plants had been reared under careful supervision, and which latter is all-necessary if the best possible results are to be achieved. *A. D. W.*

PLANTS AND THEIR CULTURE.

LILIUMS.—Many of these, when cultivated in pots, are useful either for conservatory decoration or for the supply of cut flowers. Those which were not potted in autumn had better be seen to at once. They like liberal treatment—a good sound loam with about one-sixth of its bulk of thoroughly decayed manure, with a dash of sharp sand, will suit them admirably. In potting, see that the bulbs are planted deeply, as the stem throws out a quantity of adventitious roots above the crown. A good plan is to only fill the pots three-quarters full at potting time, and to fill up afterwards as the stem grows. Newly imported bulbs do better if not potted up until they show signs of growth; pot them in small pots, and partially cover them, or put them closely together in boxes, and pot off as they start. The pots are best plunged, and protected from snow and heavy rains. *Auratum*, *speciosum*, and its varieties (sometimes called *lanicifolium*), and the *Easter* or *L. longiflorum* (*Harrisii*), and *L. neigheerense* are among the most useful for growing in pots.

Primulas and Cyclamens.—These plants are now

at their best, and efforts should be made to maintain them in good condition for as long a time as possible. They do best in a buoyant atmosphere with a temperature ranging from 50° to 55°, according to the state of the weather outside, and although they should have plenty of water, yet anything approaching a water-logged condition is very injurious; and double Primulas are more liable to flower and leaf dropping than singles. Remove decayed flowers and seed-vessels. If seed saving is done it is better to set apart a few plants for this purpose. Give weak manure-water twice weekly, and keep the plants well up to the light. As they are very liable to injury by sudden bursts of bright sunshine, it would be well to have a strip of tiffany in readiness to put over them. Neatly stake the flower-stalks as required. Pot off seedling Cyclamens, using about half peat and loam, with sufficient sand to keep the soil open. After potting return them to a moist growing temperature of 55°–60° as soon as the young plants have taken to the soil. A position on a shelf near the glass suits them best.

Gloxinias and Begonias.—If seeds of these have been obtained from a trustworthy source hundreds of plants may easily be raised, which will be but little inferior to named varieties. The seed-pots or pans should be quite half filled with crocks, over which a layer of rough fibre should be put; the soil must be fine and porous—equal parts of loam, peat, and sand put through a rather fine sieve answers well. Fill up to within half an inch of the top, give a good watering, and allow the water to drain off, then sow the seeds thinly on the wet soil, and stand them in the propagating house and cover the pots with a bit of tile. The pots may be frequently syringed, but do not water the soil in the pots until the seedlings are well up. As soon as ever these can be lifted with a small pointed stick they may be pricked out in pans, using similar soil to that recommended for the seed-pots.

Show and Fancy Pelargoniums.—The latest of these should now be potted into their flowering pots. It is better not to over-pot, as they make sturdier plants, and are more convenient for decorative purposes. When in smallish pots, rather stiff loam, some dried and pulverised cow-dung, a good sprinkling of bone-dust, with enough sand to ensure porosity, suits them well. In repotting it is well to squeeze the soil quite firmly—indeed it can hardly be made too firm. Water sparingly until the new soil gets well occupied with roots. Stand them thinly on the stages, and ventilate freely on all favourable opportunities. As a prevention of greenfly, occasionally syringe with weak tobacco-water.

THE ORCHID HOUSES.

EAST INDIAN-HOUSE.—If the temperature of this house can be kept up from now, until warmer weather comes, this month is a good one in which to pot any *Aerides* and *Saccolabiums* that may require it. When potting, place an inverted pot in the bottom of the other, and it will help to drain off the water well, making them also lighter to handle. In potting, fill in about the roots with large new crocks until the pot is nearly full; use only a little sphagnum down among the crocks, putting it against the points of the roots that have been growing in the moss; finish the surface with a cone of sphagnum in the usual way, but lay this on lightly, only pressing it sufficiently to keep it in place. Potted in this way it is very easy at any time to take away all the old moss from the plants, and top-dress with new, at the same time removing any dirty crocks that will come away easily, and put clean ones in their place. If the plants have foliage down to the pot, it will not be necessary to turn them out, the large-rooting *Saccolabiums* suffering much from repotting, their life often depending upon a few large branching roots, which cling to the pot, and are difficult to remove without breaking. Plants of either species that have lost their bottom leaves must be lowered in repotting, that their appearance may be improved, but it is advisable not to bury all the roots that have been growing exposed. Keep the air of the house in a moist state; give less ventilation until the plants are re-established, and very little water should be afforded them for a time, but the surface of the moss be kept damp only. Many of the *Cypripediums* of the warm-house grow freely during the winter, and some of them may require larger pots. Some species and varieties grow out of good form, and are better when sub-divided. During the

cold weather, when much artificial heat becomes necessary, yellow thrips will sometimes attack *Cypripediums* in the warmest houses; but these insects can be kept in check by thoroughly damping the under sides of the foliage and the base of the plants with an elbowed syringe, and many species will bear damping overhead. This operation should be done in the early morning, or as soon as the temperature rises to over 60°. There are several *Cypripediums* with very thick foliage, such as *C. G. oedeyae*, *C. nivenum*, *C. concolor*, *C. Parishii*, *C. lavigatum*, which I do not syringe at all. *Cypripedium Lindleyanum*, when robustly grown, appears a giant among its kind. A plant here, with foliage 2 feet long and nearly 3 inches wide, has sent up a spike 4 feet long, which, when all the buds have expanded, will have carried fourteen flowers; but I have noticed that only four or five flowers are fully developed at one time, and when others open the earlier ones drop off. It is growing in a house with species of *Phalanopsis*. *C. Woolford*, *Downside*. *Leatherhead*.

FRUITS UNDER GLASS.

PINES.—Plants which have started should receive an increase of temperature during mild weather, and advantage may be taken of bright sunny days to allow the temperature to rise to 90°, closing the ventilators shortly after 2 P.M., at the same time damping the interior. A handful of guano may be placed in the evaporating troughs, which should be kept constantly full of water.

Successional Plants.—Most of those Queens which were selected at the beginning of last month, and placed in a division of the Pine-stove for special treatment in order to get them to throw up their fruit early, will usually show fruit this month. The plants having been kept on the dry side until this stage was reached, as was previously advised, each plant, as it shows fruit should receive a sufficient quantity of water (weak guano) at a temperature a few degrees higher than that of the bed in which the plants are plunged. While the plants are flowering keep the atmosphere as dry as the well-being of the plants will allow, so as to prevent injury to the flowers, and consequent deformity in the fruit; 70° will be quite high enough for the night temperature during this month. A portion of the remaining succession stock may have an advance of 5° of top and bottom heat, in order to induce them to start into fruit by the end of March or beginning of April; and should any of these be very dry at the root, sufficient water should be afforded to moisten the whole ball. The portion of the stock intended to fruit later should not be encouraged to make any growth just yet. Towards the end of the month a general overhaul should take place amongst the succession plants, in order to have everything in readiness, and the soil, a good fibry loam, should be pulled in pieces and placed somewhere to get warmed. To each barrowload of loam add an 8-inch potful of soot and a 6-inch potful of Thomson's Vine Manure. At the time of potting the soil should be in such a state of dryness as to allow of its being firmly rammed in the pots with a blunt-pointed stick without becoming adhesive. The condition of the soil can be determined by lifting a handful and squeezing; when the hand is opened, if the soil remain in a lump it is too wet, if it springs back to its original state it is fit for use.

Suckers, which were placed in 6-inch pots in the autumn, should be shifted into 10-inch, and those in 8-inch into 12-inch, size of pot not being of so much importance as strict attention to the requirements of the plants during their period of growth. The pots should be carefully crocked, a little dry moss placed on the crocks, and a handful of soot over this to act as a barrier against the ingress of worms. When the plants are potted they should be replunged in the structure that they are to occupy during the summer, keeping strong growing kinds, such as *Smooth Cayenne* and *Charlotte Rothschild*, at the back of the pit; and 2 feet 6 inches space will be quite close enough, while *Queens* should be put at 2 feet asunder. The bottom-heat should be kept at about 85°, and the atmospheric warmth at about 65°, it not being advisable to excite the plants until there be an increase of sunlight. Do not water the newly potted stock for at least fourteen days, or until the roots can be discerned at the outside of the fresh compost. Any old stools with suckers which are not large enough to remove for stock should be encouraged to grow, in order that a constant supply

of fruit may be kept up. It is best to keep putting in a few suckers every month, or as soon as they become fit to remove from the parent plant. *W. M. Baillie, Luton Hoo*.

THE HARDY FRUIT GARDEN.

APRICOT TREES.

The buds of these trees have plumped up very fast, owing to the mild weather of the earlier part of the month of January, and in some instances they are almost ready to burst into bloom. The bloom-buds of the Apricot are very susceptible to injury from frost when at this stage; therefore if the nailing and pruning has not been attended to as advised, it should at once be done, and the trees protected from injury by frost.

General Work.—The fruit quarters should now be dug over a few inches in depth, taking care not to injure the roots. As the digging proceeds, any trees that have been mulched should have a little soil thrown over the surface of the manure, to prevent the mulch being disturbed by wind or birds. The alleys under the walls will also require attention, as the nailing proceeds, and should be lightly dug up with a fork to the depth of 3 or 4 inches, at the same time well break up the hard clods of soil, the result of much trampling; after which the alleys should be lined out to the proper width, and this should be done at such a distance from the wall as to admit the necessary attention being given to the trees at all times.

The Orchard.—During this month attention should be given to the pruning of standard trees, otherwise they will become but a crowded mass of branches, covered with lichen in wet soils, and bearing fruit of poor quality. A well-managed orchard should be looked through yearly; by doing so the trees are kept in a healthy condition, and the crop is of increased value and goodness. In pruning, first remove the wood which is dead; all cross and badly placed branches should then be cut out, and if the heads are still crowded, some of the remaining branches may be removed. Where moss and lichen are found trees being dusted over with powdered lime (a little soot may be added to make it less conspicuous), choosing a still day for the operation, and when the trees are damp after rain. When there are many trees to prune, and the work is required to be done expeditiously, I can recommend the use of the "Standard" tree-pruner, it being a most useful implement for this purpose, as an experienced man provided with one and a pruning-saw can get through a great amount of work in a day. *A. Ward, Stoke Edith Gardens, Hereford*.

THE KITCHEN GARDEN.

SEEDS.—The earliest sowing of Celery should now be made in moderate heat. A seed-pan or two placed in a vinery where the Vines are breaking will be a convenient method for most persons. The Sandringham White is one of the best varieties for the earliest sowings as it is not so liable to bolt as some others. Tomatoes for growing outdoors may also be sown now, as the principal points to be observed to obtain a good crop of fruit being to sow early, and grow the plants to a good size before planting out. I have found Gilbert's Surpass one of the best varieties for this purpose, being a vigorous grower, a heavy cropper, and, moreover, the fruit is of first-rate quality. Preparations should be made for sowing a quantity of Peas on the first favourable opportunity. This sowing should consist mainly of the Marrow varieties, but it is well to sow a small quantity of one of the early kinds also; and in order to be prepared for another dry summer, it will be advisable, where labour is not abundant, to take out trenches as for Celery, digging in plenty of farmyard manure at the bottom of the trenches, putting into the trenches half the soil taken out, and then to sow the Peas; this will leave a shallow trench for watering and mulching afterwards, if these aids be found desirable. Radish seeds may be sown on a warm border, and covered with light litter or straw until germinated, when it must be removed by degrees, but kept in readiness for covering in the event of hard weather. A moderate hotbed should also be prepared for sowing Brussels Sprouts, &c., about the middle of the month. *W. H. Divers, Ketton Hall*.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY, FEB. 9.—Edinburgh Botanic Society.
SATURDAY, FEB. 11.—Royal Botanic Society, General Meeting.

SALES.

TUESDAY, FEB. 7.—Imported and Established Orchids, at Protheroe & Morris' Rooms.
Conifers, Roses, &c., at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., by Protheroe & Morris.
WEDNESDAY, FEB. 8.—Greenhouse Plants from Ghent, and Roses, Shrubs, Fruit Trees, Border Plants, &c., at Stevens' Rooms.
Plants, Liliun auratum, and other Bulbs, at Protheroe & Morris' Rooms.
THURSDAY, FEB. 9.—Imported and Established Orchids from Mr. F. Sander, at Stevens' Rooms.
FRIDAY, FEB. 10.—Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, FEB. 11.—Greenhouse Plants from Ghent, Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms.
Roses, Lilies, &c., at Protheroe & Morris' Rooms.

THE announcement of the death

ASA GRAY. of this eminent botanist will be received in this country with as much sorrow as it can be in his own. Apart from his scientific eminence, the clear-headed, genial character of the man endeared him to all with whom he came in contact. His vast knowledge, his untiring industry, his singleness of aim, his keen discrimination, his unselfish pursuit of science, his eminently judicial qualities, caused him to be respected even by those who exposed themselves to the sharp rapiers of his polished criticism. His work extends over more than half a century and was mainly devoted to the critical investigation of the flora of his native country, but he found time to undertake the preparation of text-books which are models of precision and elegance, he contributed much to the knowledge of tropical floras, he vastly extended our knowledge of geographical botany, he drew up numberless biographies and reviews all marked by the impress of his eminently judicious criticism. An American of Americans, a Bostonian, the colleague and associate of EMERSON, LONGFELLOW, HOLMES, MOTLEY, PRESCOTT and so many more, he was yet regarded here almost as an Englishman *pur sang*. No one on this

side of the Atlantic thought of ASA GRAY as an American cousin—he was here always a brother Englishman. This arose, not only from community of language, but from close personal intercourse and entire sympathy. He combined the love of freedom and of progress of the American with the conservative instinct of the native Briton. When DARWIN published his *Origin of Species* GRAY speedily became the apostle of the new doctrine on the other side of the Atlantic. His, however, was no blind hero-worship or indiscriminating partisanship. No one had a better right to pronounce an opinion upon the questions proposed, no one could be trusted for a fairer and more impartial judgment; and so we find him ardently advocating Darwinian principles in science without sacrificing one jot of the religious opinions which came to him from his Puritan descent and surroundings. ASA GRAY was, of course, the friend, not only of DARWIN, but of all the leaders of botanical science in this country—not to speak of others, of the HOOKERS, of LINDLEY, of BENTHAM, of WARD, of HARVEY. It was a privilege on one occasion to meet him at the same table with HOOKER, and BENTHAM, and DE CANDOLLE, and many others less widely known,—a conjunction as interesting in its way as any that history can record. In truth, GRAY was a not infrequent visitor to our shores, always in company with his wife, whose graceful manners secured her as warm a welcome as that bestowed on her husband.

He passed the greater part of the last summer in this country, and then received all the honours our Universities had to bestow. Long before, of course, he had received from the societies and colleagues with whom he was more immediately in contact the recognition his talents and worth exacted; but it was not until the last year that our Universities, as representatives of the learned public, confirmed the verdict of the specialists. Oxford, Cambridge, Dublin, Edinburgh, all admitted him to the honorary doctorate, so that in one of his last letters to the writer he playfully signed himself, "Your much be-d—d old friend!"

As a horticulturist or horticultural botanist ASA GRAY, though for many years in charge of the Cambridge Botanic Garden, which was much extended under his rule, was not so well known as in other departments of botany, nevertheless that he took great interest in the subject is shown by the latest letters we received from him after his return to America in the late autumn of 1887, when he writes:—"You see that I am home again and busy," the business in this case consisting in the critical examination of several plants which he had gathered in the nurseries and private gardens of this country that he had lately visited. ASA GRAY, as will be judged from his books and memoirs, was no dry-as-dust student of dried plants; their life-history and the working of their mechanism had a charm for him, and no man was happier than he in popularising, in the best sense of the term, the discoveries of science, and creating an interest in them among the general public.

He left this country, after a prolonged visit, in September last, settled down to work, not only in his study, but on that public business which no man of his eminence can hope to escape, travelled to Washington to take part in the proceedings of the Smithsonian Institute, seemed by his friends and colleagues to be in his usual cheerful, active frame of mind, when suddenly the end came, and after lingering for a few weeks, this great good man died, on Monday last, at the ripe age of seventy-seven. America had

no truer son than he, philosophy no more noble prophet. All honour to his memory, deep gratitude for his work and his example.

A portrait and a brief sketch of his works were given in our volume for 1872, p. 1421.

CYCNOCHES CHLOROCHILUM.—To one whose love of Orchids is not confined to those whose attractions lie in their size and gorgeousness of colour, there is no section of the order which will more deserve inspection than that known as Stanhopeae. To it belong the Stanhopeas, Mormodes, Catasiums, Coryanthes, and Cycnoches, all of which are old and well-known genera, interesting because of their wonderful shape and structure, and the remarkable arrangements in their flowers to secure fertilisation. One of the "Swan Orchids"—*Cycnoches chlorochilum* (fig. 24)—was lately flowering at Kew; in colour it is inferior to the other species, but is superior to most in the size and substance of its flowers. With the exception of the lip, which is canary-yellow and ivory-white, with an olive-green patch at the base, the flower is of a uniform greenish-yellow colour, the petals measuring 3 inches in length, and over an inch in width. The column is thin and very long, curving upwards (the flower being inverted) and enlarged at the apex, where the pollen masses are inserted; by a little exercise of the imagination it may be brought to resemble the head and neck of a swan—hence its popular name. In the morning the flowers emit a somewhat pungent but not disagreeable odour, which towards evening becomes much less apparent. When growth begins in the spring the old pseudobulbs should be potted in peat, with an addition of about one-fourth of loam, from both of which all particles of earth must be shaken; not only should the pots be quite half-filled with drainage, but pieces of broken brick and charcoal mixed with the compost also; they should then be placed in the lightest position in the East Indian-house. Water must be given sparingly until new roots are produced; afterwards freely, but carefully, always guarding against moisture lodging in the centre of the new growth. To secure a continuation of good health the plants should be kept completely at rest from the time the leaves drop off until growth recommences. This can best be attained by placing them in a cool, light, and airy position. This species was introduced from Demerara in 1838.

"KEW BULLETIN."—The January number is occupied with further details relating to colonial fruit, which are of interest as showing the resources of the various colonies and affording some indication of the manner in which our home-growers may find themselves affected by colonial competition. Sir HENRY ROSCOE is cited in support of the assertion that sugar-planter have little to fear from the introduction of saccharine, which is of no value as food, though that substance may be used in cases of diabetes, where ordinary sugar is injurious.

"THE ROSARIAN'S YEAR-BOOK."—With a portrait of Mr. T. B. HALL as a frontispiece this little book comes before us as usual at this season, and affords a pleasing exemplification of the old proverb, *Tot capita tot sensus*. The symposium on stocks may be mentioned in illustration, and Mr. MAWLEY—prudent man—sums up by saying that, in his opinion, "it is advisable . . . to have a certain proportion of plants of each stock, and . . . these should be supplemented by some dwarf standard and own-root Roses." Good advice, this. Mr. HALL descends upon his "Tea-house," by which he means "a house constructed for Tea Roses." This is simply an unheated span-roofed orchard-house, with a good border, as for Vines; but let not the careless amateur think that this is all that is needed; Mr. HALL's "treatment," as here recorded, shows that no little care and attention are demanded. Mr. MAWLEY contributes his customary review of the weather in relation to Rose growing—a review which is of great permanent value.



FIG. 24.—CYCNOCHES CHLOROCHILUM: COLOUR GREENISH-YELLOW. (SER P. 144.)

THE BOTANICAL RECORD CLUB.—The report for the years 1884–1886 inclusive, specifies hitherto unrecorded localities for wild plants, with occasional critical remarks, as in the case of the curious hybrid *Vaccinium*, supposed to be a cross between *Myrtillus* and *Vitis* *Idæa*, which is here shown to have been recognised at least twelve years ago.

THE PADUA BOTANIC GARDEN.—Some years since we published a view of this remarkable garden—memorable, among other things, for the visit of Goethe, whose ideas of the metamorphoses of plants received an impulse from the successive stages of unfolding manifested in the leaves of a *Chamærops humilis*, and witnessed in this garden. Many trees and plants which require shelter in more northern climes do well here in the open air, and Dr. G. B. DE TONI has recently published a pamphlet giving details as to the more remarkable trees, their heights, &c. An *Araucaria excelsa* (under glass) has attained a height of over 70 feet. A *Vitis Agnus-Castus* is still in existence, though first noted in 1561 and again in 1650. This shrub is supposed to date from the origin of the garden in 1545. A remarkably contorted *Plane* of large size is one of the curiosities of the garden. Dr. TONI adds a synoptical table of over a hundred of the more remarkable trees, with the date of plantation and the present dimensions, and gives a similar list, without measurements, of other trees and shrubs.

CASSELL'S "POPULAR GARDENING."—We have just received the first part of the new issue of this useful and truly "popular" publication, which is edited by Mr. D. T. FISH. The work is well illustrated, and contains contributions on a great variety of subjects, by well-known writers, dealing with both practical and scientific gardening.

SOUTHAMPTON HORTICULTURAL SOCIETY.—We find from its report that this useful Society still maintains its position as one of the most popular in the southern parts of the country. The summer show, which fell on the August bank holiday, was visited by 20,000 persons—a number that would doubtless have been greatly exceeded but for counter attractions, and the inadvertence of the railway authorities in not providing special trains. Notwithstanding the expenses due to the Jubilee celebration in Westwood Park, and the cost of its maintenance since, the Society was able to hand over the handsome sum of £135 to aid the building fund of the new wing of the infirmary. The total expenses for the past year were £1253 1s. 6d., a cash balance of £24 4s. 4d., and a total balance of £728 10s. 1d. remaining on hand. Two significant items of expenditure appear in the account, viz., for advertising the two shows the sum of £54 15s. 2d., and for the services of a band on the two occasions a sum of £82 12s.

THE UNTIMELY FALL OF THE LEAF.—It is a circumstance well known to cultivators, that many plants, especially those which are regarded as evergreen, such as *Engenia*, *Acacia*, *Azalea*, *Camellia*, and *Erica*, cast their foliage in large quantities when brought into the glasshouse from the open air in the early autumn months. Hitherto the reason for this vexatious malady had not been ascertained with certainty; but, as we learn from the *Hamburger Garten und Blumen Zeitung* for January, Professor P. SONNEN has recently made the discovery that it is due to vital activity at the base of the leaf occurring at an unseasonable time. As is usual in deciduous plants a layer of globular cells is formed in the leaf-stalk, the substance of which, owing to the form of the cells and the looseness with which they cohere, has so little cohesion, that when the leaf becomes heavy with moisture, drawn up by the roots, and the transpiration is small, or is entirely absent, as it is during the cool autumn months, the leaf-stalk snaps asunder at the point intersected by the layer of cells. To counteract this tendency of leaf dropping, the Professor advises in some cases that the plants should

be placed in a higher temperature, and in full sunshine, so that the balance may be restored between assimilation by the root and the transpiration by the foliage; and in other instances to reduce considerably the amount of water afforded to the roots, and for short periods to allow the plants to remain very dry. He believes that short periods of hunger are as wholesome in their action on plants as on the human system.

DR. BOSWELL.—The death of this distinguished botanist is announced. Better known under his former name of SYME, Dr. BOSWELL's chief claim to recognition lies in his careful critical elaboration of SOWERBY'S *English Botany*, the last edition of which occupied his attention for many years and which is a veritable monument of industry and critical ability.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual general meeting of this Society took place at Anderton's Hotel, Fleet Street, E.C., on January 31—Mr. R. BALLANTINE, Vice-President, in the chair, in the unavoidable absence of the President, Mr. E. SANDERSON, there being a very good attendance of members. The annual report, which was read by the Hon. Secretary, Mr. WILLIAM HOLMES, sets forth that the past season was one of a very successful character. The September show proved both good and interesting, Dahlias and Gladioli being a very attractive feature. The November exhibition was in every respect the largest and most attractive exhibition ever held, cut blooms having been in excess of any previous year; groups arranged for effect were numerous and very fine, fruit and vegetables largely represented and of the highest quality. The January show was vastly superior to that held the previous year, and surprised by the extent and quality of the blooms all who saw it. The Floral Committee held several meetings; the attendance was always good, and every award made was only after the most careful consideration. The business meetings of the Society will for the future take place in Anderton's Hotel, Fleet Street, E.C. The report concluded by thanking the donors of special prizes, and especially the Trustees of the Veitch Memorial Fund, for their liberal grant of medals and cash. The income from all sources was £704 12s. 8d., including £169 19s. 6d. in the form of annual subscriptions; £149 1s. as donations, special prizes, &c., and £218 5s. 5d. from the Royal Aquarium. The remaining items of income include entrance fees, affiliation fees, medals and certificates, advertisements, sale of admission tickets, &c. The expenditure was £704 7s. 2d., leaving a very small balance in favour of the Society. Of this sum, £398 13s. 6d. was paid in prizes at the three exhibitions. The report having been adopted, the retiring officers and auditors were re-elected. In accordance with the rules of the Society, one-third of the committee retired by rotation, and, with one or two exceptions, the whole of the retiring members were re-elected. The Floral Committee will be appointed by the committee at the first meeting of the committee, and it is supposed that for the future one-third of the Floral Committee shall retire annually, but be eligible for re-election. Among the suggestions put forth in reference to the present year, was one that the Society should hold a provincial show, and a sub-committee was appointed to consider the matter, and bring up a report at an early meeting of the committee. The revision of the catalogue was also relegated to a sub-committee. The meeting closed with the usual complimentary votes. We think it a pity that the "Floral Committee" should be so named, and indeed lament its very existence, except for Chrysanthemum purposes.

TOMATOS AND CAPSICUMS.—The *Bulletin* n. 31 of the Agricultural College of Michigan contains an elaborate classified synopsis, with descriptions, of 110 kinds of Tomatos, with illustrations of several. The plants were grown in the open air, and allowed means for correcting the nomenclature and adjusting the synonymy. To ascertain the productiveness, the fruits from one plant of each variety were picked, counted, and weighed. By this means a

vast body of information has been obtained. The effect of cultivation has been chiefly manifested in the increased size and solidity of the fruit, but neither productiveness nor earliness have been relatively increased. The best market varieties are noted as *Acme*, *Paragon*, *Queen*, *Puritan*, *Optimus*, *Red Valencia Cluster*, *Potato-leaf*, *Mikado*, and *Yellow Jefferson*. Similar details are given in the case of thirty-five sorts of "Peppers," i.e., *Capsicum*. Onions, and Strawberries are treated in like manner, but for the present with less elaboration. Other matters of practical importance engaged the attention of the Professor and his pupils, so that the report, which is "respectfully submitted" by Professor BAILEY, is a substantial contribution to knowledge.

XAVIER GREGOIRE.—At the close of last year this renowned Belgian pomologist died at an advanced age, having been born in Brabant in 1802. He was a successful man of business, an active and devoted citizen, but it is principally as a raiser of seedling Pears that he is known out of Belgium. His activity in this way was prodigious; his seedlings may be counted by the hundred thousand. Of these, of course, only a small proportion have survived. A week before his death he was still engaged in selecting the seeds for future sowing. Professor RONDOAS has devoted a sympathetic biographical notice of the veteran to the *Bulletin d'Arboriculture*.

"THE VEGETARIAN."—Under this title the first number of a weekly publication has been issued, inculcating, as its title indicates, the practice of vegetarianism. Without adopting vegetarianism pure and simple (if that were even possible), it must be admitted that a diminution of meat, and a large increase of fruit and vegetables, would be an improvement in the dietary of the majority. Excesses in any direction are bad, but it is impossible to draw a hard-and-fast line, or to infer from the experience of one man that the same regimen that is serviceable to one man will likewise be so to another. We perceive in the present number that Mr. F. W. NEWMAN by no means forswears eggs, which are certainly potential chickens, and as such should be tabooed by strict vegetarians.

SUTTON GARDENERS' ASSOCIATION.—This Association, which was formed in 1886 as a branch of the Birmingham and Midland Counties Gardeners' Mutual Improvement Association, has had during the past year a very pleasant existence. The number of its members has largely increased, and the attendance has been very good. Several papers have been read, the following being a few of the subjects taken:—Manures, exotic Ferns, soils and manures, *Amaryllis* as grown in England, and others. The Society also had two shows. The first took place on March 15. The competition was confined exclusively to members of the Association, and there was, consequently, a rather small number of exhibits. The second exhibition was the Chrysanthemum show, which took place in the Town Hall, on Thursday, November 24, and prizes amounting to close upon £25 were offered for competition.

ADELAIDE EXHIBITION.—We learn that Messrs. SUTTON & Sons, Reading, have been awarded a Highest Prize Medal for their book, the *Culture of Vegetables and Flowers from Seeds and Roots*.

MAIDENHEAD HORTICULTURAL SOCIETY.—The annual show of this Society is fixed for Thursday, August 16, 1888.

MR. W. BEAN, who has been the principal man in the Orchid department at Kew for the last two years, has been promoted to the post of Foreman in the Temperate Plants department. Mr. BEAN was formerly employed in the gardens at Belvoir Castle.

PUBLICATIONS RECEIVED.—*Paisley and West of Scotland Horticultural Association Constitution and Bye-laws.* (Paisley: J. & J. COOK, 94, High Street.)—*Botanical Record Club Report for 1884, 1885, 1886.* By F. A. LEES, M.R.C.S., &c. (Manchester: J. COLLINS & Co., King Street.)—*Allotments: The Solution of the Agricultural Problem.* By the Rev. W. TUCKWELL, M.A. (London: JARROLD & SONS, 3, Paternoster Buildings.)

NATIONAL SCHOOL OF FORESTRY.

THE following communication has been received by us for publication :—

Steps have recently been taken by the Corporation of Southampton, in conjunction with the Council of the Hartley Institution, to obtain the co-operation of other Corporations and local bodies throughout Hampshire in promoting a general memorial to Government relating to the proposed National School of Forestry, and the scientific and experimental work in forestry connected therewith. A Select Committee of the House of Commons reported on the subject last session, recommending the establishment, eventually, of National Forest Schools in England, Scotland, and Ireland, with a view to a general improvement in the science and practice of forestry in the United Kingdom, and also in India and the Colonies. Hampshire is essentially the forest county of England. It contains not only more public forest land than any other English county, but more than all the other counties combined. The request is therefore only a reasonable one, that the proposed Forestry School for England should be located in Hampshire, and that the scientific and practical forestry connected with it may be conducted on the very extensive Crown lands in this county. Memorials to this effect are now being sent up to the Lord President of the Council, that of the Corporation of Southampton, with which the others are for the most part identical, being expressed in the following terms :—

To the Right Honourable Viscount Cranbrook,
Lord President of Her Majesty's Most Honourable Privy Council.

The Memorial of the Mayor, Aldermen, and Burgesses of the Borough of Southampton, under their common seal, humbly sheweth—

I.—That your memorialists are much interested in the general subject of practical and scientific forestry, in the preservation and greater utilisation of the Crown forests, in the general improvements in the methods of growth of timber and underwood, and in the acclimatisation in England of foreign trees of economic value.

II.—That your memorialists have heard with much interest of the proposed establishment of a National School of Forestry for England, at which Indian and Colonial pupils in forestry could also receive instruction.

III.—That the following Crown forests are situated in Hampshire and the Isle of Wight :—

1. The New Forest, comprising about 63,000 acres, by far the most extensive forest in the United Kingdom, of which by Acts of Parliament 16,000 acres cao at any time be enclosed for planting, while the remaining 47,000 acres, on which trees may be growing, at any one time are to be left unenclosed.

2. Woolmer Forest, now enclosed and free from common rights.

3. Alice Holt Forest, now enclosed and free from common rights.

4. Beer Forest, now enclosed and free from common rights.

5. Parkhurst Forest, now enclosed and free from common rights.

There are also Harewood, Pamber, Stanstead, and other extensive forest lands in private hands.

IV. That these Crown forests are situated on the following geological formations :—Lower greensand, gault, upper greensand, chalk, Reading beds, London clay, lower Bagshot, Bracklesham, and upper Bagshot beds, Barton clay, Ileadon beds, Hampstead beds, drift gravel, alluvium, and bog; and that consequently they contain almost every variety of soil for timber growth, and upon selected areas of which experimental plantations, with a view to the acclimatisation of suitable foreign trees of economic value, and adapted for special soils, might easily be carried out.

V. That large areas of the New Forest are especially in want of scientific forestry, the trees in many parts of the forest being rapidly decaying owing to the restrictions applied by existing Acts of Parliament.

VI. That the climatic advantages of the forest parts of this county make it admirably adapted for

the growth of timber, and for a great variety of work in practical forestry.

Your memorialists believe that experimental work in practical forestry such as would be necessary for a national school of forestry could be carried out on the Crown forests in Hampshire better than would be possible in any other part of England, seeing that Hampshire contains more Crown forest land than all the rest of England combined, and is easily accessible from the metropolis and other parts of England.

Your memorialists therefore pray that the proposed National School of Forestry may be located in Hampshire.

And your memorialists will ever pray.

(Corporate seal appended.)

Dated January 21, 1888.

ROSES.

SOME OTHER OLD ROSES.

ALLOW me to supplement the remarks of "Wild Rose," at p. 42, by alluding to several other old varieties of the Rose, besides those named by him. For several years past I have been collecting all the old Roses that I could meet with, and have got together a large number of varieties; but of them all there is not one that I value more than that old favourite, Celeste—not Celestial, which is the Rose that was sent to me for Celeste, whenever I gave an order for the latter to any trade grower of Roses, and I very much doubt if there are half-a-dozen men in the trade who have it in their selection. My first plants of Celeste were kindly sent me by a lady correspondent from Ireland, and from other sources I learn that this Rose is not so unknown in Ireland as in England. It is unfortunate that Celeste is only a summer flowering Rose, and not very vigorous; and as a matter of fact it is rather a weak grower, low in stature with a branching habit, with but few spines and glaucous foliage. The flower in the bud state is a real gem; the colour soft pink, fading at the base of the petals to a lovely peach colour, while its fragrance to my mind surpasses that of all other Roses. This Rose is hardly enough in the West of England, but from its appearance I doubt if it would stand a severe winter in the open in the North of England.

Gloria Mundi, or striped Cabbage Rose, I was fortunate enough to meet with in an old-fashioned garden down in the West, from which source it has since been distributed rather freely, and except that in its habit it is much less vigorous than the old Cabbage Rose, it is the counterpart of that sort in the size and fragrance of its flowers; but the petals are so numerous and thin, that they are apt to burn under strong sunshine, and wind and rain quickly spoil them. Notwithstanding these defects, I know of no other Rose that is more remarkable for its exquisite colouring; every petal is striped with an indescribable tint of violet-pink, and the stripes are so irregular that the appearance of a quite expanded flower is uncommon.

Maiden's Blush Rose has nothing particularly attractive about it unless it be left to grow unrestrained, and then it will produce large clusters of flowers in great profusion; and as the foliage is large and handsome, a good-sized bush of it is well worthy a place in a corner of the rosery. It is just the Rose to plant to overtop a low wall or to fill up an odd corner where other Roses would not grow well, as the plant is not particular as to soil provided it be not too heavy; and it will thrive if it gets but a moderate amount of sunshine.

The old Tuscan Rose is not so hardy as the Maiden's Blush, neither is it quite so vigorous in growth, and it appears to require a drier soil and fuller exposure to the sunshine to allow of its thriving properly. With us, in fairly good soil and situation, its growth is satisfactory. It flowers in large clusters, and at the same time as the Maiden's Blush, for which it is a suitable companion, on account of the contrast in colour, which is a purplish-maroon; but it is proper to remark, for the information of those who do not know these Roses, that

the individual flowers are smaller than those of the majority of the hybrid perpetuals.

The white Burgundy, a miniature Provence Rose, provides a link with old times, otherwise the variety is scarcely worthy of mention, as it has not much merit. In this neighbourhood it does not appear to be vigorous enough to withstand the climate, and although the growth is somewhat weak, the plants produce a number of fairly large pure white flowers, which are rather flat in form. We have another Rose very similar in habit of growth to this, only the flowers were much larger, and it is very full; every petal is mottled with lilac-pink on a white ground. Whether it is an old sort or not I do not know, nor do I know its name. [Unique Panaché Superb? Ed.]

Besides the foregoing there are in the collection Spong, which produces small pink flowers on neat wiry growth; also De Meaux moss, both miniature Provence; and the better known York and Lancaster Rose. I hope to say something on another occasion of some others that I have grown and of the moss Roses. I was sorry to see that "Wild Rose" did not set a higher value on the moss Rose, White Bath; for with me, growing on its own roots, in a good soil, it is without doubt one of the most effective of all white Roses for garden decoration. I have had visitors who have admired the Rose, and asked what new sort it was. Nearly all the moss Roses are very free to flower if properly treated, and there is not one that surpasses the White Bath in that respect. The flowers are unfortunately very flat when fully expanded, but the beauty of moss Roses is the partially opened bud; neither Boule de Neige nor Aimé Vibert can compare with it for effectiveness as a garden Rose when planted in the moss. It is of the purest white, and what further enhances its value is that the flowers stand the weather well. Unique, also a white flower, sometimes tinted with lake, also grows here, but it is less vigorous than White Bath. Both these Roses make good standards, but I advise all to grow them as dwarf bushes, and to plant them in well prepared soil, and then to leave them alone and to allow them to grow in their own way without any pruning. This is the treatment we give all moss Roses, and we are rewarded with plenty of flowers. J. C. Clarke, Cothelstone, Taunton.

SCOTLAND.

PAISLEY AND WEST OF SCOTLAND HORTICULTURAL ASSOCIATION.

WE have before us the annual report of this Society, containing full reports of the papers read at the monthly meetings. These comprise papers on the culture of the Peach, Heath, Camellia, and other plants, which are generally excellent. Readers of papers of this sort would do well strictly to confine themselves to the record of their own observations and the legitimate inferences therefrom. When a gardener begins by referring to Latin and Greek authors, with an occasional allusion to the Hebrew Scriptures, we advise the reader to pass on to matters upon which the writer is better worth hearing. For instance, in one paper before us the reader is told that "the Latin for Melon is *Pepo*—to cook!" This is so surprising that we cannot muster courage to contest the statement that the Hebrew is *Batich*. These form the introduction to a number of historical details, which can hardly be looked on without suspicion, and serve to throw discredit on the more practical portions of the essay.

The following arrangements have been made:—February 7.—Mr. Alexander Johnstone, Vice-President, "The Fuchsia." March 6.—Mr. Francis Davidson, gardener, 46, Moss Street, "Hardy Fruits." April 3.—Mr. Henry Maxwell, gardener, Ralston, "On the Cultivation of Annuals." May 1.—Mr. Thomas McCrorie, Kibbarchan, "How Flowers are Fertilised." June 5.—Mr. Wm. M. Moir, Vice-President, "The Narcissus." July 3.—Mr. John Suther-

land, nurseryman, Lenzie, "New Holland and Stove Plants." August 7.—Mr. John M. B. Taylor, Assistant Curator at the Free Library and Museum, "A Practical Demonstration of the Mineral Elements of Plants." September 4.—John Woodrow, jun., Esq., Neilson Institution, "The Comets." October 2.—Mr. James Walker, contractor, 19, Queen Street, "On the Formation of Bowling Greens and Tennis Courts." November 6.—Mr. John Williamson, Bishopston, "The Culture of the Strawberry." December 4.—General meeting.

AMERICAN NOTES.

THE "AMERICAN GARDENERS' MONTHLY."

We learn that, in consequence of the death of Mr. Marot, the *Gardeners' Monthly* will in future be fused with the *American Garden*. The *Gardeners' Monthly* has been edited by Professor Meehan since 1858, and has been remarkable for the intelligence and originality with which it has been conducted. So far as possible, no mere routine practice has been urged in its columns, unless a good reason could be found for it. Professor Meehan's extended experience as a nurseryman, his frequent and lengthy travels, and his knowledge of plants in a state of Nature as well as under cultivation, gave him the opportunity of acquiring information of the most varied character, and of which his readers had the benefit in the *Gardeners' Monthly*. It is to be hoped that horticultural literature may still be enriched by his communications.

INARCHING.

SOME time since (July 23, 1887) we published an interesting article from a Danish gardener in Sweden relating to the effects likely to be produced by grafting or inarching. About the same time we also published an account of some similar experiments made by Mr. Ronpell. In the explanation of the consequences and effects of grafting there is nothing to be done apart from carefully devised, accurately performed, and well recorded experiment. Theory is useful as a guide to experiment, but it is obvious that by itself it is in this case useless. Mr. Andersen's experiments were conducted with the object of ascertaining what, if any, influence the leaves of one variety would have upon the berries of another variety united to it by inarching. Mr. Andersen shall tell his own story:—

"My experiments were done in three different manners, but rough diagrams will best explain the way it was done. At a (fig. 25) leaves from another variety are inserted above the bunch; in b the bunch with three or four of its own leaves is put on another sort; [Unfortunately the bunch is omitted in the engraving, but its position may be imagined at the * on the left of the sketch between the two leaves. Ed.] at c the bunch is put on another sort with none of its own leaves at all. The inarching was done about a fortnight before the blooming period, and they were cut as shown on diagram just when the thinning was finished. There were several examples of each class, and they all went on well, with a single exception. The sorts used were Van der Lahn, Trentham Black, Duke of Buccleuch, Black Hamburgh, Duchess of Buccleuch, and Muscat Hamburgh. The sorts are planted in the order named, so there was a good selection of different colours and flavour, and the experiments were varied in several ways. The Vines are from eight to nine years of age, so there was a good crop of normal bunches to compare with. When the Grapes were ripe there was not much difference to be seen between the normal ones and those that were inarched, some of the latter were a little later and smaller, but not much; there was no trace of colour on the white sorts that were put on black varieties, and on testing there was no flavour to be detected in such unflavoured sorts as Van der Lahn and Duke of Buccleuch put on Trentham Black; nor Muscat flavour in Duchess on Muscat Hamburgh—not even in the experiments of class c, which I consider the most decisive. That the inarched bunches (especially in classes b and c, where they were above an union), experienced a little delay in ripening and growth is no wonder considering the difficulties the circulation had to overcome at the union. I was

rather surprised that they succeeded so well as they did. The most interesting fact gained by these experiments is that a bunch of Grapes, cut away from all connection with its own sort at an early period and left alone to grow and mature on a quite different sort (even without a leaf of its own, as in c), is still able to be true to itself in all respects—shape, colour, and flavour. This complete independence is astonishing when we consider that all its work has to be done with leaves of another sort. The Editor's impression (as expressed with my earlier note, p. 108, July 23)—that the bunches derive their main supply of food [up to a certain time] from the old canes from which they spring, and that the work of the newly-produced leaves is mainly, but not entirely, to act as feeders to supply stores in the old wood, and not to feed the young bunches except to a limited extent—I cannot accept at all. It may be true at an early period, before the young leaves are full grown and able to work, but from the thinning period to the ripening we cannot call the leaves newly-produced or the bunches young. That the leaves are wanted—and wanted strong and healthy—in the said period, to get good Grapes, especially as regards colour and flavour, is well known to all Grape growers; even the best

stock. The individuality of the bud is preserved. Still, there are occasional exceptions, and in the study of these exceptions will probably be found the clue to the explanation of the phenomena. Increased size, variations in degree of precocity and of hardiness, are changes that take place commonly, so that even in ordinary cases it is probably nearer to the truth to say that the changes that occur are not of a directly tangible character, than to say that no change at all takes place. The subject has assumed increased interest of late years from the discovery of the passage of threads of protoplasm from one cell to another through minute pores, whereas formerly the notion prevailed that each cell was a closed organism, through whose walls only fluid could pass by osmotic action. Would that some of our histologists and physiologists would investigate grafts from this point of view.

FLORISTS' FLOWERS.

NEW VARIETIES OF DAHLIAS.

THE following notes on the Dahlias of 1887 were made during the season at the Handsworth Nurseries, Sheffield, where these were grown, together with over 500 others, comprising the best of the older varieties. Owing to the dryness of the season, and the smallness of the plants, about one-third of the new ones did not bloom until very late in the season; consequently it was not possible to decide as to their merits as flowers fit for exhibition.

SHOW VARIETIES.

Bendigo (Turner) is a purplish-crimson flower of perfect form, good habit, and very constant; it is a lovely variety, of the same form as Lord Chelmsford, and its only fault is, that of a very soft petal. It grows to 3 feet high.

Colonist and the following are of Messrs. Keynes & Co.'s raising. This has flowers of chocolate and fawn colour, and is quite a distinct and new colour in Dahlias, but it will not rank high as an exhibition flower, owing to its reflexed and pointed petals; still, as a decorative variety, it is one of the best. Four feet: the average height is 6 feet.

Crimson King has deep crimson-scarlet flowers, and nice dwarf habit, making it certainly one of the best varieties. It is very constant, and is one that is sure to be seen in winning stands during the forthcoming season. The height is about 3 feet.

Defiance, a dark scarlet, is a beautiful variety, coming on early in the season. It requires to be thinned severely. Height same as the last-named.

Eclipse has bright orange-scarlet flowers, and is one of the finest scarlets sent out for many years. It is a good grower. No new variety has shown so much improvement in its flowers, as they continue to open each being better than the earlier ones. It grows to a height of 4 feet.

Golden Eagle is a yellow flower, deeply edged with scarlet, of fine form, with a good shell-like petal, and is likely to hold its own as an exhibition flower. It is of full size, and very constant, and the height is about 3 feet.

Illuminator has dark red flowers, beautifully shaded with orange. A pretty variety that should make an excellent back-row flower in a stand, but it has not the kind of petal that is required in a first-class show flower. The height is about the same as the last named.

King of Purples.—A very fine purple, and beautifully formed flower, but which, owing to the great warmth of the season, came of small size. If this variety can be grown sufficiently large it will be a valuable addition. It is rather taller than the last-mentioned: 4 feet.

Victor is of a dark maroon colour, and gives promise of being a valuable addition on account of its colour, and size, which is not over large. It is constant, and of similar height to *Illuminator*.

The next five varieties were raised by Messrs. Rawlings & Son, viz.:—

Mrs. Theobald, a rose-coloured flower with beauti-



FIG. 25.—INARCHING THE VINE.

In a leaves belonging to a variety different from that bearing the bunch are inserted above the bunch; in b the bunch * and leaves of one variety were both placed on another stock; in c the bunch only was inarched on another stock without any leaves of its own.

old wood will be of little use at that period—it will start the Vines well, and carry them some way, but not even through the blooming. Moreover, here the sort put on has not got any old wood at all of its own; it is simply independent. This fact (at least I consider it as such) is, as many other facts in plant-life, rather difficult to explain, as, for instance, the transport of starch from the leaves to other parts of plants, tubers or roots for instance, or of the force with which the sap in spring is sent upwards in trees, and many more riddles. *M. P. Andersen, Gunnarstorp, Sweden.*

Inarching has been practised from time immemorial, and in various countries. Our illustration at p. 149 (fig. 26), which we owe to Mr. Woodrow, shows how, at the present day, the natives of India make use of the process by inarching good varieties of Mango upon inferior stocks.

So far the vast bulk of evidence is similar to that mentioned by Mr. Andersen. No tangible change is effected in the scion by its union with a different

fully formed petals and outline, but which will, I think, be too small for exhibition. Three feet in height.

Mrs. David Saunders has a ground colour of rosy-lilac, which is slightly edged with white; it will prove a useful show flower of large size, but is rather flat and should not be thinned out much or it will become coarse. The height is about 4 feet.

Queen of the Belgians.—A delicate cream-coloured flower, the inside of the petals being soft pink. A very valuable exhibition variety, quite distinct from *Mrs. Gladstone*. It must not be over-fed early in the season, or the flowers will come coarse and hard-eyed. It will make a noble back-row flower, possessing every good property. I have seen six well finished and large flowers on a plant all ready together. Height 4 feet.

R. T. Rawlings is one of the best yellows raised, but not, as the raisers say, "the best." It is very constant, and the height is about 3 feet.

J. T. West.—This variety bears a good name, and is a thoroughly trustworthy variety for the exhibitor, besides being distinct in colour, yellow heavily tipped with purple. It is very constant and of medium size.

Nellie Tranter (Tranter).—Clear yellow, constant, nice form; but I cannot not agree with the raiser in calling it the equal of *Mrs. Gladstone*: another season will prove this. A very useful flower: 3 feet high.

Willie Garratt (Garratt).—Bright cardinal, of fine form and habit, very constant, and in every way first-rate. Much admired by everyone who saw it, especially by old florists.

FANCY DAHLIAS.

The following are both *Keynes & Co.*'s productions:—

Edmund Boston.—Orange, heavily striped with crimson. This is a very fine fancy, and should be in every collection. It is certainly one of the best and most constant ever raised.

Magnet.—Lilac, densely striped with rich purple; a very useful flower, and very constant as a fancy.

IMPOPON DAHLIAS.

These are well represented, and are in great demand as cut flowers. The finest of the new ones of 1887 were *Chameleon*, *Dandy*, *Don Juan*, *Eccentric*, *Gazelle*, *Hector*, *Iolanthe*, *Lady Jane*, *Mignon*, and a variety raised in the neighbourhood, namely, *Geo. Harris*.

SINGLE DAHLIAS.

All the leading varieties, but the most distinct is a variety sent out by Messrs. Fisher, Son & Sibray, last year, and called *Masterpiece*, blackish-maroon, the ends of the petals distinctly tipped with white, like *Coleus*. The *Shah*, with broad solid petals, stands a long time when cut, and is very constant.

CACTUS DAHLIAS.

are well represented as to sorts, but the name is misleading, as there is only one *Cactus Dahlia*, *Juarezii*; the remainder are simply decorative varieties, and for habit and free flowering there are many amongst the show and fancies that will more than hold their own with them. What is wanted is the *Juarezii* type of flower, with the dwarf habit of the best show and fancies—varieties with flower-stems long and strong enough to hold their flowers well up above the foliage. *J. H. W., Sheffield*.

PLANT NOTES.

ALPINIA OFFICINARUM.

This is a Chinese Ginger-like plant, and is the source of "Galangale," an aromatic stimulant, used for indigestion but not much known in England. A plant of it is now flowering at Kew. It has a Ginger-like rhizome, from which spring leafy stems 2 feet or more high with leaves arranged distichously from top to bottom; the leaves are about 1 foot long by 1½ inch broad. Flowers in a short terminal erect spike exactly as in *A. mutica*, but on a smaller scale; they are white, the tip scoop shaped, over 1 inch long and

wide, with numerous lines of red radiating from a yellow throat. *A. mutica* is also flowering now at Kew. It is similar in habit and size to *A. nutans* but the flowers are on an erect spike instead of a drooping one, as the name *nutans* implies. *W.*

DURANTAS.

The figure and note recently published in the *Gardeners' Chronicle* concerning these plants are of a somewhat tantalising character. The figure was taken from a plant flowered in India, and the cultural directions given are unfortunately not what would lead to the flowering of these plants here. Has any one flowered a *Duranta* in England? They are grown as stove plants in a few gardens, but they will not flower. In the West Indian colonies and even at the Cape these plants are used as hedges or specimen shrubs, much as we grow *Privet* here; and the effect is about the same till the plants flower, and then!



FIG. 25.—INARCHING THE MANO.

Imagine long arching wand-like branches covered with beautiful little sky-blue flowers, waving about in the wind, and lasting a long time. If we could get these plants to behave properly and flower with us as they do when under more natural conditions, they would constitute a new feature among stove plants. Have they ever been tried in the extreme south of England, growing them outside all summer and lifting and protecting them in winter—in short, under *Bouvardia* treatment? I have an idea that they would be a success. *W.*

TRYPHIA SECUNDA.

This plant is now flowering at Kew. It is one of the tiniest of Cape Orchids, and one of the least attractive. The tuber is small and fleshy, and it produces two shining green, fleshy, heart-shaped leaves a little more than 1 inch long. The scape is erect, simple, 5 inches high, not much thicker than a horsehair, and it bears eight flowers clustered about the top. The flowers suggest those of the common

Chickweed, being white with four linear segments, and a three-lobed lip; they are ¼-inch across. The species is a native of the Cape on the east side, where it grows on wet rocks and in other moist places. Botanically this little plant is interesting, but it possesses no true beauty whatever, not even as much as our *Ladies' Tresses*. Horticulturally it is worth knowing only that one may avoid it! *W.*

TREES AND SHRUBS.

ORNAMENTAL BERRIED TREES AND SHRUBS.

(Continued from p. 116.)

The broad-leaved Spindle Tree (*Euonymus latifolius*) is certainly one of the most showy of autumn shrubs. When suitably placed, it forms a large bush of usually a dozen feet in height, and during the autumn and winter months is thickly studded with its conspicuous fruit. These are composed of pink, pendulous capsules, which, when ripe, open and reveal the orange-coloured seeds, at which period they are particularly attractive.

Crataegus pyracantha Lalindii is one of the most attractive berry-bearing shrubs in cultivation, for not only are the berries of the brightest and most desirable colour, but they are borne in such profusion that the branches are literally coated with them.

The Mountain Ash (*Pyrus Aucuparia*) is, perhaps, too common for any but the lover of the truly beautiful to fully appreciate; and yet, when weighted down with its bunches of conspicuous fruit, it is certainly an object well worthy of our warmest admiration. Then it grows almost anywhere, the breezy hillside where scarce a particle of soil is to be found, or the shady woodland with its wealth of decaying vegetable refuse coming alike to this most unobtrusive of plants.

Roses of different kinds must on no account be omitted from our list of ornamental fruited shrubs for some species bear these in abundance and of the most conspicuous and pretty colours.

R. rugosa can well hold its own as a bright fruited species, and one that is of great value in ornamental plantings. The berries are large, of good shape, very freely produced, and of a most desirable and enticing orange-scarlet colour.

The European Box Thorn (*Lycium barbarum*) is of *Privet*-like habit, and bears a rich abundance of crimson fruit. It is a capital seaside shrub, and braves the fierce, and long-continued salt-laden winds with perfect impunity.

The Snowberry (*Symphoricarpos racemosus*), with its pretty white fruit, is totally distinct from almost any other shrub. The berries associate nicely with those of any of the before-mentioned shrubs, indeed afford a pretty contrast to the reds and scarlets.

The Fly Honey-suckle (*Lonicera*), as seen just now in some of the Kentish lanes and chalky downs, is truly of both interest and beauty, and we were quite charmed the other day to see an old fence draped with the twining stems and rich profusion of reddish berries of this interesting native plant.

Maule's Cydonia, during the autumn and early winter months, is thickly studded with its golden fruit, these being tinged externally, but usually only one side, with a rich pink, which offers a nice contrast to the golden-yellow of the fruit generally.

The Service-tree (*Pyrus Sorbus*) is another extremely pretty shrub or small tree, not only on account of the white downy undersides of the leaves, but brownish fruit, which is produced in abundance.

Barberries.—Amongst these are several berry-bearing plants of merit, and being perfectly hardy, of free growth, and extremely floriferous, they should find places in every garden. *B. Darwinii*, whether in flower or fruit, is truly a delightful shrub; while *B. aquifolia*, with its broad-angled leaves, is usually studded with fruit during autumn and early winter.

Eugenia Ugni, with its abundance of purple edible fruit, must find a place in our list. It is not hardy everywhere—a matter much to be regretted, for it is

certainly as ornamental a plant as has yet been sent to us from the coast of Chili. *A. D. W.*

EARLY FLOWERING HARDY SHRUBS FOR WALLS.

Outdoor flowers at this time of year being scarce, the undermentioned plants are worthy of notice. *Chimonanthus fragrans* and *C. fragrans grandiflora* are both deciduous shrubs, and, as the specific name implies, sweet-scented. In the South of England they are quite hardy, and succeed on east, west, or south walls, the latter being preferred for very early flowers. Of the first-named we have an old established specimen growing on the east side of the mansion which will not be at its best for three weeks, whilst one of *C. f. grandiflora* growing on a west wall has been in flower for the past fortnight, and promises to continue for some time. Both varieties do well, it is said, in a deep sandy loam, and I can certainly answer for their growing in a calcareous soil. Immediately after flowering is the best time to prune them. Cut back all shoots which have produced flowers to within an inch of their base, cutting out all weak growth, in the case of young plants, leaving the leaders intact until these have filled their allotted space. During the summer months allow the young growth to be quite free, so that the wood may get well ripened, as on this depends the quantity of flowers they will produce the following year. Propagation is effected by means of layering in the autumn.

Garrya elliptica.—This is certainly one of the most attractive of flowering hardy evergreen shrubs in the winter time, and deservedly merits a wide distribution. It is difficult to say why one so seldom meets with it, seeing that it was introduced into this country so long ago as 1828. It is very hardy, as with well ripened wood it will stand the test of frost at zero in the Southern Counties; add to this its freedom of flowering at a time of year when flowers are scarce, and we have here a plant which should be found in most gardens. The inflorescences are produced from the axils of leaves and points of young growth of the previous year, and consists of long pendulous catkins 4 to 6 inches in length, and of a silvery-green colour, forming a pleasing contrast with the dark-coloured ovate-shaped foliage. It is admirably adapted as a wall-plant on western aspects, as is here shown by a five years old plant having covered a space of 90 square feet. After flowering—or say the end of February—is the best time to prune the shrub, the operation simply consisting of cutting out lateral shoots and thinning out old ones where they are too much crowded. Nothing further will require to be done throughout the summer excepting on walls the nailing or tying in of the leaders, all breast-wood being allowed to grow untouched. Propagation may be done by layering in the autumn.

Jasminum nudiflorum is too well known to need any lengthy comment. Suffice it to say, its yellow flowers are very acceptable in January, and the plant is worth growing in all gardens where wall space can be afforded it, and that it is not fastidious as to soil or aspect. Prune the shoots after flowering by cutting them back to a short spur and thinning out old ones where there is overcrowding. *J. Horsfield, Heytesbury.*

THE FLOWER GARDEN.

OUTDOOR FERNERIES.—Where these exist any cleaning, planting, and renewing the labels should be done. Do not for the present remove last year's fronds from deciduous species, as these are Nature's best protection against the cold. The following are rather tender species:—*Cyrtomium caryotideum*, *C. falcatum*, *C. Fortunei*, *Lastrea atrata*, *L. opaca*, *L. Sieboldii*, *Polystichum proliferum*, *P. setosum*, *Struthiopteris orientalis*, *Woodwardia japonica*, and *W. orientalis*. Where new work is in progress it should be completed with as little delay as possible so that all planting may be done before the end of the month. In the making of outdoor ferneries no pains should be spared at the outset to render the work of an enduring character; space will not admit of details

being given, but I would mention three points as being indispensable to avert failure, viz., the natural shade afforded by a moist situation, and soil of a suitable character. If the natural soil of the place is unsuitable for Ferns, substitute other, consisting of sandy loam, leaf-mould, and peat—a peat possessing all good qualities being that in which the roots of wild Ferns abound. In planting the arrangement should be of such a nature that something of interest may be seen at any time of the year; to accomplish this, evergreen species should be planted freely, and do not, as is too frequently the case, allow deciduous kinds to predominate. Suitable accommodation in the way of rockwork should also be provided for a few of the smaller growing species, such as the *Aspleniums*; *Ceterach officinarum*, and some of the *Scolopendriums*, and it would be of additional interest if on a portion of the rockwork running water could be introduced, near to which those two British "filmies," *Hymenophyllum tanbridgeense* and *H. unilaterale*, might be grown. *J. Horsfield, Heytesbury.* [In making purchases of hardy Ferns, either native or exotic, the services of a grower of repute should be procured, as it is found that some species which succeed in one part of the country, are not equally adapted for planting in other parts. *Ed.*]

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

THE ROYAL HORTICULTURAL SOCIETY.—While agreeing with Mr. Woodbridge (see p. 118, Jan. 28), that it is desirable to secure the "sympathy and support of practical gardeners," yet I am afraid that the way in which he proposes to accomplish this will not meet with the approval of gardeners in general. Inasmuch as it is proposed to only "confer upon a limited number of the leading gardeners throughout the country the honour of Associate of the Royal Horticultural Society," I feel sure that any limitation scheme or process of selection, other than that which would admit of every gardener being able to obtain, by his own individual efforts, without the nomination or court influence of anyone; anything less must fall short of the mark. I quite agree with Mr. Woodbridge when he says that of "gardeners' names which occur in garden Directories there are men of various degrees of ability." This, of a necessity, will always be so; but he further proposes that this distinctive honour be only awarded to "those gardeners who had attained to a considerable degree of eminence in their profession." Just so; but what constitutes "a considerable degree of eminence?" I am afraid it is too frequently gauged by considerations other than what is achieved in practical gardening; that is, his eminence may only, or in a great measure, be due to the light reflected from his employer's coffers. Now to confer the honour of "Associate" on such an individual would not only be a sheer mistake, but also a manifest injustice to other gardeners less favourably placed, yet who may know considerably more about the practice and principles of their profession. And this leads me to the conclusion that the only fair and absolutely just method of selecting recipients for the honour and title of Associateship should be according to their knowledge of the practice and principles of gardening. There would be no difficulty in arriving at a pretty correct estimation of whether the candidate was deserving the honour. As there are always men on the Council of the Royal Horticultural Society who are in every way qualified to act as examiners, they could issue a short syllabus of what candidates would be expected to know, and then put a few test questions as they presented themselves for admission. I think it would be advisable not to make a high standard to begin with. An Associateship obtained in the way I have indicated would then become a reliable certificate of ability. Moreover, this scheme would place it within the reach of all who chose to qualify themselves; and whether they be gardeners to the King, Queen, my Lord, duke, or squire, it matters not. To all who gained an Associateship in this way I should, as Mr. Woodbridge says, give free access to the Society's committee meetings, gardens,

&c.; but I think if they subscribed half-a-guinea annually they should be entitled to all the privileges which at present belong to a two-guinea Fellow. If this were carried out, I do not see any necessity for having a guinea membership; such member could then either become an Associate or a Fellow. Should these few crude remarks take practical shape I should be glad to try for the Associateship. *F. Ross.*

I am watching the affairs of the Society with the greatest interest, and trust that we distant country-folk may come in for a share in the benefit of the new programme. A convenient exhibition day in the middle of the week, instead of Tuesday, would, for instance, be a boon. This, of course, is a trifle, but small matters sometimes either help on or prevent success. In any case, may all prosperity attend the Society on its new lines, and may the shadow of horticulture never grow less! *S. Wales.*

The suggestion put forth by Mr. Woodbridge is well-intentioned. He hopes to see real interest in the Royal Horticultural Society promoted in the minds of the gardeners of the kingdom generally by establishing an order of special merit. I have a poor notion of honours of this nature generally, but putting that aside, and admitting that such a proposal merits consideration, the point is, first, what body of persons is there to be found who can fitly and impartially select the 500 honoured men from the 5000? and, second, in what way are the respective merits of each man to be gauged or estimated in making the selection? And here I am thinking after all very much less of the 500 honoured in this perfunctory way—and I admit there are far more in the ranks of British horticulture worthy the honour—than of the 4500 left out of the selection, and each of whom, by the very act of omission, is dubbed as second-rate or inferior, not from faults, but because his merits have not found favour with a particular body in London. Really this proposal would have, if adopted, the effect of creating 500 dubious friends, whilst it would as certainly create four times that number of censorious critics. Let us have the half-guinea memberships, whether termed Associates or not; then there will be no arbitrary process of selection, which would hardly run on Darwinian lines; but every one who desires the appellation might secure it for the small annual charge of 10s. 6d. However, I am far more anxious to become a member of the Royal Horticultural Society on the half-guinea basis than to be found even one of the select 500, because I desire to give the Society some tangible support. This simple plan would save much complication. Under Mr. Woodbridge's proposal we should have half-guinea members, ditto Associate members, and finally Associates paying nothing. *Spade.*

I quite agree with your correspondent, "Spade" (p. 118), that this is a time when "a little practical help is worth a lot of sympathy," so far as the above Society is concerned; and if "Spade" will set an example of his own teaching, by handing to you, Mr. Editor, the sum of £5 for the old Society, I shall, of course, feel in honour bound to follow such a good and generous example. What does your correspondent mean by "officialised?" and is the "less restraint" to be applied to the income or to the expenditure of the Society? As to my becoming "Hibernianised," I can only say that as a Saxon in the land of the Celt, I have many reasons to feel thankful, and shall always openly testify to the many kindnesses and courtesies which have for some nine or ten years been extended to me on the Irish shore by "all sorts and conditions of men." The point in my letter to which "Spade" takes exception was to recommend a botanist for botany, and that a good experienced man of business should be obtained to manage and resuscitate the Society's affairs. Can "Spade" improve on this suggestion? *F. W. Burbidge, F.L.S.*

If the Society does not recover from its difficulties it will not be from want of advice. Among the remedies proposed I consider the one suggested by Mr. Woodbridge at p. 118 a step in the right direction if carried out in a liberal spirit. If the Society is to accomplish more in the future than it has done in the past it must be made a national society, and in order to do this effectually some such scheme as that which Mr. Woodbridge proposes must be carried out before a general interest in the Society's welfare can be raised. I have lived the greater part of my time at a considerable distance from London and in various parts of the kingdom, and find that in many instances people know very little, and possibly care very little, about the Royal Horticultural Society, simply because they have no connection with it whatever, but if connected

with the Society in a way like that suggested by Mr. Woodbridge a man would feel bound to further its interests in every possible way amongst his friends, also by contributing to the meetings, and in various other ways as the opportunity arrived. It is impossible for most of those at a distance to get to more than one or two meetings during the year, and the reports through the Press of the work done by the Society are necessarily very brief. The success of the Royal Agricultural Society has been quoted as an instance of what might be done by the Royal Horticultural Society, but besides the advantages the Royal Agricultural Society derives from its well-paid Secretary and regular provincial meetings it appeals to a much larger class than the Royal Horticultural Society can do. There is also much more capital influenced by its work, and the times are fast becoming strictly utilitarian. *W. H. Divers, Ketton Hall.*

GARDEN PEAS.—Praiseworthy as are the efforts made to reduce the number of varieties of our garden Peas I fear few of my brother gardeners, who have to supply a large and constant demand even from June to October inclusive, will have the courage of "Daring" in pinning their faith to one variety, or even "Spade's" trio, under all conditions of situation, soil, and climate. My own timidity in the matter would prevent my relying on less than the following half-dozen, three tall and three dwarf:—William I., Criterion, Champion of England, Gladiator, Marvel, and Omega—the first and last relied on solely for early and late crops respectively, and the intervening ones filling up the gap for main crops. The foregoing, as a whole, for productiveness and quality are seldom equalled, and never excelled; but for exhibition as well as for home show (for many of us are expected to grow as large Peas, even if not such croppers as our neighbours), I must yet add another trio, of larger podded kinds, of good flavour, but not so prolific and continuous as those already named. Heading this trinity I place Duke of Albany, later Evolution, and latest Sturdy. From repeated trials of the latter, I have hopes of it proving a fitting companion to Omega, with the additional merit of larger pods. In exposed situations, as here, where autumn winds are prevalent, I think tall varieties for late crops are not profitable, hence my leaving out Ne Plus Ultra. All tall late kinds have been discarded here in favour of dwarfs—Omega to wit. *J. R.*

—Gardeners who wish for a good supply of Peas from June till November will do well to try the following kinds. We have grown them for many years, can speak from experience, and are certain they cannot be surpassed. Earlies: Carter's No. 1, Sutton's Emerald Gem, Laxton's Prolific, Bishop's Longpod. Mid-season: Scimitar, Veitch's Perfection, Dixon's Dwarf Mammoth, Pride of the Market—2½ to 3 feet in height. Late: British Queen, Ne Plus Ultra, Victoria Marrow, Matchless Marrow—6 feet high. *J. M.* [Peas, like other plants, vary with locality, so that what will suit in one place will not grow satisfactorily in another. *Ed.*]

CYCLAMEN COUM.—The most beautiful spring flower now out at Oakwood is Cyclamen Coum; it is growing in full sun in a bed containing old mortar. After many experiments I am sure that this treatment suits hardy Cyclamens better than some other we have tried. Both flowers and leaves are finer and brighter in colour. *George F. Wilson, Heatherbank, Weybridge Heath, January 27.*

HYBRIDISATION.—I put on record in the *Gardeners' Chronicle* some time ago an occurrence which seems to have so direct a bearing on "A. B.'s" question, p. 121, (if I understand his question aright) that I venture to re-state it. In 1880 I crossed Iris Balkana (Janka) with the pollen of I. Cengiali (Ambrosi), the latter being a variety, or perhaps rather a sub-species of I. pallida. I obtained fifteen seedlings, which I described in the *Gardeners' Chronicle*, giving at the same time what seemed to me valid evidence that I had effected a real hybridisation. One of these seedlings after throwing up, in a pot in a greenhouse, a scape with a single terminal flower, and a lateral one, the peduncle of the latter arising from the axil of a large spatheaceous bract, threw up later, at the end of May or in June, a second scape with a single terminal flower, the spatheaceous bract at the node below bearing no lateral flower. Having cut off this terminal flower above the bract I observed later on, in August, with surprise, that the cut scape had not, as is usual withered, but remained green up to the cut end. The base of the spatheaceous bract seemed to be swollen,

and on examination I found that in the axil of the bract was, not a pedunculate flower-bud, but a sessile growing bud with a nascent rhizome, a young leaf, and the hint of a rootlet. I cut off the scape below this bud, and so potted the bud. In a short time I had a vigorous young plant, which, however, was unfortunately lost sight of. Now it is a very common occurrence for certain bulbous Irids (e.g., *Sparaxis*, *Freessias*, &c.) to bear a bulbil in the axil of a leaf or bract; but I have hitherto never seen this in any member of the genus *Iris*, bulbous or otherwise, not even in *Sisyrinchium*, which is the connecting link between *Iris* and *Moraea*. Of course in this case the "vegetative" bud did not start quite fresh; it replaced an aborted flower-bud. But if there be any truth in the view of sexual organs being the outcome of diminished vegetative energy (whatever that may mean), the incident may still be regarded as an example of increased vegetative activity, and it occurred in a hybrid. I have seen nothing like it in other Irids; but I may add I have not seen it repeated in other hybrids. I did not attempt to raise seed from this particular plant, but its brethren, though, undoubtedly to my mind—hybrids, were not sterile. I have since raised two generations from them, and a third is probably about to be—*paulo post futura*. They were less fruitful than the male parent (*Cengiali*), which is a prolific seed bearer, and about as, or perhaps, rather better seed-bearers than the mother (*Balkana*), which does not very readily go to

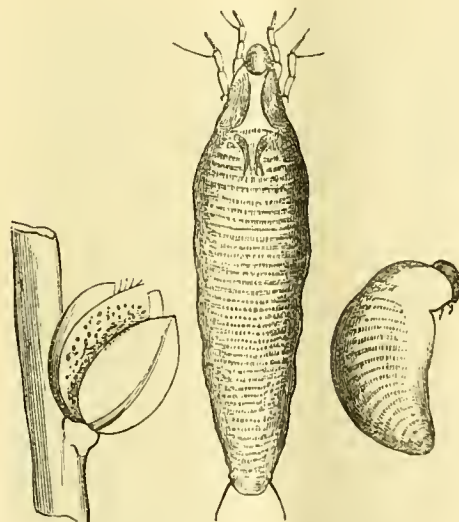


FIG. 27.—CURRANT BUD MITE. (SEE P. 153.)

seed. My experience in hybridising Irids, and the careful watching of several cases of what appear to me to be undoubted hybridisations, has led me to the conclusion that, in their case, no general statement can be made as to the sterility or robustness of growth (vegetative energy) of hybrids. These two things seem to me to depend, not on the mere fact of the hybridisation, but on the conditions of the hybridisation, such as the relative affinity, comparative characters, &c., of the two parents. I am inclined to think, however, that hybrids have a greater tendency to transgress morphological laws than offspring born in more lawful wedlock. Like a certain editor, they lean towards teratology; and the sport I have described seems to me an evidence rather of this than of any superabundance of "vegetative energy." *M. Foster.*

THE TURNER MEMORIAL PRIZES.—I do not think it was needful on the part of Mr. J. Douglas that he should offer any apology for the announcement of the manner in which these prizes are to be bestowed this year. Mr. Turner was a man of large grasp, and I have found him quite as deeply interested in a Peach or Pear, a Pea or Potato, as in an Auricula, Carnation, or Dahlia. When the Memorial Committee was originally formed, I joined with others heartily in suggesting that fruits at least should share in the benefits of the prizes, and I am glad to see that such suggestions have been acted upon by the sub-committee and trustees. The reputation enjoyed

by Mr. Turner and the Royal Nursery, Slough, was far from being alone due to flowers. Both were almost as well known and appreciated for fruit trees, for Conifers and shrubs, and for scores of other things which go to form a general nursery stock, and in all of which Mr. Turner took hearty interest. That these memorial prizes are of a terminable nature should make them in the estimation of gardeners all the more valuable, as only a certain number of persons, and within a restricted number of years, can win them. I trust the action of the committee or trustees in sending one prize to York and another to the Crystal Palace will, by the excellent competition produced, be more than amply justified, and that the fortunate winners will regard their Turner Memorial prizes as worthy horticultural honours. *A. D.*

RHODODENDRON FERTILISATION.—I have *Rhododendron argenteum* in flower just now, and I would feel obliged by any one sending me some flowers with pollen that would make a good cross with *argenteum*. I have had this plant for certainly twenty-five years, but owing to careless looking after it only flowered two years ago—one bunch of about eighteen flowers. Now it has thirty-two bunches, some of them with thirty flowers, and extremely handsome. So much for having had it attended to. It is about 10 feet high. *R. S. Newall, Ferndean, Gateshead.*

CARNATION.—I send for your inspection a Carnation plant attacked by a sort of spot or fungus, which I am afraid looks very much like *Cladosporium*. It is on a few plants I had sent me, and fortunately kept them by themselves. I have dipped them twice a day for about three weeks in soapy water, tobacco-water, covered them with sulphur and Fir-tree oil, and nothing seems to destroy it. Can you give me any information on the matter—what it is, its cause, or remedy? *Carnation*. [You are correct in supposing your Carnations to be attacked by a *Cladosporium*; it is *Cladosporium echinulatum*, described and illustrated in the *Gardeners' Chronicle* for August 21, 1886. Your plants are also attacked to a serious degree by the Rust fungus, or *Uredo*—probably the *Uredo* form of *Puccinia Dianthi*, or of *Uromyces Behenii*. It is not (as might have been assumed from its habit) *Uredo caryophyllacearum*. We can give no further remedy than the one in the number of the *Gardeners' Chronicle* mentioned above. The treatment you have already employed without effect shows how obstinately some parasitic fungi adhere to life. You must remember that these fungi are able to spread to various other species of *Dianthus*, *Lychnis*, &c. *W. G. S.*]

CHRYSANTHEMUMS "An Anxious Enquirer."—As a grower who has attended many of the shows this season I consider the six best varieties of Japanese Chrysanthemums are:—Avalanche, H. Cannell, W. G. Drover, E. Molyneux, Carew Underwood, Maggie Mitchell. *Foreman.*

SIX JAPANESE CHRYSANTHEMUMS FOR EXHIBITION.—It would not be safe to depend upon six varieties only of Chrysanthemums to supply that number of blooms, for the reason that some sorts do not always succeed so well as do others; therefore it is best to allow a margin by growing more sorts than are really required of distinct varieties. For the information of "An Anxious Enquirer," I give the names of twelve of the best, placed in the order of merit. In my opinion, in this form any one of the number given can be selected, taking the names as they appear, and still securing the best:—Madame C. Audigier, deep mauve; Belle Poule, white, edged with rosy-purple; Boule d'Or, yellow and bronze; Jeanne Delaux, dark velvety-brown; Edwin Molyneux, purple-crimson and gold; Mr. H. Cannell, soft yellow; Mrs. H. Cannell, snowy-white; Fair Maid of Guernsey, white; Triomphe de la Rue des Châlets, salmon-red; Criterion, amber; Mlle. Lacroix, white; Ralph Brocklebank, primrose-yellow. *E. Molyneux.*

MEDLAR JELLY.—The Medlar jelly which Mr. T. F. Rivers exhibited at South Kensington lately, and which was so much approved by the Fruit Committee that it was awarded a First-class Certificate of Merit, aroused a great deal of interest on the part of those present at the meeting of the Royal Horticultural Society. It was pronounced to be a rich and palatable jelly, and it served to indicate the possible creation of a new and useful industry in the direction of fruit preserving. Mr. Rivers stated that a few years ago a Hawthorn hedge in the Sawbridgeworth nursery was cut down

and grafted with the Royal Medlar, a free-bearing variety of nice acid flavour, the fruit being of medium size. In the manufacture of the jelly the Medlars are taken when they are quite ripe, by which I understand that the period chosen is when the fruit is softening somewhat. When Medlars are newly ripe the fruit is "not eatable, but in a few weeks it begins to soften," and it is at this point that the fruit is best adapted for the purposes of jelly; but not allowing it to become brown and pulpy. The Medlars being selected they are washed and placed in a preserving pan with as much water as will cover them, and are allowed to simmer gently until they become a pulp, and it is necessary to stir the mass occasionally to prevent its becoming burnt, and so adhering to the pan. The fruit, being made into a soft pulp, is then strained through a jelly bag. To every pint of juice is added 1 lb. of lump sugar, though some might prefer to add three-quarters of a pound. It is then boiled for an hour and a half or rather less, and then, when ready, put into glasses and jelly shapes. In a communication received from Mr. Rivers he hints that it might be well to boil the jelly a little longer than in the case of the Sawbridgeworth experiment, probably to ensure a greater consistency. But the sample seen at South Kensington appeared to be all that could be desired, and possibly the finished jelly would harden in course of time. It is certainly an interesting experiment, and Mr. Rivers ventures to think a wide popularity is in store for it when the process of manufacture is made widely known. *R. D.*

CHRYSANTHEMUM JUDGES.—It would be interesting to know if the half-dozen men "Spade" mentions (p. 85, January 21) are the only competent judges of Chrysanthemums, or is that the reason their names appear so frequently as judges at the principal London and suburban shows? Surely there are provincial growers equally good judges, but possibly they have no one so eager to trot them out as "Spade" appears to be. I am not an exhibitor, but think with many others, that judges should be growers. *S.*

THE RAINFALL AT ROTHAMSTED, HERTS, AND CARDINGTON, BEDS.—In the average columns the sign (—) signifies below, and the sign (+) above the average record:—

	Rainfall, 1887.		Rainfall of 1887. Over or Under Average.	
	Rothamsted, Herts.	Cardington, Beds.	Rothamsted, 34 yrs.—1853-86.	Cardington, 41 yrs.—1846-86.
January	Inches. 2.39	Inches. 2.04	Inches. — 0.18	Inches. + 0.30
February	0.95	0.72	— 0.91	— 2.40
March	1.76	1.33	+ 0.09	+ 0.02
April	1.19	0.88	— 0.85	— 0.78
May	2.35	2.34	+ 0.05	+ 0.52
June	0.71	0.83	— 1.72	— 1.21
July	0.79	0.38	— 1.83	— 2.01
August	1.04	1.24	— 1.52	— 1.07
September	3.11	1.87	+ 0.45	— 0.31
October	1.69	1.31	— 1.52	— 1.13
November	3.41	1.87	+ 0.63	— 0.02
December	1.06	1.20	— 0.57	— 0.44
Total	21.05	16.01	— 7.88	— 8.53

The rain-gauge of Sir J. B. Lawes, at Rothamsted, is 420 feet above the sea-level, and the rain-gauge of Mr. J. McLaren, at Cardington, is 109 feet above the sea-level. Rothamsted is considered to be *within* the "high rainfall" district, and Cardington is *without* the "high rainfall" district. The table shows that Rothamsted registered 21 inches during the year 1887, being 7.88 inches below the average of the past thirty-four years, whilst Cardington, which is without the high rainfall district, received but 16 inches of rain during the year 1887, or 8.53 inches less than the average of forty-one years. The most notable character of the year just ended is therefore the light rainfall. Only in 1870, when 14.87 inches were measured, has there been less rain, since the records were begun at Cardington. At Rothamsted, 1887 gave the lowest rainfall with three exceptions, namely 1854, 1858, and 1864, when 19.4, 20.0, and

18.6 inches were registered respectively. The year 1870, which recorded the lowest rainfall at Cardington showing 1.14 inch less than 1887, gave at Rothamsted 21.7 inches or three-tenths above the rainfall of the past year. *J. J. Willis, Harpenden.*

GARDENERS' ORPHAN FUND.—The suggestion made at p. 85 by your correspondent, "J. H.," as to what may be termed "gathering up the fragments," or odd pence, in boxes duly labelled "Donations for Gardeners' Orphan Fund" is every way excellent. If such boxes were hung up in conspicuous places about the work-sheds in gardens, and alongside each box the printed sheet issued by the committee summarising the benefits of the Fund, there can be no doubt but that a considerable amount of help would result from the practice. I would go a step further, and that visitors to the garden might have a chance of contributing I would advocate the placing of a second box in some house or entrance most frequented by them. As a matter of course we must first get the permission of our employers to allow of the boxes being placed, and next the aid of our men, which will best be obtained by giving them to understand that the work is theirs, and that whatever contributions are put in the box will be recorded to their credit; at the same time the assurance should be given that no one is to feel that he is under the slightest obligation to contribute. I so strongly approve of "J. H.'s" suggestion that I mean to set about getting the boxes at once. *W. Wildsmith.*

FREESIA CULTURE.—The communication of J. G. Hill, p. 107, respecting these charming flowers is, I consider, an extremely valuable one, opening up, as it were, a field of new light in their cultural requirements. I was quite unaware of their semi-aquatic nature, and most heartily thank Mr. Hill for myself and the many other of your readers to whom, no doubt, the hint will be equally new, interesting, and valuable. "Freesias 3 feet high and a sheet of bloom" would not only be a perfect picture, but would astonish thousands of admirers of this exceptionally delicious flower. But why has Mr. Hill kept so valuable a hint in obscurity so long?—for it appears some years have elapsed since the arrival of the original thirty now developed into such unwonted grandeur came to hand? But, having once attained the dimensions given, the next question is, where may they end? What a magnificent picture a few such pots would make among foliage plants for conservatory decoration. I note one particular in Mr. Hill's remarks, and it is this, that Mr. Bartlett prefers to give his Freesias water freely several times a day (notwithstanding their semi-aquatic nature) rather than immerse them in water or partly so—with a view to avoid stagnation, no doubt, which makes their treatment, in this respect at least nearly equal to that of the Disas. Mr. Bartlett's treatment, as against that generally pursued, illustrates clearly the vague notions which still exist as to the proper treatment of certain plants, and I, for one, shall turn over a new leaf in their treatment; and I can only recommend growers of these Freesias to follow Mr. Bartlett's example. For commercial purposes it is, however, absolutely necessary to dry them off entirely, but of this gardeners in large private establishments will have little to do. I have frequently noticed how quickly newly imported bulbs of these start into growth after planting; and imported Callas, which are dried to the corm, are another instance of water-loving plants doing likewise. There is, I feel sure, a great future for the Freesias, especially as cut flowers; for were it possible to produce them in quantity and in succession, they would, beyond doubt, soon occupy a foremost position among choice flowers; and any hints of exceptionally good culture will be welcomed by many besides the writer. The freedom with which they reproduce themselves, and the cheap rate at which they may be obtained, are points highly favourable to their much more extensive cultivation. *E. Jenkins.*

HARDINESS OF LAPAGERIAS.—It is interesting to hear of this fine climber doing so well outside with Mr. Hazel. A few years ago we had a strong piece of Lapageria alba growing here, fully exposed on a north-west aspect, and it frequently stood 16° and 18° of frost without injury, but the limit of endurance was reached when we got 22°, and the plant perished completely. There is much in the hard nature of the foliage and stems of Lapagerias to favour the idea that they would prove hardy. The favourable southern aspect Mr. Hazel's plant occupies will doubtless tend to give it greater hardiness, as the

growths will be better ripened than on a north-west aspect, and it may prove capable of resisting a greater degree of cold than 22° of frost. A slight protection—and that only in severe weather—is all that is necessary to ensure the safety of Lapagerias during ordinary winters in all the southern counties. Although our plant grew and flowered very freely outside, we always found 4° of frost completely destroyed all expanded blossoms; and as we are always liable to have slight frosts during the flowering period of the plant, we think it right that this fact should be made known, to prevent disappointment to those who may be tempted to plant it outside. During favourable weather the flowers set freely outside, and we gathered many pods of fully ripened seeds, and have now a dozen plants raised from seed of *L. alba*, grown outside. All the seedlings have flowered, and every plant has proved to be *L. rosea*, though there are slight differences in the depth of colouring, and in the length of the tube. *J. Roberts, Gunnersbury.*

THE WEATHER.

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending Jan. 30.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.
Principal Wheat-producing Districts.					
0. SCOTLAND, N. ...	3 below	0	46	+ 11	— 27
1. SCOTLAND, E. ...	1 above	0	31	+ 14	— 67
2. ENGLAND, N.E. ...	1 below	0	33	+ 4	— 58
3. ENGLAND, E. ...	2 below	0	41	+ 2	— 45
4. MIDLAND COS. ...	2 below	0	33	— 4	— 33
5. ENGLAND, S. ...	2 below	1	37	— 8	— 16
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 below	1	34	+ 1	— 57
7. ENGLAND, N.W. ...	1 below	0	26	— 5	— 47
8. ENGLAND, S.W. ...	4 below	3	35	— 22	+ 9
9. IRELAND, N. ...	1 below	6	26	+ 13	— 55
10. IRELAND, S. ...	1 below	11	26	+ 3	— 41
— CHANNEL ISLANDS	3 below	9	18	— 6	— 13

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.	
0. SCOTLAND, N. ...	9 more	18	3.5	15
1. SCOTLAND, E. ...	3 more	14	2.2	28
2. ENGLAND, N.E. ...	1 less	11	0.8	28
3. ENGLAND, E. ...	1 less	10	0.7	33
4. MIDLAND COS. ...	4 less	10	0.5	29
5. ENGLAND, S. ...	5 less	9	0.7	34
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	3 less	14	3.9	35
7. ENGLAND, N.W. ...	3 less	12	1.3	29
8. ENGLAND, S.W. ...	8 less	14	1.7	39
9. IRELAND, N. ...	0 (aver.)	13	2.5	39
10. IRELAND, S. ...	7 less	10	2.8	34
— CHANNEL ISLANDS	5 less	17	1.5	41

THE PAST WEEK.

THE following summary record of the weather for the week ending Jan. 30, is furnished from the Meteorological Office:—

"The weather has been somewhat changeable, but finer than of late in most parts of the kingdom. A good deal of cloud prevailed at times, with some showers of rain, sleet, or snow. In Scotland the rain and snow were heavy, but in England and the greater part of Ireland the falls were slight.

"The temperature has been a little above the mean in 'Scotland, E.,' but below in all other districts, the deficit in the 'Channel Islands' being 3°, and in 'England, S.W.,' 4°. The highest of the maxima, which were registered during the earlier days of the period, ranged from 48° in 'England, S.W.,' to 56° in 'Ireland, S.' The lowest of the minima were recorded on the 30th, when the thermometer fell as low as 10° at Geldeston, and to between 14° and 18° at many of the other English stations, between 18° and 22° over Ireland and Scotland, and to 30° in the 'Channel Islands.'

"The rainfall has been more than the mean in the north and east of Scotland, and equal to it in 'Ireland, N.,' but less in all other districts.

"Bright sunshine shows a very general increase, the percentage of the possible amount of duration varying from 15 in 'Scotland, W.,' to 34 in 'England, S.,' 35 in 'Scotland, W.,' 39 in 'Ireland, N.,' and 'England, S.W.,' and 41 in the 'Channel Islands.'

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING FEB. 11. (AVERAGE OF FORTY-FOUR YEARS.)

Feb. 5	39°·3	Feb. 9	39°·3
" 6	39°·3	" 10	39°·2
" 7	39°·3	" 11	39°·1
" 8	39°·3	Mean for the week ...	39°·3

ENQUIRIES.

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

THE "MELON PEAR" (*Solanum guatemalense*).—Where can seeds of this be obtained? X.

NOTICES TO CORRESPONDENTS.

AMARYLLIS: *R. H. B.* If water was withheld hitherto, the green condition of the foliage is due to the roots having drawn some nutriment from the leaf-bed. It is still possible to get the foliage ripened by withholding water, and maintaining a cool temperature; the rest they will get will be short.

ARTIFICIAL MANURES: *K. D.* Malt dust is an excellent dressing for grass land at the rate of 30 bushels to the acre, and for Wheat at the rate of 40 bushels, for Turnips and Barley in the same proportion as for grass. The dust is usually harrowed in, but it is much improved as well as made easier to distribute if it be soaked in liquid manure. Spent Hops, by themselves, have a low manurial value, but are useful as a dressing to Turnips, Rape, Cabbage, to keep off the "fly." Of the value of stale yeast we know nothing, but it must necessarily be small.

BOOK: *Prentice and Medicus. Domestic Floriculture. Window Gardening, and Floral Decorations.* By F. W. Burbidge. (W. Blackwood & Sons.)

CORRECTION: In referring to the habit of *Grobya Amherstiae* (p. 106), the genus *Lælia* is mentioned; it should have read *Cælia*; and for *Thrinax* read *Thrinia*, at p. 104, line 17.

GLASS CORRIDOR AND LOUNGE: *Medicus.* The creepers that you may plant outside and bring inside through holes made in the walls, if the temperature intended to be maintained be that of a cool house, are Vines of any kind—those with leaves that die off a good colour are pretty; *Jasminum revolutum*, *J. grandiflorum*, *Passiflora cærulea*, *Clematis indivisa*, and any of the hybrids of *Messra*. Jackman, Standish, and others; the smaller growing Ivies; *Fuchsias*, strong growers like *corallina* and *corumbiflora*; *Roses*, *Maréchal Niel*, *Gloire de Dijon*, *Catherine Mermet*, *Climbing Devonensis*,

Isabella Sprunt, and other strong-growing varieties, especially Tea-scented ones; also *Madame Lacharme*, *Madame Despres*; any of the climbing Honeysuckles, *Myrtles*, *Tecoma jasminoides*, *Camellias*, and *Aristolochia Siphon*. In any case, the stems would require thorough protection from frost at the part exposed above-ground, and it would be advisable to cover the roots with leaves or cocoa-nut refuse to keep frost out of the soil. The border in which they are planted should have at the least half a day's sunshine.

GREENHOUSE: *L. B.* The height being what it is, it would not be advisable to plant out any shrubs; but creepers might be planted in properly prepared borders, and these might be allowed to grow on the sides, ends, or roof, in a way that would not greatly impede the light from reaching the plants beneath. Rockeries might be formed in some of the angles, and planted with Ferns, bulbs, mosses, and otherwise made use of for flowering plants. Treated as a greenhouse it would require, to keep out frost and maintain a temperature of 40°–45° at night, two rows of 4-inch pipes running all round and beneath the side tables. A flue in a house of this peculiar form would not be easy of construction, and would be less satisfactory than water-heating. Some part of the centre space could be occupied with hardy Palms, *Camellias*, a Tree Fern, *Choisya teruata*, *Ficus elastica*, *Plumbago capensis*, *Myrtles*, *Eugénias*, *Acacias*, *Fuchsias*, *Phormium tenax*, *Lilies*, &c.; and the side benches with any flowering plants you might choose to grow. The sanded floor might remain; it is pleasanter to walk on than lattice-work, and can be made of varying width, according to fancy.

HELLEBORE: *L. S.* A form of *angustifolius*, and a very fine one, quite worth propagating.

HIMENOPHYLLUMS, TODEAS, AND TRICHOMANES: *Subscriber.* The first and last succeed when planted in a mixture of fibry peat, moss, and broken sandstone; a small quantity of charcoal may be added. Todeas do well in the same kind of soil, but substituting fibry loam for the moss, and adding a little sharp sand.

INSECTS: *John Wilson.* Your Black Currant shoots are infested with a mite which, in our issue for August 7, 1869, we fully described with an illustration, which is here reproduced (fig. 27, p. 151). In that article it was stated: "Badly infested trees ought evidently to be pruned in autumn. We would recommend, where possible, the picking off of old dried buds in August or September, as it is evident that the newly formed buds must become infested almost as soon as they are well developed in the early part of the autumn. Possibly the dressing of the shoots at that period with a thick coating of lime and soapsuds might either prevent the females from crawling to the young buds, or the hatching of the eggs if laid in the old buds." The creature seems to be very active north of the Tweed, but is not unknown this side of the border.—*T. W. S.* The insects which infest your stove belong to one of the many species of cockroaches (*Blatta* sp.), which are imported from hot climates with plants. The best way to destroy them is to place deep saucers, partly filled with water, where they occur, with bits of wood extending from the ground to the edge of the saucers, up which they will creep and fall into the water. *I. O. W.*

JACULIA ORATISSIMA: *A. Pakenham.* The temperature of a *Camellia*-house is too low for this plant, and would lead to debility, as seems to have set in with scanty flowering two years ago. Place it in an intermediate temperature, say 50°–58°, at night, with 10°–15° higher by day.

MICA CLAY: *Westfield.* It may be possible to obtain this substance from the Bedford Conservatories, Covent Garden.

MUSHROOMS DESTROYED BY WOOD-LICE: *J. H. S.* Procure boiling water, go suddenly into the Mushroom cellar with a light, and pour the water all round the chink that is found between the bed and the walls. If this be repeated at intervals, and no hay be used to cover the beds, the marauders will be almost exterminated in a few weeks.

NAMES OF PLANTS: *G. M. R.* 1, *Davallia canariensis*; 2, *Onychium lucidum*; 3, *Pteris argyrea*; 4, *Adiantum hispidulum*; 5, *Asplenium biforme*; 6, *Doodia caudata*.—*A. Collyer.* Specimen insufficient.—*W. Alison.* *Calliphuraria subdentata*; often erroneously called *Eucharis candida*.—*B. A. C.* 1, *Asplenium bulbiferum*; 2, *Pteris*

temula; 3, *P. serrulata*; 4, *Polypodium aureum*; 5, *Pteris cretica albo-lineata*; 6, *Begonia fuchsoides*; 7, *Libonia perhosiensis* X.—*G. W. Rogers.* The *Lælia* is *L. acuminata*. *Dendrobium Kingianum* album.—*W. J. A.* *Dendrobium nobile*, *Cælogyne cristata*, simply.—*W. E. I.* *Epidendrum Eudriesei*; 2, *Oncidium Wentworthianum*; 3, *Pittosporum undulatum*. We do not understand to what you refer by "Egyptian pots."—*E. R. M.* *Euphorbia Lathyris*.

RAFFLESIA: *W. A. G.* Substantially correct. It has been figured in the *Gardeners' Chronicle*, but is not in cultivation.

CATALOGUES RECEIVED.

W. THOMPSON, 34 and 36, Tavern Street, Ipswich—Supplement to General Seed List.

D. LANDRETH & SONS, Philadelphia, Pa, U. S. A.—Seeds.

FLANAGAN & SON, 98, Cheapside, London, E.C.—Seeds.

V. LEMOINE, 5, Rue de l'Étang, Nancy—New Plants and Seeds.

KELWAY & SON, Langport, Somerset—Seeds, Gladioli, &c.

THYNE & PATON, 18 and 20, Union Street, Dundee—Vegetable and Flower Seeds.

G. BRUCE, 35, Market Street, Aberdeen—Spring Catalogue.

W. P. LAIRD & SINCLAIR, 73, Nethergate, Dundee—Vegetable and Flower Seeds.

F. C. HEINEMANN, Erfurt—Guide for Raising Plants from Seed.

WILLIAM WATT, Cupar, Fife, and 26, High Street, Perth—Seeds and Implements.

FISHER, SON & SIDRAY, 4, Market Street, Sheffield—Kitchen Garden and Flower Seeds.

VILMORIN-ANDRIEU & Co., 4, Quai de la Mégisserie, Paris—Seeds, Strawberries, and Bulbs.

PILLINGER & Co., Chepstow—Seed Catalogue and Guide.

JNO. JEFFERIES & SON, Cirencester—Seeds and Bulbs.

R. & J. FARQUHAR & Co., Boston, Mass., U.S.A.—Seeds, Plants, Tools, &c.

RICHARD DEAN, Ranelagh Road, Ealing, London, W.—Potatoes, Carnations, and Herbaceous Florists' Flowers.

J. T. TOMPKINS & Co., St. Albans, Herts—Wholesale List of Seeds.

COMMUNICATIONS RECEIVED.—Alpha (shortly).—*J. Morgan*, kept out from want of space.—Heath & Son, inadvertently omitted.—*E. R. M.*—*W. E. G.*—*F. W. B.*—*J. R. J.*, next week.—*U. D.*, *Berliu*.—*G. Bruant*, *Poitiers*.—*J. H.*—*H. J. R.* *Florance* (next week).—*M. P. A.*, Sweden.—*W. S.*—*P. R.*—*J. T.*, Paris.—*J. D.*—*J. V.* & Sons.—*E. P.*, Ghent.—*G. B. W.*, Chislehurst.—*Pteris*.—*W. E.*—*R. D.*—*Wild Rose* (next week).—*H. W. W.*—*F. S.*—*D. T. F.*—*T. W.*—*J. D.*—*W. B.*—*J. L. M. C.*—*R. A.*—*R. G. B.*—*E. M.*—*T. B.*—*A. D. W.*—*J. Atwood*.—*S. Brigid*.—*G. A. B.*—*Enquirer* (next week).

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, February 2.

BUSINESS dull; supplies equal to demand. Good well-kept Apples in request. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve ...	2 0-4 0	Melons, each ...	0 6-2 0
Grapes, per lb. ...	1 0-2 6	Pears, per dozen ...	3 0-6 0
Channel Isl. lb. 1 0-1 6		Pine-apples, Eng., lb. 1 0-2 0	
Kent Cobs, 100 lb. ...	50 0-	—St. Michael, each 2 0-5 0	
Lemons, per case ...	12 0-21 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz. ...	6 0-	Mustard and Cress, p. punnet ...	0 4-
Beans, Kidney, lb. ...	1 6-	Onions, per bushel ...	7 0-
Beet, red, per dozen 1 0-2 0		Parsley, per bunch ...	0 6-
Brus, Sprouts, lb. ...	0 4-	Potatoes, per cwt. ...	4 0-5 0
Carrots, per bunch ...	0 6-	—kidney, per cwt. ...	4 0-5 0
Cauliflowers, each ...	0 3-	Rhubarb, per bundle 0 4-	
Celery, per bundle ...	1 6-2 6	Seakale, punnet ...	1 6-2 0
Cucumbers, each ...	1 0-2 6	Shallots, per lb. ...	0 6-
Endive, per dozen ...	2 0-	Spinach, per bushel ...	3 0-
Green Mint, bunch ...	1 0-	Spruce, per bundle ...	1 0-
Herbs, per bunch ...	0 4-	Tomatoes, per lb. ...	1 0-2 0
Leeks, per bunch ...	0 6-	Turnips, per bushel ...	0 8-
Lettuce, per dozen ...	1 6-		
Mushrooms, punnet 1 0-1 6			

POTATOS.—Regents, 60s. to 80s.; Magnum, 55s. to 70s.; Hebrons, 100s.; Daubar Magnums and Regents, 85s. to 100s. per ton; and heavy market.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 8 0-18 0	Ficus elastica, each. 1 6-7 0
Azaleas, per dozen ... 24 0-36 0	Foliage plants, vari-
Bougardias, per dozen 9 0-12 0	ous, each ... 2 0-10 0
Cyclamens, per dozen 12 0-24 0	Hyacinths, doz. ... 8 0-10 0
Cyperus, per dozen 4 0-12 0	Lily of Valley, 12 pts. 18 0-24 0
Dracena terminalis,	Marguerites, doz. ... 9 0-12 0
per dozen ... 30 0-60 0	Myrtles, per dozen ... 6 0-12 0
— viridis, per doz. 9 0-24 0	Palms, in var., each 2 6-21 0
Epiphyllums, doz. ... 12 0-24 0	Pelargoniums, scar-
Eriacs, various, doz. 9 0-18 0	let, per dozen ... 6 0-9 0
Eucalyptus, in var.,	Primula sinensis, per
per dozen ... 6 0-18 0	dozen ... 4 0-6 0
Ferns, in var., doz. 4 0-18 0	Solanums, per dozen. 9 0-12 0
Evergreens, in var.,	Tulips (pots of), doz. 6 0-10 0
per dozen ... 6 0-24 0	

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, 12 blms. 4 0-6 0	Narcissus, paperwhite,
Azaleas, 12 sprays ... 0 9-1 0	Fr., 12 bunches ... 2 6-6 0
Bougardias, per buo. 0 6-1 0	— Various, 12 buo. 1 6-4 0
Camellias, 12 blms. 2 0-5 0	Pelargoniums, 12 spr. 1 0-1 6
Carnations, 12 blms. 1 0-2 0	— scarlet, 12 spr. ... 0 8-1 0
Chrysanth., 12 bun. 12 0-18 0	Primulas, double, 12
— large, 12 blms. 2 0-4 0	sprays ... 1 0-1 6
Cyclamens, 12 blms. 0 6-1 0	— single, 12 bun. ... 4 0-8 0
Eucharis, per dozen 4 0-6 0	Roses, Tea, per doz. 3 0-8 0
Gardenias, 12 blooms 12 0-18 0	— coloured, dozen. 2 0-4 0
Heliotropes, 12 spr. 0 6-1 0	— red, per dozen ... 2 0-3 0
Hellebore, or Christ-	— Safrano, dozen ... 1 6-3 0
mas Rose, 12 blms. 0 6-2 0	Tuberose, 12 blms. 1 6-3 0
Hyacin., Rom., 12 sp. 0 9-1 6	Tulips, 12 blooms ... 0 6-1 0
Lily of Valley, 12 spr. 0 8-1 6	Violets, 12 bunches ... 1 0-1 6
Marguerites, 12 bun. 3 0-8 0	— French, bunch ... 1 6-2 0
Mignonette, 12 bun. 3 0-6 0	— Fr. Parme, bun. 5 0-7 0
Poinsettias, 12 blms. 4 0-6 0	White Lilac, French,
	per bunch ... 6 0-7 6

SEEDS.

LONDON: February 1.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that the trade for farm seeds remains steady, though momentarily quiet. No alteration as regards values can be noted, rates being made at full prices. For English red Clover seed, however, somewhat lower figures are accepted. Alsike and white Clover move off slowly on former terms. Perennial Rye-grasses are this season exceedingly cheap; there is room for a rise in this article. Timothy continues in short supply. Sanfoin also is in narrow compass. Canary and Hemp seed realise last week's rates. In spring Tares there is more doing, and holders are raising their limits. Other articles offer no subject for remark.

FRUIT AND VEGETABLES.

COLUMBIA: February 1.—Fair supply of fruit and fresh vegetables; trade moderately good at fair prices. Potato trade slack. Quotations:—Cauliflowers, 1s. 6d. to 3s. per dozen; Savoys, 1s. 6d. to 2s. do.; Cabbages, 1s. 3d. to 1s. 9d. do.; Brussels Sprouts, 2s. to 2s. 6d. per half sieve; Turnip-tops, 1s. 3d. to 2s. per sieve; Sprouting Broccoli, 1s. 3d. to 1s. 6d. do.; Spinach, 1s. 6d. to 2s. do.; Carrots, 1s. 6d. to 2s. 6d. per dozen bunches; Turnips, 2s. to 2s. 6d. do.; Greens, 2s. 6d. to 3s. 6d. do.; Beetroots, 1s. 6d. to 2s. do.; Celery, 9d. to 1s. 3d. per bundle; Rhubarb, 6d. to 8d. do.; English Apples, 3s. to 6s. 6d. per bushel; American Apples, 13s. to 21s. per barrel; English Onions, 8s. to 9s. per cwt.; foreign do., 7s. to 8s. per bag of 110 lb.; Carrots, 28s. to 42s. per ton.

STRATFORD: February 1.—The supply and trade have been good. Prices:—Savoys, 5s. to 7s. per tally; Greens, 2s. 6d. to 3s. per cwt.; Turnips, 3s. to 3s. 6d. per dozen bunches; do., 35s. to 50s. per ton; Carrots (household), 40s. to 50s. per ton; do., cattle feeding, 28s. to 34s. do.; Parsnips, 6d. to 1s. per score; Mangels, 18s. to 22s. per ton; Swedes, 20s. to 24s. do.; Onions (Dutch), 7s. to 8s. per bag; do. German, 9s. to 10s. per case; Apples (English), 3s. to 6s. per bushel; Watercress, 6d. per dozen; Brussels Sprouts, 2s. 8d. to 3s. per half sieve; Rhubarb, 1s. 9d. to 3s. per dozen bunches; Parsley, 3s. to 4s. per dozen; Onions, 2s. 6d. to 3s. per dozen bunches; Spanish, do., 8s. to 9s. per case.

POTATOS.

BOROUGH AND SPITALFIELDS: January 31.—For best samples a steady trade, second qualities full supply, and lower. Quotations:—Regents, 60s. to 105s.; Hebrons, 80s. to 120s.; Magnum Bonums, 45s. to 95s.; Champions, 50s. to 70s. per ton.

COLUMBIA (East London): February 1.—Quotations:—Beauty of Hebron, 100s. to 110s.; Magnums, 50s. to 80s.; Regents, 60s. to 90s.; Champions, 45s. to 65s.; Victorias, 50s. to 65s. per ton.

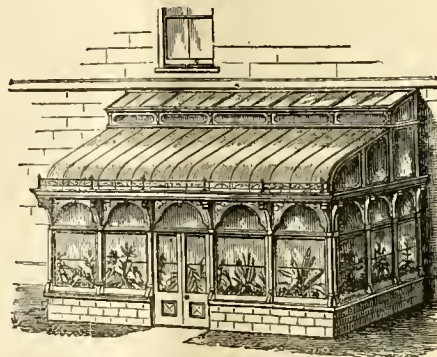
STRATFORD: February 1.—Quotations:—Scotch Regents, 80s. to 95s.; Scotch Magnums, 70s. to 85s.; best English, do., 60s. to 70s.; fenland, 45s. to 55s. per ton.

W. H. LASCELLES & CO.,

HORTICULTURAL BUILDERS,

121, BUNHILL ROW,

LONDON, E.C.



CONSERVATORIES,

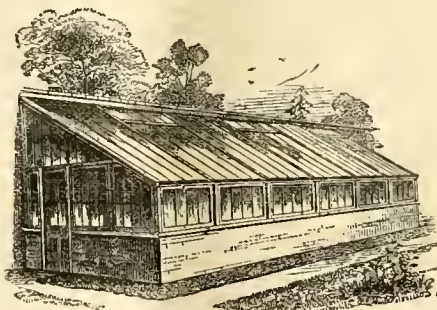
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PEACH HOUSES,

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will when desired visit Gardens
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SPECIAL DRAWINGS and ESTIMATES,
from instructions taken on the spot,
without charge.

CUCUMBER FRAMES.

Prices Post-free on application.

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OF BEST QUALITY.

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Write for Dr. Voelcker's Report, Pamphlet, Testi-
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JENSEN'S

Every grain fertilizes because the Guano is perfectly
pure. It is most economical, one part of Manure to
100 parts of soil being ample for garden use.

FISH-POTASH

FISH-POTASH contains Ammonia, Phosphates and
Potash in large proportions, which are the principal
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GUANO—2-lb. Tins, 1s.; in Bags, 7 lbs., 2s.;
14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d.
1 cwt., 16s.; 2 cwt., 30s. Special terms for
larger quantities. Analysis guaranteed.

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COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),
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LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half
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YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
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SPHAGNUM MOSS, 8s. 6d. per sack.

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Patronised by 16,000 of the Nobility, Gentry,
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1 Cwt., and Oil Mixture, Free to all Stations.

Non-Poisonous Paints for Inside Work, Conservatories, &c.

Prices, Patterns, and Testimonials, Post-free.

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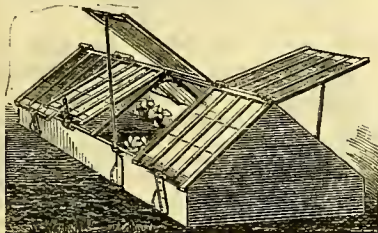
BACHELOR'S WALK, DUBLIN.—Discount for Cash.

BOULTON & PAUL, HORTICULTURAL BUILDERS, NORWICH.

CATALOGUES Post-free.

No. 73.—GARDEN FRAME.

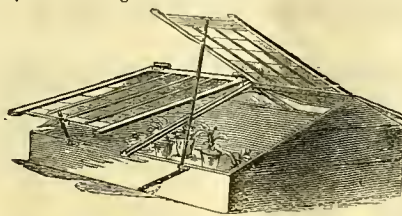
Sides of Frames 14 inches high, 2 feet 3 inches at ridge, easily put together. This Frame has given general satisfaction, and was brought out by us in 1883.



	Length.	Width.		Price.
1	Light Frame,	4 feet by 6 feet	...	£2 17 6
2	" "	8 feet by 6 feet	...	4 7 6
3	" "	12 feet by 6 feet	...	5 17 6
4	" "	16 feet by 6 feet	...	7 7 6
5	" "	20 feet by 6 feet	...	8 17 6
6	" "	24 feet by 6 feet	...	10 7 6

No. 74.—PLANT FRAME.

The Frames are 13 inches high at front, 24 inches high at back, and 32 inches at the ridge, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, fitted with set-opes, and arranged to turn over, back and front, for ventilating.

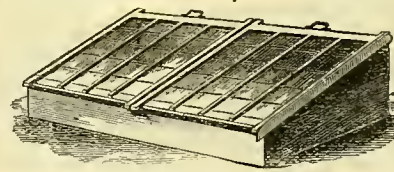


	Length.	Width.		Price.
1	Light Frame,	4 feet by 6 feet	...	£3 0 0
2	" "	8 feet by 6 feet	...	4 12 6
3	" "	12 feet by 6 feet	...	6 5 0
4	" "	16 feet by 6 feet	...	8 0 0
5	" "	20 feet by 6 feet	...	9 15 0
6	" "	24 feet by 6 feet	...	11 10 0

Made up to any length.

No. 75.—CUCUMBER FRAME.

The Frames are of 1½-inch boards, 24 inches high at back, and 13 inches high in front, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, with iron bar across and one handle at the top.



	Length.	Width.		Price.
1	Light Frame,	4 feet by 6 feet	...	£2 0 0
2	" "	8 feet by 6 feet	...	3 5 0
3	" "	12 feet by 6 feet	...	4 12 6
4	" "	16 feet by 6 feet	...	6 0 0
5	" "	20 feet by 6 feet	...	7 7 6
6	" "	24 feet by 6 feet	...	8 15 0

These Frames are painted four coats, and glazed with 21-oz. glass. Packing Cases are allowed for in full if returned at once, carriage paid and in good condition. Carriage paid to any station in England and Wales. Also to Dublin, Cork, Londonderry, Glasgow, and Edinburgh, or stations equivalent.

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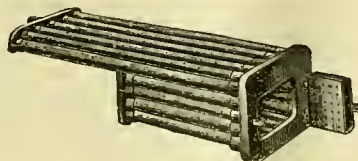
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HORIZONTAL TUBULAR BOILER.

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Cone.	cu. feet.	PRICES.	Per case.
No. 0,	50 (for Window Cases and Small Frames from 10 cubic feet)	6d.	10s. 6d.
" 1,	100 (for Frames, &c.)	9d.	15s.
" 2,	500 (for Small "Lean-to's," &c.)	1s. 3d.	13s. 6d.
" 3,	1000 (for general use in Larger Greenhouses)	2s.	11s.

Directions for use with each Cone.

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Large Heavy Russian, 7s. 6d. per dozen. Yellow Fibrous LOAM,

Silver SAND (coarse and fine), Brown Fibrous PEAT, at lowest

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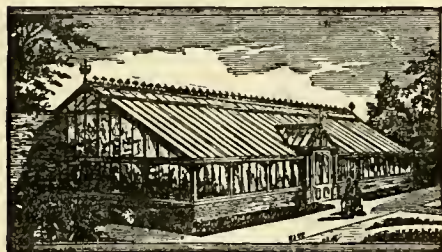
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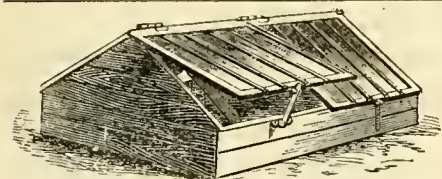


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12 " 9 " 10/- " 14/-	or 300 squares 15 ounces, 8 by 6.
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14 " 12 " 17/8 " 24/-	9 by 7½, or 150 squares, 10 by 8.
14 " 12 " 13/- " 20/-	for 10s. Carriage paid for all orders
18 " 12 " 21/- " 31/-	over £2.
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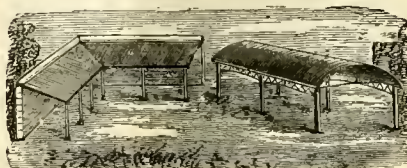
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16x14
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21-oz. Foreign of the above sizes, in 100 and 200 feet boxes, 3rds and 4ths qualities, always kept in stock.

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A cool, deep, sparkling hecker of liquid topaz
Nor Reims, nor Rhine can match it!"

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of the fine 1887 vintage, is now perfect.
THOROUGHLY GENUINE Wine. Pale, brilliant, slightly sparkling, exquisite colour, delicious flavour; not too sweet. LARGELY used for DINNER, SUPPER, DESSERT, BALLS, and PICNICS.

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—FOURTH SEASON—numerous important improvements introduced. Most efficient and cheapest in existence. Requires no sunk stokehole and no brick setting. Will last all night without attention. Will burn house cinders, therefore costs next to nothing for fuel. Any one can fix it. A domestic servant can stoke it.

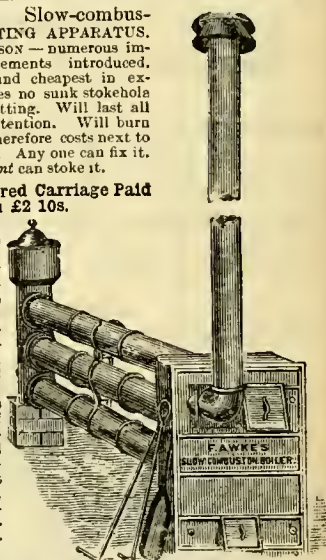
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Beware of inefficient incomplete Apparatus, which will not last all night.

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PATENTED in GREAT BRITAIN, FRANCE and GERMANY.

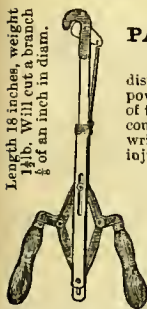
As the S. M. Co.'s "Standard" Tree Pruner is admitted to be the best Pruner for work a distance from the ground, so will the two "MYTICUTTAHS" prove the handiest and most powerful for Pruning and Trimming close to the ground, such as the removal of shoots from roots of trees; also Shrubs, Fruit and Flower Bushes, Vines, and other climbing plants, &c. Their construction enables prickly Shrubs and Bushes to be Pruned without lacerating the hands or wrists, even if gloves are not worn. They will with ease cut the hardest wood growing without injuring the part left by splitting and drawing the sap several inches up and causing decay, as other implements are known to do.

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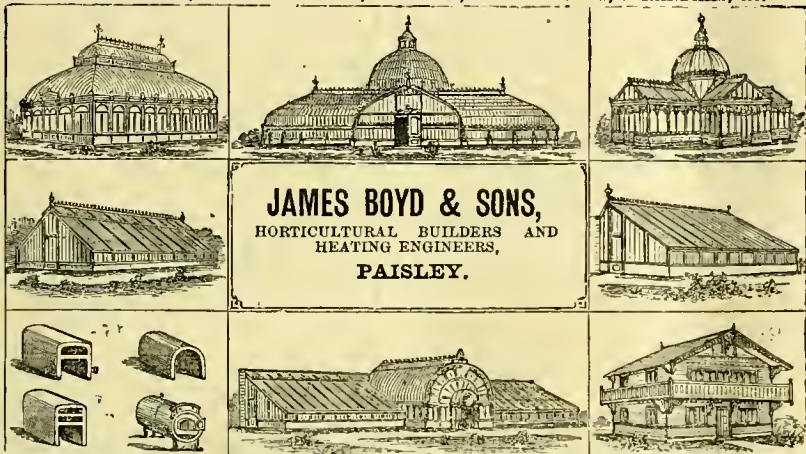
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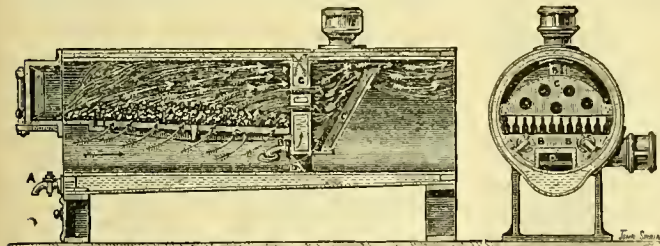
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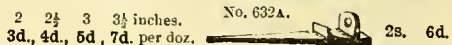
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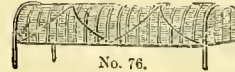


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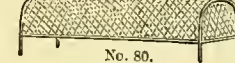
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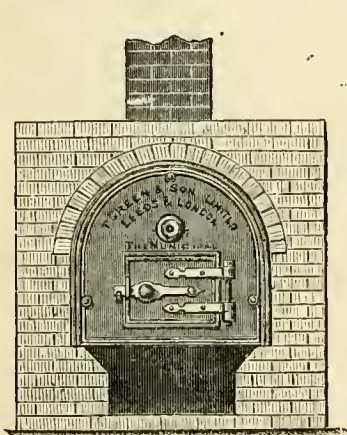
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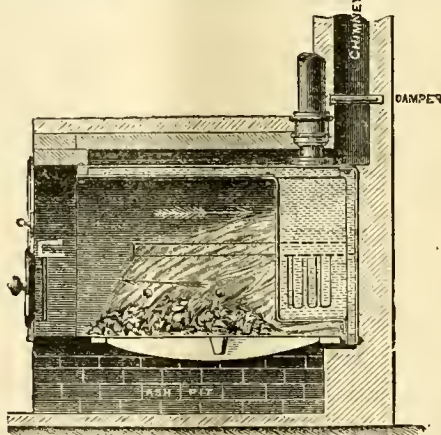
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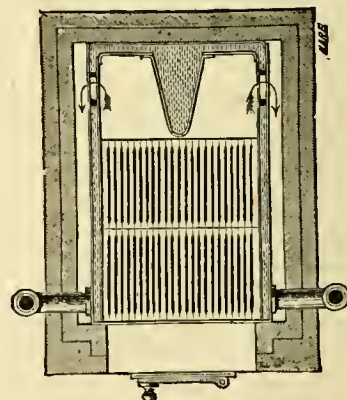
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Eltham.—Expiration of Lease.

Important CLEARANCE SALE of General NURSERY STOCK, extending over upwards of 30 Acres of Ground.

MESSRS. PROTHEROE and MORRIS are instructed by the Executrix of the late Mr. J. W. Todmou to SELL by AUCTION, on the Premises, the Eltham Nursery, Eltham, close to the railway station, on MONDAY, February 13 and two following days, at 12 o'clock precisely each day, the First Portion of the valuable NURSERY STOCK, including about 50,000 Evergreen and Coniferous Shrubs in various sizes, consisting of 10,000 Laurels, 2000 Hollies, 1500 Rhododendrons, 4000 Cupressus and Thunias, 1500 Firs, 5000 Privet, &c.; 5000 Deciduous Shrubs, 10,000 strong Quick, a fine assortment of handsome specimen Border Shrubs, 4000 Standard Roses, 6000 Standard, Pyramidal and Trained Fruit Trees, 3000 Forest Trees, and 150 loads of Manure and Loam.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Tuesday Next.

CAMELLIAS, AZALEAS, Standard and Dwarf ROSES, FRUIT TREES, Hardy EVERGREENS, PALMS, FERNS, LILIES, &c., in choice assortments.

MESSRS. PROTHEROE and MORRIS will SELL the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 14, at half-past 12 o'clock precisely.

Catalogues had at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Wednesday Next.

EXTENSIVE IMPORTATIONS of LILIES, just received from Japan in very fine condition.—Important to large buyers. 14,000 *Lilium auratum*, splendid bulbs; 1700 *L. Krameri*, 1200 *L. speciosum album*, 1200 *L. s. roseum*, 500 *L. tigrinum splendens*, 500 *L. crinum*, 500 *L. Thunbergianum*, and other LILIES; also 1000 MAPLES, in 20 varieties, according to drawings.

27,000 COCOS WEDDELLIANA SEEDS, from Brazil, in excellent condition.

MESSRS. PROTHEROE and MORRIS will include the above in the SALE at their Rooms on WEDNESDAY NEXT, February 15, at half-past 12 o'clock precisely. On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA WALKERIANA.
CATTLEYA MOSSIE.
CATTLEYA SPECIOSISSIMA ERNESTII.
LELIA ELEGANS.
ODONTOGLOSSUM PARDINUM.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 17, at half-past 12 o'clock precisely, a splendid consignment just arrived of CATTLEYA MOSSIE, in the finest order, well furnished with leaves, and sound unbroken eyes. Also a large importation of the showy and handsome flowered *C. SPECIOSISSIMA*, in masses of unusual size, well shaped and full of foliage, and with sound eyes.

A fine lot will also be offered of the beautiful and rare *Cattleya Walkeriana* in excellent condition, fine healthy plants of *Lelia elegans*, the rare *Odontoglossum pardinum*, together with a quantity of *Ocimum scarodes*, *O. dasystyle*, *O. Liminghii*, *O. luridum*, *O. Weltonii*, *O. Krameri*, a fine lot of *Sophronitis grandiflora*, *Odontoglossum Hallii xanthoglossum*, *O. Donianum*, *O. grande*, *Meione Wallichianum*, *P. humilis*, *Palumbina candida*, *Odontoglossum Rossi majus* and *rubescens*, in large and fine masses; *Ocimum giganteum*, *Lelia Perinii*, and many other choice Orchids; together with 300 *Odontoglossum Alexandrie* and varieties, established plants, from a private collection.

On view morning of Sale and Catalogues had.

Friday Next.

300 ODONTOGLOSSUM ALEXANDRIE and varieties. Established Plants from a Private Collection.

MESSRS. PROTHEROE and MORRIS will include the above in their SALE on FRIDAY NEXT, February 17.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

SALES of Standard and Dwarf ROSES, GREENHOUSE PLANTS, PALMS, a consignment of CAMELLIAS, AZALEAS, and other PLANTS from Belgium; LILIUm AURATUM from Japan, an extensive assortment of English-grown LILIES, including most of the principal varieties, IRIS, DAFFODILS, TUBEROSES, DUTCH BULBS, &c.

MESSRS. PROTHEROE and MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, February 15 and 18, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Flowering Orchids.—Special Sale, February 28.

MESSRS. PROTHEROE and MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place as above, for which they will be glad to RECEIVE NOTICE of ENTRIES as early as possible.

WANTED TO RENT, a Small MARKET NURSERY, with not less than 300 feet of Glass, in good condition.

J. B. R. Barker, Springfield Terrace, Springfield Road, Chelmsford.

FOR SALE, a SMALL NURSERY, SEED and 'LORIST'S BUSINESS, in a first-rate locality: good Jobbing connection. Price low to immediate purchaser. Apply to F. R. BRUCE, Uxbridge Road, Ealing Dean.

FOR SALE, a FLORIST'S BUSINESS, in an important Railway Station, N. Rent low. Price, including Godwill, Stock, and Fixtures, £30. 1a, Holmdale Road, Stamford Hill, N.

Suffolk.

Capits opening for pushing Flower and Fruit Grower in Established Business, capable of Extension.

SMALL NURSERY, with two new, well-arranged Greenhouses, 100 feet by 16 feet, and 180 feet by 10 feet, stock at Valuation.

Apply, Mr. J. GREENER, 101, Leadenhall Street, London, E.C.

TO LET, a capital NURSERY, comprising good Dwelling-house, 6 Span-roofed Greenhouses, 2 Ranges of Pits, large Stabling, &c., all in good repair, the Glass well and efficiently heated with Hot Water; every convenience do a large trade; at the low rent of £50. Stock at Valuation. Situate one minute from main Uxbridge Road. Apply to Mr. C. H. MELLER, Willow Vale, Shepherd's Bush, W.

To Country and Colonial Firms.

LONDON DEPOT for WAREHOUSING, FORWARDING, and REPACKING: Central to all Rail and Carriers. Nominal Rent and Low Charges. Address, LONDON AGENT, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so called good examples at HIGHNAM COURT and BEARWOOD, recited in this Journal recently, were all executed by PULHAM and SON, BROXBORNE.

ORCHIDS.

A LARGE IMPORTATION OF EAST INDIAN ORCHIDS

In Grand Condition,

HAS JUST BEEN RECEIVED BY

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES,

ARSTON, near LIVERPOOL.

PULPITULARS on APPLICATION.

Roses! Roses! Cheaper than Ever.

50,000 DWARF ROSES, only the best leading varieties, and warranted true to name, from well-known collection. From 22s. per hundred, £10 per 1000 Send for sample dozen 3s. Terms cash. Send for a list. A. and C. ALLEN, Stone Hills Nursery, Norwich.

SPECIAL OFFER, to CLEAR.—Scotch FIR, ex strong, 3 to 5 feet, 25s. per 100 for cash with order; also aht 5000 PRIVET OVIFOLIUM, very stout and bushy, to 3 feet, cheap. Red and Black CURRANTS, very strong, 100. CHRYSANTHEMUM Cuttings, in 400 best varieties, 1s. per dozen.

B. R. DAVIS, Yeovil Nurseries, Yeovil.

ADRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers London is very moderate. Medal of Honour at the Universal Exhibition of Paris 1878. Orders must be addressed to Messrs. WATSON and SCULL, 90, Lor Thames Street, London, E.C.

SHARPE'S VICTOR POTATO. CAUTION.

MESSRS. CHARLES SHARPE and CO., Sleaford, Lincolnshire, wish to caution buyers of the above Potato to see that they are supplied with the true variety, as many spurious stocks are offered under the name of Victor, and great disappointment has ensued.

The true VICTOR, as sold by Messrs. CHARLES SHARPE & Co., is a medium-sized flattish oval, smooth skinned variety, with very shallow eyes and yellow flesh—extremely early, producing Potatoes fit for use in eight or ten weeks from planting. Large quantities of a later, rough-skinned, round white-fleshed Potato have been sold for it by some houses.

To secure the true kind apply either to CHARLES SHARPE & Co., or to a firm supplied direct from them.

CATALOGUES on APPLICATION.

CHARLES SHARPE and CO., Seed Growers and Merchants, SLEAFORD, LINCOLNSHIRE.

W. GORDON, IMPORTER of ORCHIDS from all parts of the world. An immense Stock of recently imported plants compels a Sale of the Established Plants to make room. These have not yet flowered, but are all flowering plants, and must be sold at a great sacrifice. Very valuable varieties are certainly to be obtained, and great bargains. See Public Journals for high prices recently obtained. The special offer affords a paying investment to anyone with glass at command which should not be overlooked. Such plants may never again be offered to the Public and the Trade.

LILIUm AURATUM, 4s., 6s., 8s., and 10s. per dozen, the best that money can buy anywhere. Specially imported *ne plus ultra* bulbs, 2s. 6d. each. Very liberal allowance to the Trade.

LILIUm ALBUM KRAETZERI, the most lovely white Lily grown—throws seven to ten flowers, which sell in market at 2s. per dozen; beautiful and rare, 1s. each, 10s. per dozen.

LILIUm SPECIOSUM RUBRUM CRUENTUM, the dark form of this lovely Lily, most exquisitely marked, 1s. each, 10s. per dozen.

LILIUm AURATUM PLATYPHYLLUM RUBRO-VITTATUM, crimson, striped with gold; VIRGINALE, pure white, and spotted, with gold band. All these lovely new and distinct forms of Auratum, suitable for show purposes, very fine bulbs, 5s. each.

LILIUm HARRISII, 10s. per dozen; and all other LILIES equally cheap. Bankian Silver Medal awarded August, 1887. JAPANESE NOVELTIES, 80 varieties; IRIS, Tree PEONIES, MAPLES, CAMELLIAS, AZALEAS. Please apply for special offer to

W. GORDON, The Nurseries, Amyand Park Road, Twickenham, Middlesex.

CHOICE CACTUS DAHLIAS,

pot roots, sound.

MRS. HAWKINS (new yellow), 9d. each; 6s. per dozen.

JUAREZII (crimson-scarlet), 9d. each; 6s. per dozen.

COCHINEAL (dark velvety-crimson), 9d. each; 6s. per dozen.

GLARE OF THE GARDEN, 4s. 6d. each; 4s. 6d. per dozen.

CONSTANCE and MR. TAIT, 1s. each, pure white.

SINGLE DAHLIAS, PARAGON, and WHITE QUEEN, two of the finest for cut flowers, 4s. 6d. per dozen.

DOUBLE DAHLIAS, to name, fine show varieties; pot roots.

The above are very healthy sound pot roots.

Carriage paid for cash with order.

Magnificent new Dwarf Striped PETUNIA SEED. This is without doubt the finest strain possible to grow. The plants commence to bloom 3 in-ch high, and are most attractive; scarcely two flowers are alike. Thousands are sold in Covent Garden Market, and acknowledged by all to be the best they have ever grown. Per packet, 2s. 6d., post-free.

CHARLES BURLEY, Nurseries, Brentwood, Essex.

LARGE SHRUBS and CONIFERÆ.

American Arbor-vitæ, 2 to 2½ feet, 16s. per 100; ditto,

3 to 3½ feet, 20s. per 100. Aucuba japonica, 1½ to 2 feet, 30s. per 100.

Berberis aquifolia, 1 to 1½ foot, 50s. per 1000. Box Trees,

2 feet, 20s. per 100. Griselinia littoralis, 1½ foot, 30s. per 100.

Laurel, Common, 2 to 2½ feet, 10s. per 100. Laurel, Portugal,

1½ to 2 feet, 20s. per 100. Laurel, Colchic, 2 to 3 feet, 18s.

per 100; ditto, 3 to 4 feet, 30s. per 100. Laurel, caucasicum,

2 to 3 feet, extra, 20s. per 100. Rhododendron ponticum,

1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100;

ditto, 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per 100.

White and other colours, strong and bushy, 70s. per 100.

English Yews, 2 feet, 26s. per 100. Abies Dou-

glasii, 3 to 4 feet, 35s. per 100; ditto, 4 to 5 feet, 45s. per 100.

Araucaria imbricata, 1½ to 2 feet, 24s. per dozen; ditto,

2 to 2½ feet, 36s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen.

Cupressus macrocarpa, 2 to 3 feet, 50s. per 100. Cupressus

Lawsoni, 2 to 3 feet, 20s. per 100. Cupressus erecta viridis,

2 feet, 30s. per 100. Pines Nordmanni, 2 feet, 35s. per 100;

ditto, 3 to 3½ feet, 18s. per dozen. Retinospora plumosa,

1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. Retino-

spora plumosa aurea, 1 to 1½ foot, 50s. per 100. Retinospora

squarrosa, 12 to 18 inches, 20s. per 100; ditto, 2 to 2½ feet, 50s.

per 100. Thuia Lobbi, 2 to 2½ feet, 20s. per 100; ditto, 4 to 5

feet, 12s. per dozen. Thuiopsis borealis, 2 to 2½ feet, 50s. per 100.

Thuia dolabrata, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3

feet, 30s. per dozen.

GARLIES MITCHELL, Nurseryman, Stranraer.

BEGONIA SEED.—Sixpenny Packets, post-

free *td.*; all colours, mixed or separate. Finest giant

single varieties. Crimson, scarlet, pink, rose, white, yellow,

orange, salmon. Larger packets, 1s. The best and cheapest

procureable. See now.—JOHN R. BOX (for 10 years sole partner with J. LATO), Seedsman and Begonia Grower, Croydon.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, rooted into 54-inch pots, 2s. 6d. each. Descriptive LIST on application.—**RICHARD SMITH AND CO.**, Nurserymen and Seed Merchants, Worcester.

CARNATIONS.

50 choice named sorts, my selection, 20s.; 25 do., 10s. 6d. 12 good Border, to name, 4s. Old Glove, true, 3s. per dozen. **CARNATION SEED**, Home-saved, from my splendid collection of named sorts, packet of 50 seeds, 1s.; collection of 12 varieties, 3s., post-free.

General SEED CATALOGUE free to all Customers. **THOS. BUTCHER**, Nurseryman and Seed Merchant, Croydon.

CREEPERS FOR WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Descriptive LIST and advice free. **RICHARD SMITH AND CO.**, Nurserymen and Seed Merchants, Worcester.

STRONG FOREST TREES.

ALDER, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.
BIRCH, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, 3 to 4, and 4 to 5 feet.
LARCH, 2 to 3, 3 to 4, and 4 to 5 feet.
OAKS, 1½ to 2, 2 to 3, and 3 to 4 feet.
FIR, Scotch, 1½ to 2, 2 to 2½, and 2½ to 3 feet.
FIR, Spruce, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 4, and 4 to 5 ft.
All these are stout, good plants, and properly rooted. The prices quoted will be very reasonable in order to clear. Apply to **JOHN HILL**, Spot Acre Nurseries, near Stone, Staffordshire.

SIMPLE INSTRUCTIONS by which anybody anywhere may force and obtain a great quantity (lasting until outdoor beds are in full bearing) of most excellent **ASPARAGUS** at a very trifling expenditure of time or money. Directions sent Free to all applicants. **RICHARD SMITH AND CO.**, Nurserymen and Seed Merchants, Worcester.

PALMS.

A few hundreds, well-grown, strong and healthy.
Seaforthia elegans, **Lantana borbonica**, **Phoenix reclinata**, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.
Lantana borbonica, **Seaforthia elegans**, **Phoenix reclinata**, and **Corypha australis**, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.
Seaforthia elegans, **Lantana borbonica**, **Phoenix reclinata**, **Enterpe edulis**, and **Areca lutescens**, 2 feet 6 inches to 3 feet high, 3s. to 6s. each.
Fine feathery-foliaged **Seaforthia elegans**, 4 feet high, 15s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

To Gentlemen, Nurserymen, Builders and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as **PLANES**, **LIMES**, **ELMS**, **CHESTNUTS**, **EUNONYMUS**, **AUCUBAS**, and **HOLLIES**, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. **CATALOGUES** free on application.
The Nurseries, Trinity Road, Wandsworth Common, S.W.

TREES AND SHRUBS for the Sea Coast.

CATALOGUE Free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CHRYSANTHEMUMS, 600 varieties, best and newest, strong Cuttings from general collection, now ready, 1s. 6d. per dozen, 10s. per 100; plants in January, 2s. 6d. per dozen, 16s. per 100. W. E.'s selection cheaper. Many of the best prizes in the country have been taken from plants and cuttings supplied by me. **Mons. Delaux's** grand set of 100 sorts, and other new varieties, at reasonable prices. See **CATALOGUE**, with Essay on Cultivation, 2 stamps.

WM. ETHERINGTON, Chrysanthemum Grower, Swancombe, Kent.

GRAPE VINES

most excellent Canes, best varieties, 3s. 6d., 5s., 7s. 6d. Descriptive LIST Free. **RICHARD SMITH AND CO.**, Nurserymen and Seed Merchants, Worcester.

To those about to Plant Roses, &c.

EWING'S CATALOGUE contains short and plain Cultural Notes, besides Descriptions and Prices of the best Roses; and in addition 28 pages are devoted to Ornamental Trees, Shrubs, Fruit Trees, Climbing Plants, Horticultural Requisites, &c. It is forwarded post-free to applicants on receipt of three penny stamps, or Gratis to Customers. Abridged LIST of low priced carriage and package free collections of high-class Roses, gratis and post-free.

EWING AND CO., Sea View Nurseries, Havant, Hampshire.

RASPBERRY CANES.

Selected Fastolf, 30s. per 1000.

STRAWBERRY PLANTS

Sir Joseph Paxton, 12s. per 1000.

RED CURRANTS,

2-yr. old, 8s. per 100. Terms Cash.

R. BATH, Osborne Farm, Wisbeach.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rock-work, which produce flowers and render the garden attractive all through the year. New LIST of sixty-four pages Free.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

100 CONIFERS, in 50 distinct varieties for 50s.

100 ORNAMENTAL TREES, in 50 distinct varieties, including many variegated golden and purple Acers, &c. for 50s.

100 DECIDUOUS SHRUBS, in 50 distinct varieties for 20s.

100 EVERGREEN SHRUBS, in 50 distinct varieties for 30s.

100 ROSES, in 50 finest varieties, of H.P. and Tea on the Seedling Brier, from the open field for 35s.

We may state that we have grown Teas on the Seedling Brier in the open field for many years back, proving that they are about as hardy as the H. P., as we have frequently had the latter cut back to the snow line. It is only when the thermometer registers below zero that they require protection.

100 HERBACEOUS PLANTS, in 50 fine varieties for 20s.

100 PRIMULAS, in 50 distinct varieties for 50s.

Catalogue of Names may be had free on application.

MORRISON BROTHERS,

NURSERIES,

ABERDEEN.

THE BEST WHITE CELERY



CARTERS' SOLID IVORY

Compact in growth and nutty in flavour.

PRICE, in SEALED PKTS., 1s. and 2s. 6d., post-free.

Royal Seedsmen by Sealed Warrants,

237 and 238, HIGH HOLBORN, LONDON, W.C.

NEW PEA, "XL ALL."

THE BEST MAIN CROPPING VARIETY.

For Testimonials, see **CATALOGUE**, Post-free.

Sealed Pint Packet, 2s. 6d., post-free.

Sealed Half-pint Packet, 1s. 6d., post-free.

o be had from the principal Seed Houses, or direct from

KENT & BRYDON, SEED MERCHANTS, DARLINGTON.

ROSES 20 ACRES.

Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. **BUSHES**, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100. **STANDARDS**, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

ROSES IN POTS;

all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

RICHARD SMITH & CO., Nurserymen and Seed Merchants, WORCESTER.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on **FRIDAY, July 13** next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than **Monday, 23rd day of April** next. **A. F. BARRON**, Hon. Sec., Royal Horticultural Society's Gardens, Chiswick.

White Lilac.

K. DROST, Kew Nursery, Richmond, S.W., and 30, Covent Garden Flower Market, W.C.

Any quantity to be had at a minute's notice.

TELEGRAPHIC ADDRESS—"DROST, RICHMOND, SURREY."

TREES and SHRUBS suitable for Towns and

Smoky Districts. **CATALOGUE** Free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Full of Useful Information—No Charge.

BARR'S 1888 SEED CATALOGUE, now ready. In addition to the usual valuable information, will be found special remarks on the Culture of the **TOMATO** and **TOBACCO** as **INDUSTRIES**, with a Special List of **HIGH-CLASS POTATOS**, handsome in form, pleasant in flavour, and bountiful croppers. **CATALOGUE** free on application to **BARR AND SON**, King Street, Covent Garden, W.C.

SIMPLE INSTRUCTIONS by which an

abundance can be insured of delicious **MUSHROOMS**. See Seed LIST, Free.

RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

To the Trade

SEED POTATOS.

H. AND F. SHARPE will be pleased to make special offers of their carefully selected stocks of **SEED POTATOS**, raised on their own farms expressly for seed purposes. Seed Growing Establishment, Wisbech.

BEGONIAS A SPECIALTY.—Awarded Four

Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. **CATALOGUES** gratis.

JOHN LAING AND SONS, The Nurseries, Forest Hill, S.E.

Victoria Lily of the Valley.

MESSRS. HAWKINS AND BENNETT, Lily Gardens, Twickenham, Middlesex, for the first time offer to the Public this beautiful variety, superior both in its blooms and foliage to any other yet offered. The stock is limited. All Orders will be sent in rotation, with an engraving and instructions for planting, &c. Price 25s. per square yard, packing included. Cash with Order.—Apply as above.

ASPARAGUS, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. **SEAKALE**, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Trade Price Current Seeds, 1888.

PETER LAWSON AND SON (Limited), Edinburgh, have now Posted their Annual **CATALOGUE OF VEGETABLE AND FLOWER SEEDS** to their Customers, but should there be any not delivered Copies will be sent upon application.

The **ANNUAL CATALOGUE OF AGRICULTURAL SEEDS** will be published later on, meanwhile special offers will be made upon application.

H. LANE AND SON, having a large stock of

the following, can supply them at very moderate prices. **CATALOGUE** Free on application.

CEDRUS DEODARA, 4 to 12 feet, handsome and well rooted.

CUPRESSUS LAWSONIANA erecta viridis, very fine.

RETINOSPORA, in variety.

THUIOPSIS DOLABRATA, 2 to 4 feet, specimens.

AUCUBAS.

HOLLIES, Variegated, very fine, 2 to 8 feet.

Green, well rooted, 2 to 5 feet.

LAURELS, common, latifolia, caucasicum, rotundifolia, bushy and well rooted.

YEW, Variegated, probably the largest stock in the country.

Irish, 3 to 9 feet.

LAURELS, standard Portugal, fine heads.

MAPLE, Norway; **SYCAMORE**, scarlet and common.

CHESTNUTS, **POPLARS**, **ALDERS**, &c., 10 to 14 feet and upwards.

DEUTZIAS, **SPIREAS**, **WEIGELAS**, **LILACS**, **RIBES**, &c.

Seedling Ponticum and Hybrid **RHODODENDRONS**.

RHODODENDRONS, named, 2 to 8 feet.

APPLES, **PEARS**, **PLUMS**, **DAMSONS**, Standard, &c.

APPLES and **PEARS**, horizontal trained.

PEARS, Pyramid; **PLUMS**, **APPLES**, &c.

CLIMBERS for walls, &c.

The Nurseries, Berkhamstead, Herts.

To the Trade.

Home-grown **VEGETABLE** and **FIELD SEEDS**.

H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of **VEGETABLE** and **FIELD SEEDS**, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

J. CHARLESWORTH,

HEATON, BRADFORD,
ORCHID IMPORTER AND GROWER.

Large Stock of all Leading Sorts.

INSPECTION INVITED.

Spring, 1888.
NEW WHITE ROUND POTATO,
WEBBER'S "EARLY WHITE BEAUTY." Awarded First-class Certificate, Royal Horticultural Society, September 21, 1887. The many testimonials received from well known authorities speak so well for the excellence of this splendid new white-skinned Potato that a lengthy description is unnecessary; in short, it possesses every good quality. It is of handsome appearance, with shallow eyes, and the superior of the "Beauty of Hebron" both for quality and productiveness, whilst its dwarf habit and extraordinary quickness of maturation make it invaluable for early work. It has been tried on all kinds of soil with most satisfactory results, producing in every case a fine crop entirely free from disease.

TESTIMONIALS.

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"I have tried your new Potato, White Beauty. It is first-class, fine flavour, and handsome when put on the table. It must become a great favourite."

From Mr. F. BRIDGER, Gardener to the Right Hon. Lord de l'Isle and Dudley.

"Webber's Early White Beauty Potato has proved the best I ever grew, unrivalled for flavour, colour, and cooking qualities; very productive, haulm about 18 inches high, quick in maturation. I planted the second week in June, and lifted the first week in September a splendid crop, quite equal to those planted two months earlier."

From Mr. C. GOLDSMITH, Kelsey Manor Gardens, Beckenham.

"I have much pleasure to inform you the Early White Beauty Potato you sent me to try has turned out to be a first-rate kind. It is rightly named, and cannot fail to give every satisfaction."

From Mr. EDMUND COLE, Gardener to Earl Spencer, K.G., Althorp, Northampton.

"Having had the opportunity of seeing and testing the qualities of your Early White Beauty Potato from both heavy and light soils, I can say the tubers are perfect in form, and when cooked are very mealy white, and in flavour all that can be desired."

From Mr. CHISHOLM, Gardener to Sir Francis Geary, Ozonhoath, near Tonbridge.

"I have much pleasure in sending you my favourable opinion of your new Potato, more especially as to its good table qualities. My family agree with me that it is the best flavoured variety we have ever tasted. I do not hesitate to predict for it a prosperous future. I will recommend it to my friends, and grow it largely myself during the coming season."

See Testimonials continued next week.

Price—1 lb. 1s.; 7 lb. 6s.; of

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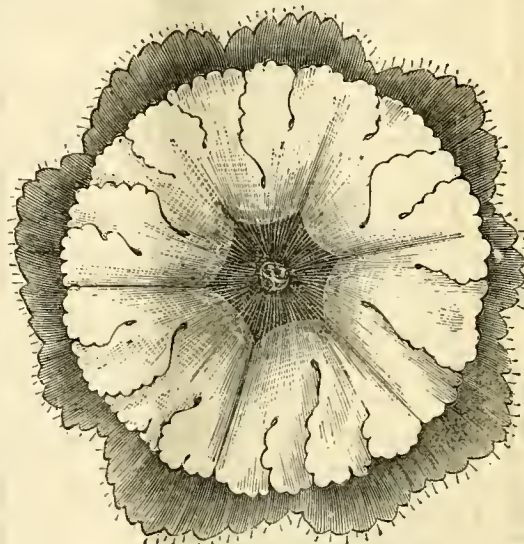
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 11, 1888.

SOME NEGLECTED ROSES.

HYBRID PERPETUALS.

OF course I do not mean that the "H.P.'s," as they are familiarly called, are neglected; they have, on the contrary, taken the lion's share of the rosarian's affections, time, space, and money: but I mean that there are some hybrid perpetuals which are well worthy a place in our gardens, a place they did once occupy, but which the eagerness of exhibiting, and the fashion it sets even to those who are non-exhibitors, have driven off the field; and in mentioning a few of them I may be, I hope, doing a service to those who would fain emulate (however futile the attempts may be) those whose stands they have stood admirably before at the various Rose shows they have attended.

There are two causes which have led to the rejection of many Roses—want of size, or want of correct form. Of these the former is the most potent; indeed, I am not sure that it is not too large a factor in all cases. It is sometimes said that you cannot have a Rose too large if it is good both in colour and form: I am not at all so sure of this, and I think it would be a fatal day for us if stands of the various colours could be set up with Roses as large as Paul Neron or Antoine Mouton; but be this as it may, it has led to the rejection of Roses which I once remember to have, as I thought, graced many an exhibitor's stand. Then, again, as to shape: a Rose such as A. K. Williams has by some been pronounced to be too formal, and Marie Baumann or Alfred Colomb have been preferred; but if a Rose lacks shape the exhibitor will not tolerate it—will not allow it a place in his box, or, indeed, in his garden; and yet, although he may be quite right to exclude them from the former, he may, unless his whole soul is bound up in the exhibition-tent, give them a place in the latter. Let me, then, bring forward a few which certainly deserve better treatment than they now receive.

Comtesse Cecile de Chabrillant.—This is one of the most exquisitely formed Roses we have; it was

raised by Marest, and sent out in 1859, and if not the only Rose he ever raised, certainly was the only one by which his name is likely to be remembered. It is of a clear satiny-rose, with the petals most beautifully folded, more like the form of a good Persian *Ranunculus*. It is not very vigorous in growth, although I cannot regard it, as some do, as a moderate grower. The wood is short, but the blooms are freely produced. I remember when we used to look out regularly for the exquisite blooms that good old Mr. Hedge, of Colchester, used to exhibit of it, but now "none so poor as to do it reverence." Very pretty is the verdict, but a great deal too small.

Anna Alexieff.—This Rose, on the other hand, is not of good shape, but it is most vigorous in habit, and an abundant and continuous flowerer. It was raised by Margottin thirty years ago, and ought still to hold its own as a garden Rose for its free habit. It is, however, but rarely seen. Sometimes it creeps in in a provincial show, but as its chief merit cannot be seen there, it is unnoticed. In the garden, and especially as a pillar Rose, it is sure to attract attention.

Eugène Appert.—Well do I remember the sensation Mr. Standish created when he brought up a stand of this flower to the National show held many years ago at Hanover Square Rooms. "Have you seen Standish's new Rose?" was heard on every side, and yet now it is very much relegated to the background. It was raised at Angers, by Trouillard, Lefroy's foreman, and is evidently of the *Géant des Batailles* race—that race which once reigned supreme; it is of a deep velvety-crimson colour, unlike any other Rose that I know; it is, however, defective in shape, and has, as the "Giant" and most of his family, a tendency to mildew.

Empereur de Maroc, raised, according to Ellwanger, by Ginoiseau, in 1838, and sent out by Eugène Verdier, is another of those attractive high-coloured Roses, which are always sure to please; but the superior character of such Roses as Louis Van Houtte and Reynolds Hile have eclipsed such flowers as this; but I am sure that as a garden Rose it is superior to either of them, it is so very free and rich. This also is apparently of the *Géant* race, and has one of its failings—the tendency to mildew.

Souvenir de Charles Montault, raised by Moreau-Robert, and sent out in 1862. It has never been an exhibition Rose, but as a garden Rose, bright in colour, very free flowering, and especially good in autumn; very pleasing, and for those who like bright Roses, irrespective of exhibition purposes, it is a desirable Rose.

Boule de Neige, Baronne de Maynard, &c.—Although these Roses—several of which originated with Lacharme—are sometimes classed as hybrid *Noisettes* yet as the National Rose Society classes them in its catalogue of garden Roses under this class, I follow their line. They are all small—too small ever to be useful to the exhibitor, but very pretty in the garden; they are very free flowering, and although there is some difference between them, yet they bear such a strong family likeness that they may well be classed together. Giving, as they do, a constant supply of very pure white Roses, they ought to be in every garden where space can be found for them.

Souvenir de Dr. Jamain.—This also is a Rose of Lacharme's raising, very distinct in colour—a sort of ruby-claret, and imbricated in form, but too small for exhibition purposes; it is more than probable, however, that this Rose will be superseded by the new English-raised Rose, Sir Rowland Hill, which gained the National Rose Society's Gold Medal, and has been most highly spoken of by all who have seen it; it is almost identical in colour with the Rose now under review, but has that which it lacks, good size.

Anna de Diesbach.—This is also a seedling of Lacharme's, and at one time it was highly thought of, and even now ought to be valued for its vigorous growth, hardness, and fragrance. There is rather a commonplace character about its colour, but notwithstanding this it ought to be more generally grown; it is admirable as a pillar Rose.

Gloire de Rosamène.—This may be regarded, I

think, as having a great deal to do with the brilliant coloured Roses belonging to the H.P. class. *Général Jacqueminot* is generally considered to have been a seedling from this, and although at times it is hardly double enough—partaking in this respect too much of the character of its parent—yet there are times when it stands out above all the high-coloured Roses; and although forty years and more have elapsed since it was first sent out, it has more than once lately run an extremely close race for the medal for the best Rose in the show. The General has also been the parent, evidently, of many of our high-coloured Roses, so that, if for this reason only, *Gloire de Rosamène* ought to find a place in the rosarian's garden; but as a pillar Rose it is very beautiful, being brilliant in colour and very free flowering.

These are some of the Roses which I think ought not to be driven out of gardens because they are not suitable for exhibition. I know the exhibitor grudges every piece of ground occupied by a non-exhibition Rose, but I contend that there is no reason why the general public, who do not exhibit, should be led away from really beautiful and useful Roses. They are not seen on the exhibition table, and, therefore, "out of sight out of mind" holds good with them as with many other things.

There are, I dare say, others which might be added to this list. Why not, some would say, include Paul Néron? Is it not highly prized in France? Most assuredly it is, and especially in autumn. Two years ago I went to see my old friend Margottin, in September; he had his sitting-room filled with Roses, but only one kind, and that was Paul Néron; he was loud in his praises of it, and said there were none to be compared with it for autumn blooming. Personally I do not like it; its enormous size detracts from its beauty. But in the autumn this is, of course, not so perceptible, and many may like to add it to their collection, or not discard it therefrom. So again some may like Madame Clemence Joigneaux or Baronne Prévost; but I have not desired to overburden Rose lovers but only to suggest a few which have not met, as I think, with the favour they deserve, and have been rejected for others which will be forgotten when those I have named will be gratefully remembered and lovingly cherished, *Wild Rose*.

NEW OR NOTEWORTHY PLANTS.

ANGRÆCUM SANDERIANUM, n. sp.*

This is very near *Angræcum dependens*, Rehb. f. It has an ascending or erect stem with distichous cuneate oblong leaves with an abrupt point at one side. My largest leaf is 4 inches long by $1\frac{1}{4}$ to $\frac{3}{4}$ wide. The peduncle is light brownish-green, more than a span in length. One can scarcely call it fractiflex, though it has some obscure indigitations of the rachis. The tumid base of the pedicelled ovary is very short, plump, scarcely equal to the short triangular bracts. The filiform acute usually ascending spur is three times the length of the stalked ovary. The flower has quite a distinct stamp from that of *Angræcum dependens*, inasmuch as all the floral envelopes are shorter, and the petals and lip rounder with a very short apiculus, whereas in *dependens* the lip is longest and always shows a tendency to be trilobed. The column has two membranous ears to the androclinium and not a vestige of those hairs which are so frequent in *dependens*. The rostellar process is well developed. Anther narrow, apiculate. Of course the flowers are white,

* *Angræcum Sanderianum*, n. sp.—Caule erecto seu ascendente medioeris; foliis cuneato-oblongis apice inequalibus, altero latere dente prosciente; racemo pendulo ad 11-flora bracteis minutis, pulvinaribus basilariibus tumidis, bracteis aequantibus calcaribus filiformibus acutis ascendentibus; sepalis triangularibus, tepalibus labelloque ellipticis apiculatis; columna circa androclinium bicurvis membranaceis, ciliolata, calvissima; anthera apiculata angusta. Sine dubio ex insulis Comoro ab exc. Humblot missum, ad exc. Sander seri lubentissime dicatum. H. G. Rehb. f.

ovary reddish-green. I suppose it to be an introduction of Monsieur Leon Humblot. The name is intended to commemorate Mr. F. Sander's high merits in populating our collections. H. G. Rehb. f.

CATASETUM TRILIA (Lindl.) MACULATISSIMUM.

This singular variety has well developed fringes on the anterior side of the side lobes of the lip. The petals and lip are covered with brown spots, as is also the anterior part of the sides of the column. It was kindly sent me by Mr. W. Bull. H. G. Rehb. f.

CÆLOGYNE FUSCESCENS, Lindl.

A very pretty *Cœlogyne* apparently exists in some collections, either without a name or under an erroneous one, and a few days ago specimens reached me for identification. The raceme bears about six flowers, of a pale buff tint, the upper sepal keeled and broader than the lateral ones, the petals very narrow, and the lip quite entire. This latter is pale buff, whiter towards the base, with three broad reddish-brown keels from the base to the middle, then much fainter to near the apex. The lateral lobes are broadly margined with sepia-brown, and a few blotches of the same colour inside the margin, the bands curving inwards to join the lateral keels at the base of the front lobe. The variety figured by Lindley in these columns, in 1848 as var. *brunnea*—also well figured in *Botanical Magazine*, t. 5494—differs in having very distinct side lobes; but in his *Folia Orchidacea* the same author mentions a variety "A," which differs in having an entire lip, with which the plant sent appears to be quite identical. I have not been able to find any figure of this entire-lipped form, which seems to be constantly distinguished from the var. *brunnea* by the entire lip. It is an attractive little plant, and a native of the Himalayas. R. A. R.

CYPRIPEDIUM GALATEA, n. hyb.

This is one of Mr. Seden's hybrids, just forwarded to me by Messrs. Veitch, but of which unfortunately the origin is unknown; perhaps through the seed having been washed off the pot, or some other accident to which even the most carefully recorded experiments are sometimes liable. It is, however, decidedly of the insigne type, and while possessing all the beauty of that species, there are also a number of important differences from which the other parent must be inferred. The general character is that of *C. insigne*, but the upper sepal is much lighter, almost primrose-coloured, the spots denser and more inclining to light purple-brown, and the broad white margin carried right round the sepal almost to the base; the petals are light purple-brown on their upper half, paler below, blotched with purple-brown for a third of their length on the dark portion, and for half their length on the paler one, all finely ciliate; the lip paler and very indistinctly veined, and the staminode with a somewhat less distinct tooth. I cannot trace these characters to the influence of any distinct species, and probably some hybrid is concerned in the parentage. Mr. Seden is strongly of opinion that *C. Harrisianum* × is one of the parents, which would account for the somewhat varnished appearance of the petals, if not also for the spots on these organs. I thought of *C. vernixium* ×, but this, he says, is too modern. The leaf is very similar to that of these two hybrids—green with somewhat indistinct darker tessellations. I cannot suggest any more likely parentage for the plant. R. A. Rolfe.

CÆLOGYNE GRAMINIFOLIA, Par. and Rehb. f.

Some few years ago a most distinct new *Cœlogyne* was discovered in Moulmein, by Mr. Parish, and was described from dried specimens and an excellent drawing. The matter appears to have rested here for some time; but the other day an unnamed *Cœlogyne*, received from Mr. Mann, and collected in or near Assam, expanded its flowers at Kew; while almost at the same moment came others from Messrs. Veitch for identification. They prove to be the above-named species, now apparently for

the first time flowering in English gardens. It is a most distinct species, and cannot be confounded with any other; the long, very narrow, leathery, and dark green leaves, being extremely characteristic. The peduncles are erect, about 4 inches high, clothed at the base with hard imbricating scales, and bearing

but each terminating in a dark brown line in front. This attractive species belongs to the Erecte section of the genus. A drawing has been prepared for the *Botanical Magazine*. I should have said that Mr. Kent, in forwarding the above-named flowers, added a full description of the plants, which agrees pre-

rudiments of one, the change is so gradual that it becomes a very difficult question where to draw the line, even if one were inclined to do so. *N. canariensis*, a species nearly allied to the above, has a very small trumpet or crown, as also has *N. apodanthus*, and others of that set; while *N. elegans*, a sweet little species from Algiers, and of which we have seen two or three forms one of which has an almost obsolete crown, while in the other two that appendage is so small as hardly to deserve the name. *Calliphuria Hartwegiana*, which has now been included with *Eucharis*, seems to stand in the same relation to that genus as *N. Broussonetii* stands to the average Daffodil. In one of the pits at Kew three bulbs have flowered from a small batch received from Mogador, Morocco, about nine months ago; the first opened about the middle of December, and continued with the succession of the other two until now (February 2). The individual flowers are from three-quarters to 1 inch in diameter, pure white, and extremely sweet-scented, from six to nine in a bunch, with never more than four to five open at once. As before stated, there is but the rudiments of a crown, on which three of the stamens are inserted, much longer than the three inserted in the longish tube. The leaves are rather more than half an inch broad, obtuse pointed, pale glaucous green, and rarely less than 1½ to 2 feet long. The twisting of the leaves of Daffodils has been referred to in your columns more than once, but I have never seen it so marked as in the present plant: they are twice or three times distinctly twisted from east to west. It has been suggested that *N. Broussonetii* may be the result of a cross between a *Narcissus* and some other *Amaryllidaceus* plant belonging to another genus. But if I mistake not this is the only species of *Narcissus* found in Morocco. D.

ROSE MADAME GEORGES BRUANT.

WE owe to M. Bruant of Poitiers the opportunity of figuring this highly interesting Rose (fig. 28), of which mention has before been made in these columns, and which is alleged to be the result of a cross between the Japanese *Rosa rugosa* fertilised by the pollen of *Sombreuil*, a Tea variety, with white flowers. The hybrid is stated to be very hardy, with much of the foliage of *rugosa*. The buds are elongated like those of *Niphetos*, and the white semi-double fragrant flowers, when shown before the National Horticultural Society of France, excited much interest, but, having been exhibited not for competition, no award was made to it. We look forward with interest to seeing this novelty, for if a cross has really been effected, there is no telling what surprises may be in store for us.

WEATHER PROGNOSTICS.

USEFUL prognostics of the weather (far more certain than the best weather-glass, or Shepherd of Banbury's observations), by Lord Bacon, the learned Dr. Samuel Clarke, Mr. Derham, &c.

We do not here mean to obtrude the idle arbitrary observations of whimsical people upon our readers. That cloud of popular predictions from the brute world, which, partly the sagacity and partly the credulity of our countrymen have established, we set aside as not flowing from any natural necessary relations that we know of in the things themselves.

First, then, a thick dark sky, lasting for some time, without either sun or rain, always becomes first fair, then foul, *i.e.*, changes to a fair clear sky ere it turn to rain. This the Rev. Mr. Clarke, who kept an exact register of the weather for thirty years, since put into Mr. Derham's hands by his grandson, the learned Dr. Samuel Clarke; this, he says, he scarce ever knew to fail—at least, when the wind was in any of the easterly points; but Mr. Derham has observed the rule to hold good, be the wind where it will, and the cause is obvious: the atmosphere is replete with vapours, which, though sufficient to reflect and intercept the sun's rays from us, yet want density to



FIG. 28.—HYBRID ROSE MADAME GEORGES BRUANT.

two or three flowers. The segments are lanceolate, acute, 1 inch long, and pure white; the sepals keeled, and broader than the petals. The lip is three-lobed, the front lobes deep yellow, white at the apex; the side lobes white, with oblique sepia-brown veins, and almost suffused with the same colour near their apex. There are three linear undulate-cripsed keels running down the centre of the lip, the two outer ones being more distinct than the central one,

exactly with the one now flowering at Kew. R. A. Rolfe.

NARCISSUS BROUSSONETII.

Were it not that this large genus shows an unusual amount of variation in the size of the trumpet, &c., we should be inclined to refer this species to its old name of *Aurelia*. From Emperor, however, with its long trumpet, to the present plant with only the

descend; and while the vapours continue in the same state the weather will do so too. Accordingly such weather is generally attended with moderate warmth, and with little or no wind to disturb the vapours, and a heavy atmosphere to sustain them, the barometer being commonly high. But when the cold approaches, and by condensing drives the vapours into clouds or drops, then way is made for the sunbeams till the same vapours, being by further condensation formed into rain, fall down into drops.

2. A change in the warmth of the weather is generally followed by a change in the wind. Thus, the northerly and southerly winds, commonly esteemed the causes of cold and warm weather are really the effects of the cold or warmth of the atmosphere, of which Mr. Derham assures us he had so many confirmations, that he makes no doubt of it. Thus it is common to see a warm southerly wind suddenly changed to the north by the fall of snow or hail, or to see the wind in a cold frosty morning north when the sun has well warmed the earth an air wheel towards the south, and again turn northerly or easterly in the cold evening.

3. Most vegetables expand their flowers and down in sunshiny weather, and towards the evening and against rain, close them again, especially at the beginning of the flowering, when their seeds are tender and sensible. This is visible enough in the down of the Dandelion and other flowers, and eminently in the flowers of Pimpernel, the opening and shutting of which, Gerard observes, are the countryman's weatherwiser, whereby he foretells the weather of the following day. The rule is, if the flowers be close shut up, it betokens rain and foul weather; if spread abroad, the contrary. The stalk of Trefoil, my Lord Bacon observes, swells against rain, and grows more upright; and the like may be observed, though not so sensibly, in the stalks of most other plants. He adds that in the stubble fields there is found a small red flower, called by most country people Wincopie (Anagallis), which, opening in a morning is a sure indication of a fair day. That vegetables should be affected by the same causes that affect the weather is very conceivable, if we consider them as so many hygrometers and thermometers, consisting of an infinite number of tracheæ, or air-vessels, by which they have an immediate communication with the air, and partake of its moisture, heat, &c. These tracheæ are very visible in the leaf of the Scabious, Vine, &c. From the "*British Legacy*," 1754.

NEPENTHES NOTES.

EVEN at this dull season of the year the Nepenthes at the Royal Botanic Garden, Edinburgh, are very interesting, as some remarkably beautiful pitchers are now being developed in a house devoted to their culture.

A batch of seedlings raised in these gardens, from which *N. edinensis* × × was selected, vary much in growth; the urns, however, are very elegant in contour and brilliant in colour. What a fortune they would have been in a nurseryman's hands; at least half-a-dozen distinct variations might have been certificated. The parents were *N. Rafflesiana* and *N. Chelsoni* ×. The progeny partake of the characteristics of both parents—at present in miniature.

A still later batch, hybrids between *N. Veitchii* and *N. Rafflesiana*, are developing some handsome pitchers, which are showing evidence of distinct novelty. The urns are tankard-shaped, with decided appearance of the brilliant Rafflesian markings on the Veitchian broad margin or peristome. Mr. Lindsay purposes naming the most distinct one after the late Professor Dickson, who took great interest in these Nepenthes. What a loss the entire botanical world has sustained in his death! A thorough botanist; a *beau idéal* of what a gentleman should be; one of whom we can indeed safely say, he could not have an enemy!

Amongst the species, *Nepenthes Veitchii*, with a leaf-blade at least 4 inches across, is maturing fine

young pitchers about 7 inches long, a very conspicuous object, with its deep golden collar-like rim—as I have heard remarked, thoroughly Gladstonian in appearance.

In striking contrast we have *N. albo-marginata* var. *villosa* developing pitchers on each leaf, the colouring of which is very prepossessing—dark purple flakes on olive-green pitchers, having a conspicuous velvety-white margin, beneath the polished plum-coloured annulus, the whole plant covered with a delicate violet pubescence—a picture of health and beauty.

N. cincta is also producing some handsome and distinct pitchers, the peculiar corrugated annulus developing a singular undulation of shining crimson finely-ribbed lobes, conspicuous and striking, the peculiar oval orifice reminding one of *N. Lindleyana*, excepting that it has signs of a light-coloured margin partly hidden by the annulus. A curious variation is the extraordinary adjunct in the shape of two spur-like projections over the mouth of the urn, which, as the striation proves, form the finish to the peristome of *N. bicalcarata*. A plant of this now making fine leaves, but showing signs of former ill health, bears one abnormal pitcher, the *fac simile* of the figure of Mr. Le Marchant Moore's *N. Dyak*. [Now recognised as the same as *bicalcarata*. Ed.]

The rim of the urn, whether we call it peristome, annulus, or collar, has an importance as indicative of the different localities to which the various species of *Nepenthes* belong. To instance a few: the two forms from Mahé and Silhouette, *N. Pervillei* and *N. Wardi*; the screw-like processes of the Kina Balu, *N. villosa*, *N. Harryana*, and *N. Edwardsiana*; and the Mount Mulu collars of *N. Veitchii* and *N. lanata*, &c.

Mr. Lindsay has drawn my attention to the affinity of the inverted rims of *N. Hookeriana*, Hort., with *N. ampullaria*, Jack, which reminds me that *N. Hookeriana*, Low, and *N. Rafflesiana*, Jack, have completely changed places, and in gardens are doing duty for one another. *N. Hookeriana*, Hort., with its inverted rim in the way of *N. ampullaria*, is, with this species, a native of Singapore, which accounts for the affinity in the peristome—a fact, as I have before remarked, not unusual in *Nepenthes* history. The chapter of accidents which has led to this calamitous change of nomenclature is due to the following causes:—

1. The unfortunate mislaying or loss of Dr. Jack's carefully prepared drawings of *N. Rafflesiana* sent home in 1820 by the ship *Mary*. The failure of Sir Stamford Raffles to introduce living specimens of this handsome Pitcher-plant into England. The burning of the ship *Fame*, by which many MSS. of both Dr. Jack and Sir Stamford Raffles were lost.

2. *N. Hookeriana*, discovered by Mr. (now Sir Hugh) Low, in Borneo, the early developed pitchers of which were figured in the *Bot. Mag.*, t. 4285, as *N. Rafflesiana*, Jack, together with Dr. Jack's description of the earlier discovered but totally different plant, under the erroneous idea that the two plants were identical.

What an instance we have of the beneficent designs of Nature in the development of the upper or cauline pitchers in several species of *Nepenthes*. The lower pitchers have a rounder, fuller form, holding a considerable quantity of water, for which the earth forms a resting-place, to prevent damage to the leaf by breaking it from the stem; whilst the upper or cauline pitchers take a funnel or trumpet-shape, and consequently hold only as much water as the leaf is able to support without damage, the external aid of the ground being absent. The twisting of the cirrhi is also devised to add strength for this purpose. The two forms of pitcher-development were noticed by Dr. W. Jack in the MSS. left by him on the subject of the discovery of *N. Rafflesiana*, and also by Sir Hugh Low when he described his discovery of *N. Hookeriana*.

I have been observing for the last two months the extraordinary health and vigour of a pitcher of *N. Rafflesiana*, Hort., which has extended its midrib some 2 feet in its endeavours to reach the water in

a tank below the stage on which it is growing, the longest midrib on any other leaf of the plant being less than a foot; the urn is highly coloured, free from insects, and has a wonderful covering of bloom, evidently improved by its near contact with the water, and a great contrast to other pitchers on the same plant.

In my notes I have now particulars of exactly a hundred *Nepenthes*, consisting of thirty-two not yet introduced species and varieties, thirty-six ditto introduced, and thirty-two garden hybrids. I am at present undertaking an interesting study—to give each species its exact geographical position—a task of some difficulty, from the conflicting evidence. *Wm. E. Dixon, Assoc. B. Soc., Edin.*

CITRUS FRUITS.

In the report for 1887 of the College of Agriculture of California, Professor E. W. Hilgard gives some analyses which have recently been determined at the College, of Citrus fruits, which are not only interesting, but most important, as showing the points of difference between the several fruits.

Table showing the Chemical Composition of Citrus Fruits.

Description.	Average weight, Grains.	Percentage Results.						
		Rind.	Pulp.	Seeds.	Juice.	Sugars.		Acid.
						Cane.	Glucose.	
<i>Oranges:—</i>								
Mediterranean Sweet	288	33.5	65.3	0.9	2	4.47	1.67	1.10
Riverside Navel*	284	30.0	70.0	...	41.4	5.04	2.10	0.92
St. Michael ...	158	17.3	80.1	2.6	52.3	4.09	1.68	1.01
Malta Blood ...	139	26.3	73.2	...	48.6	3.72	1.81	1.52
<i>Lemons:—</i>								
Lisbons... ..	115	35.7	63.9	0.4	43.4	...	...	6.79
Eureka... ..	157	22.4	77.6	...	45.2	...	...	7.21
Limes	54	15.9	83.4	0.7	56.5	...	...	6.86

It will be noted that the Navel and Malta Oranges and Eureka Lemons were found seedless, the largest proportion of seeds being found in the St. Michael Oranges. The Navel shows the highest total sugar and lowest acid of all. It thus would seem, says the Professor, that, apart from its inviting outward appearance, the Riverside Navel Orange owes its place in public favour to three chief points: a high degree of sweetness, with a low degree of acid, and the firmness of flesh which invites it to be actually eaten instead of being "sucked," as one is tempted to do with the softer Oranges.

The Mediterranean Sweet and the St. Michael dispute precedence, according as individual tastes differ in respect to size and flavour; but the St. Michael seems to have a greater firmness of flesh in its favour. The refreshing acidity and peculiar flavour of the Blood Orange place it in a different category from the other three.

The first six columns of the foregoing table, however, furnish material for additional considerations, especially when Oranges are sold by numbers and not by weight. The Mediterranean Sweet shows a slightly heavier weight than the Navel, but the larger proportion of pulp in the latter more than makes up the difference.

The St. Michael shows the highest percentage of pulp of all, notwithstanding the relative abundance of seeds; and hence a given weight of this variety would furnish the largest amount of eatable pulp, while if hought per thousand the light weight of the fruit would leave the consumer materially "short" as compared with the Navel or Mediterranean Sweet.

It was found that there is a true deterioration in Oranges kept beyond the point of proper ripeness

* Sample taken from a plate of fine Oranges which received the first prize for the best budded Orange, and best Orange on exhibition at Riverside Citrus Fair.

that amply justifies the preference of consumers for the freshest fruit.

As regards Lemons the comparison between the Lisbon and Eureka tells strongly in favour of the latter. It is larger, and has a higher percentage of pulp as well as of juice, while at the same time the latter is considerably richer in citric acid. The Limes stand nearly at the same point of acidity as the Lisbon, but show a considerably higher proportion of pulp, as well as of juice than either of the two Lemons, being fully 13 per cent. above the Lisbon in the latter respect.

It is understood by the trade, that Oranges especially, deteriorate materially after a certain period, independently of any actual decay; and in special tests made in this regard last season it was shown that this deterioration manifests itself in diminution of both sugar and acid, as well as in a loss of flavour. The fruit gradually becomes tasteless. *J. T. Willis.*

PINE WOOL CARPETS.

UNDER the name of Pine Wool the fibre of the leaves of the Corsican Pine, *Pinus Laricio*, has been known and used for many years for stuffing cushions, for felting purposes in the manufacture of socks for placing in boots, and similar uses. Pine wool flannel has also had a reputation as a remedy for rheumatic affections, but much of the flannel sold as Pine wool consists of a mixture of animal and Pine wool, or of animal wool altogether, simply steeped in Pine-oil to give it the necessary odour.

Quite recently, however, a new use of Pine wool has come to our notice, and this from the turpentine-producing Pine (*Pinus australis*, Michx.) of America, which is known as the Swamp Pine, or Long-leaved Pine. The tree is described as growing "to a height of 60 to 70 feet, and forming almost the whole growth of the extensive dry and sandy wastes called 'Pine barrens,' which, commencing at Norfolk, Virginia, extend southward for 600 miles through Carolina, Georgia, and Florida, with a width from the coast of 100 miles."

Turpentine is the principal product of these trees, but within the last three years a new industry has been established at Wilmington, N. Carolina, in the preparation of Pine wool, and the conversion of it into carpets and matting. A company has been formed for the exclusive purpose of utilising the "Pine straw," as it is called, which it is stated is "destined to force the Cocoa and Jute matting out of the market." The company owns about 2500 acres of well-wooded land in New Hanover County, about seventeen miles from Wilmington, and it is at a place called Cronly that the mills have been erected. The following account has been given of treating the leaves, and the propagation and utilisation of the fibre:—

"The green Pine straw, or leaves, gathered in the surrounding forests, is brought to the mills, where the company purchase it at 15 cents per 100 lb. After having been weighed, the straw is carried into a shed, and is spread upon the floor to be cleaned, and to prevent its becoming heated. An elevator takes the material to the second floor of the building, where it is placed in two iron cylinders set up on end and surrounded by steam-pipes. These extractors are 10 feet deep and about 4 feet wide. In these the Pine leaves are thoroughly strained, the vapour going through pipes into an ordinary distillery worm in an adjoining house. Here it is condensed. The result is Pine-leaf oil, the yield being about half a gallon of oil to 1 ton of straw. The oil is a valuable product, and is destined to take an important part in the Pharmacopoeia. It is very highly antiseptic, possesses the advantage of being useful as well for internal as for external application, and is valuable for many surgical and medicinal purposes. The liquid which is condensed from the vapour with the oil is useful for various purposes in the manufacture of other fabrics.

"After the oil has been extracted, the Pine straw, which has now become a beautiful black, is placed in six large iron vats, 7 feet wide, 8 feet long, and 5 feet

deep, and with a capacity for holding from 3000 lb. to 4000 lb. each. It is here mixed with water and alkali, and thoroughly boiled, the process being necessary to remove the silica which forms the outside covering of the leaf. This is a very difficult operation, requiring great skill and care. The silica which is removed is useful for tanning and other purposes. During all these processes the Pine leaf retains its aroma. The last boiling process continues for twelve hours, after which the straw is soaked for forty-eight hours more, and it is then ready for the machinery for cutting up the leaves. For this purpose the straw is taken from the vats, and while still damp is first put into a 'rubber,' as it is called, which is a machine into which the straw is put in on one side, and from which it comes out on the other a pure fibre of a rich dark brown colour, and of soft texture. During all these processes it has been kept saturated with water, but it is next taken to the wringing and breaking machine, where the water is squeezed out, and the curling process is begun. It is then carried to the carding machine, through which it passes, and hence to the drying machine, where every particle of moisture is evaporated, and thence to the press, where it is put up in bales ready for market. Each bale weighs 225 lb., and they are shipped in cartloads of 50 bales. As an idea of the extent of this trade, it is stated that the stock of fibre kept up amounts to 1000 bales. The mill employs about 30 operatives, and is run by a 50-horse power engine. In the carpet factory the appliances and machinery are similar to those in use in establishments of like nature, the machinery being adapted to the spinning and weaving of this particular fibre. After passing it through a carder and cleaner all the impurities are removed, and the fibre now first assumes the appearance of yarn. It is next wound upon spools, after which it is passed to the spinning-frame, and finally to the twister, where two, three, or four strands are twisted into one, after which it is ready for the loom. To make coloured carpets, the yarn is either dyed or bleached, the yarn being wound into hanks for the purpose. The carpets are made up into rolls, and in various patterns.

"The natural colour of the Pine straw yarn is a rich dark brown, which when bleached becomes a creamy-yellow. Stripes of blue, red, green, and yellow, are woven into the patterns. The matting is made to imitate the finer grades of Cocoa matting so perfectly that were it not for the aromatic odour, which is described as a special quality of the Pine carpet, an expert would find it difficult to tell one from the other. These mats are said to have a great many recommendations, such as warmth, durability, disinfectant or antiseptic properties, and, in consequence of the odour emitted, useful in pulmonary, asthmatic, and catarrhal complaints. They are cheap non-conductors of sound, and are impervious to all insects."

Specimens of these mats are amongst recent additions to the Kew museums. *John R. Jackson.*

TRADE NOTICES.

THE CLOVER AND GRASS CROPS.—Messrs. Hurst & Son, of Houndsditch, recently issued their annual Circular in reference to the above, and from it we learn that from the districts yielding the largest produce come reports of smaller crops than usual of English red Clover and Cow-grass. The quantity of seed saved from those first cut shows a fine colour, chiefly small in grain, but well ripened. The prolonged drought of last summer prevented a strong growth for the second cut, and although the heads of seed filled well upon the whole, yet they were comparatively small in number, that the yield must be below the average. Many fields left for seed had to be fed off late in the autumn, feed for cattle having been so scarce. *Bona fide* large-grained English samples will be certain to command high prices throughout the season, and unless those of foreign

seed rule low, the prices of all home-grown stocks are expected to have an upward tendency. Single-cut Cow-grass has produced a good quantity of very fine quality. Respecting foreign red Clover, reports from the Continent speak generally of an under-average crop. Some good samples are expected to come from Brittany, the North of France, and some districts of Germany; the crop in the south of France is short and of poor quality. Some considerable quantity of large grained sifted foreign red Clover was held over from last season and will be certain to command favour. The American crop is reported to be an average one, and already some consignments have been made to this country, and these show fair quality, although somewhat small in grain. The English crop of white Clover is above the average, and of good quality. France has produced a fair crop. The German crop is larger than usual, and the quality of the grain, as a rule, is good, clean, and well-coloured. Of Alsike, the home crop is a heavy one, and good quality is the rule, prices being now lower than ever known before. The German crop is an average one; and the Canadian yield is reported to be a good average combined with fine quality. Trefoil is a medium crop, and prices open at a low level. The Continental yield is reported below the average. Lucerne shows an under-average crop, but the quality of the seed is fine. Of Sainfoin there is a large crop of English Common, but Giant is very scarce. The French crops of Giant and common are much under the average, and prices this season will rule higher than usual. The French crop of Italian Rye-grass appears to have been much over-estimated, and already the finest upland samples are all taken from the producing districts; a decided advance in price has taken place, and it is expected that later on, at the sowing season, good supplies will be difficult to secure. Following the advance in French seed Irish has become dearer, but there is such a great disparity in quality between the two there should always be a relative difference in price. Care should be exercised in selecting samples. Perennial Rye-grasses are unusually fine in quality, the average natural weights being about 26 lb. to the bushel, indicating strong germinating power. Weights under 24 lb. per bushel will be very foul this season. Natural grasses are found to vary very much in yield and quality. Some varieties, such as Timothy, the Poas, Tall Fescue, and Crested Dogstail are scarce. Cock's-foot is below an average yield, and much of it very poor in quality; on the other hand Hard and Sheep's Fescue and Meadow Fescue are plentiful and good. White Mustard shows a large crop of fine quality; the drought appears to have favoured the Mustard crop on the rich Lincolnshire lands. On the other hand Rape is a short crop of poor quality; fine black samples are already scarce, and command full prices.

MISS SLAYMAKER, the daughter of a tenant in the Centre Avenue, Covent Garden, for forty-three years, has removed her business to 25, Catherine Street, W.C.

THE BULB GARDEN.

LEUCOIUM CARPATICUM.

THE REV. F. TYMONS, of Cloghan, Dublin, sent me blooms of this variety of *Leucoium vernum*, on January 25, and my bulbs are beginning to bloom on the 29th, about a week later than the Irish. Mr. Tymons says they are thus early with him in the open garden every year, coming before *L. vernum*, which is only just pushing through the ground. There is some doubt in the minds of many whether this is really a distinct variety, but if the grower of *Leucoiums* will carefully observe them at this season of their blooming they will certainly find a difference in flower, bulbs, and habit. The bulbs are most distinct, being more like those of the *Amaryllis* than those of the *Galanthus*, which the ordi-

nary *L. vernum* resembles. The leaf partakes of the same divergence, and the flowers have yellow spots with a beautiful golden hue inside the caliche, and frequently are twin-flowered on one scape. Mr. Tymoos has seen three flowers on one stem.

I sent bulbs of *L. carpathicum* to Mr. Burbidge last autumn, and he at once noticed the difference in their character from those of *L. vernum*. This plant will be found fully described in the *Gardeners' Chronicle*, March 15, 1884, p. 341, and I now refer to it as the time is here when *Leucoium vernum* will be in bloom, and many growers may be so fortunate as to discover this excellent variety amongst them. *Wm. Brockbank, Brockhurst, Didsbury.*

CYRTANTHUS LUTESCENS.

During the last year or two we have been made familiar with a species of *Cyrtanthus* which promises to become a really useful garden plant, as it is easily cultivated, flowers freely, and lasts a long while; it is named *C. McKenii*, is a native of Natal and has been cultivated at Kew in quantity lately. A second species, very similar to the above, has recently been added, and is now in flower in the Cape-house at Kew, viz., *C. lutescens*. In general character and habit it resembles *C. McKenii*, the bulb being long-necked, leaves narrow, dark green, scape nearly 1 foot long, bearing three or four flowers which are 2 inches long, funnel-shaped, the segments reflexed, and the colour a soft sulphur-yellow. Herbert, in his *Anaryllidaceae* states that "*C. lutescens* has never been in Europe." It is a native of Natal. The Kew plants were obtained from Messrs. F. & A. Dickson, of Chester.

Generally the *Cyrtanthi* are difficult of culture, the bulbs being more disposed to dwindle and rot than to increase in bulk; but *C. McKenii*, and possibly *C. lutescens* also, will prove an exception. As winter-flowering plants for a cool greenhouse they are both deserving of attention. *W.*

HEMANTHUS NATALENSIS.

This is one of the most useful of African bulbous plants, and certainly the best of the *Hemanthi* for general cultivation. It grows and flowers freely under cultivation, which can be said of only one or two other species of the genus. Treated as we treat the *Hippeastrums*, it makes very strong growth, and develops its large drumstick-like flower-heads once, sometimes twice, annually. There are several strong plants of it now in flower in the T range at Kew, and the bright red colour of the large heads of flower is very attractive. At Kew the plants are potted in a rich loam, the bulb being well buried, and liberal supplies of water with plenty of light and an intermediate temperature are given them during the growing season. When the growth withers water is withheld, and the plants are kept in a dry sunny position till new growth, and along with it the flower-heads appear, when water, &c., are supplied as before. *W.*

BIFEROUS FERNS.

I HAVE forwarded you a sketch of part of a frond of *Polypodium crassifolium*, which is producing a second crop of spores. The frond is an old one and the first crop of spores had been removed in sponging. The small dots are the old sori which have produced no new spores, the larger dots those which have produced the second crop. I have never seen any other Fern do this, and not until this year have I seen *P. crassifolium*; but two large plants in the collection here are fruiting a second time quite freely. *W. C., Kew.* [We do not remember to have seen two crops of spores on one frond before, though it may be well known to Fern cultivators. We were also in doubt as to what heading to give to this paragraph. Should we speak of "perpetual" Ferns like H.P. Roses, or should we make mention of "remontant" Ferns? At last we bethought ourselves of the *rosaria biferi Pasti*. Ed.] (See fig. p. 29, 173.)

ORCHID NOTES AND GLEANINGS.

CŒLOGYNE LENTIGINOSA.

This handsome *Cœlogyne* is now flowering in the Kew collection, the large plant being a very interesting spectacle. Two very distinct varieties appear to have completely grown together, one with bright flowers, the other with pale buff, and as several racemes of each kind are borne, the effect is very pleasing. The markings of the lip and the combination of orange, brown and cream colour, together with the period of flowering and the long time it lasts in perfection, render this species a very desirable one for extended cultivation. It belongs to the erect-flowered section of the genus, and, unlike several others—particularly those of the ocellata group—is extremely well marked in its characters. *R. A. R.*

CYPRIPIEDUM MEIRAX.

This is a small kind, a garden hybrid, with a good deal of *C. venustum* in it, but inferior to the latter in all points of attraction. To me it has the appearance of a swarthy dwarf, which ought to have been destroyed when it revealed its character. To the *Cypripedium* hunter this will be rank heresy, but I am not by any means singular in holding the opinion that the *Cypripedium* mania is being overdone, and a lot of positively ugly things are being distributed and cultivated by enthusiasts whose idea of beauty in a flower is warped. *C. Meirax* may now be seen in flower at Kew, and we were surprised to learn that the plant—a small one, too—was worth guineas. Near to it are several pans of *C. venustum*, which is not the handsomest of the genus, but it is not nearly so ugly as its bastard offspring, albeit that the painful plants are considered less valuable than the little swarthy specimen. *W.*

SCENT OF DENDROBIUM ENDOCHARIS.

One wonders if the "fragrance hunters" have given this modest-looking but charming *Sedenian* hybrid between *D. japonicum* and *D. heterocarpum*, its proper meed of praise! The flowers are of a white or creamy tint, with a pale crimson blotch in the centre of the lip, and has a delightful perfume—not too strong—a soft mixture, in fact, of Violets and Primroses. *B.*

ANGREKUM HYALOIDES.

Perhaps no genus of Orchids presents a greater diversity in the size of its flowers than does *Angraecum*. This is well shown by two species now flowering at Kew. The one is the marvellous *A. sesquipedale*, with its flowers 5 inches across, and with spurs a foot long, and the other the small *A. hyaloides*, which, with flowers, leaves, and even the basket in which it grows, occupies but 2 or 3 inches of space. It flowers with great freedom, the plant under notice carrying eight spikes with seven to nine flowers on each. The flowers scarcely measure half an inch in diameter, and are almost regular, the sepals, petals, and lip all being ovate, the last only slightly larger. The spur is half an inch in length, and is inflated into a little bag at the base. All the parts are white, and, as the name implies, almost transparent. The prettiness of this little plant makes it well worth the small amount of room it takes up, even apart from the interest attaching to the genus, and as Reichenbach observes, this species possesses all the arrangements one would expect to find "in a tip-top *Angraecum*." It comes from Madagascar, and requires a moist temperature.

SARCANTHUS FUONIFORMIS.

This Orchid possesses a character in its habit of flowering that I have not seen in any other *Sarcanthus*, but which is common in *Stanhopeas*, *Acinetas*, and in some *Masdevallias*; this is the propensity of the flower-spikes to take a perpendicular, downward direction. Even where the stem lies horizontally and the inflorescence originates from the upper side,

it immediately curls over to take this downward position. The flowers themselves are borne in many-flowered spikes, and individually are small, and in colour green, with a few streaks of dull purple. The plant is of a straggling habit, its slender stems being clothed with long, narrow, fleshy leaves. A plant growing on a piece of Birch stem is now in flower at Kew. *W. B.*

DENDROBIUM SUPERBIIENS

is a splendid erect-growing species, the stems upon well-grown specimens attaining a height of from 2 to 3 feet, and from 2 to 3 inches in circumference, bearing thick oblong-acute dark green foliage; the flower-spikes are produced from the top and axils of the pseudobulbs, and these for years continue to produce fresh spikes. The raceme bears from fifteen to twenty-six flowers, which continue in beauty for three months; the colour of the sepals and petals is deep rosy-purple, beautifully reticulated with a darker hue, whilst the margins are bordered with white; the lip is of a warm rosy-purple, the disc being ornamented with five raised lines or keels. Its flowers are produced at all seasons of the year, and in many instances on plants only 6 inches high; and if a number of plants are grown some flowers will be expanded the whole year round. This *Dendrobium* is a plant of easy culture, and one that continues to improve, and lasts for many years, provided it is subjected to a high temperature and moist atmosphere. We grow it in a small span-roofed house, in which there is a central walk, and tables on either side, upon which young plants of *Crotons* are grown; the large plants of the *Dendrobies* are placed on the stages with the *Crotons*, and the small plants are suspended from the roof; and under these conditions *Dendrobiums* and *Crotons* flourish admirably. We use small pans for this *Dendrobe*, the compost being simply peat and sphagnum moss; a liberal supply of water to their roots is absolutely necessary, and, therefore, thorough drainage is of the highest importance. During summer we syringe them twice daily, and they are never shaded. In autumn and winter they are kept rather moist, as at this season some are flowering and others finishing their growths. Temperature at night during winter ranges from 60°–65°, and in summer from 65°–70°; the sun will cause the temperature to rise occasionally to 80° or more on warm days, but this is not injurious to the plants if the houses are properly ventilated, and the atmosphere is well charged with moisture. *B. Williams, in "Orchid Album," t. 312, December, 1887.*

CŒLOGYNE ASPERATA.

This is a noble evergreen plant, which, when well grown, attains a height of 2 or more feet: its pseudobulbs are oblong, from 6 to 8 inches high, bearing upon the summit a pair of stalked, lanceolate, plaited, light green leaves. The raceme is a foot or more long, arching; the flowers, which number from twelve to fifteen, are some 2 or 3 inches across, and are arranged on the raceme in a two-ranked fashion; the colour is creamy yellow, the lip being richly marbled with brownish yellow veins, which spring from a rugged bright deep orange-coloured central ridge. The flowers are produced during June and July, and continue in perfection for two or three weeks, if they are kept from damp.

The compost Mr. Woolford (who has charge of the Downside collection) uses for this plant is good fibrous peat and sphagnum moss. The plant is grown in a pot, and the drainage is kept in good open working order, so that nothing stagnant remains about its roots. We have also seen this species grown in a mixture of turfy loam and fibrous peat, and under this treatment it thrives equally well. It is a plant which grows freely, and therefore requires a good-sized pot; it also enjoys a liberal supply of water to its roots during the period of active growth, but after this is completed the quantity should be gradually diminished, until only just sufficient is given to keep the pseudobulbs plump and healthy. When new growths and roots begin to appear, extra water must be given, gradually increasing the quan-

tity with the strength of the roots and shoots. This plant enjoys strong heat, and should be grown at the warmest end of the East India house, well exposed to the light, but shaded from the hottest rays of the sun. *B. S. Williams*, in *Orchid Album*, t. 311, Dec. 1887.

CATTLEYA ELDERADO SPLENDENS

is an evergreen variety, and resembles the typical plant in its youth. Its short clavate stems are about 6 inches high, and terminate with a solitary, ligulate, deep green leaf; the scape issues from between a long narrow sheath on the top of the pseudobulb, and bears three large flowers; the sepals and petals are of a clear rose colour; the lip is large, having a rich, deep orange-coloured throat, succeeded by a circle of white, followed by a belt of rich violet-purple, which extends to the front and round the margins. The colours in this variety are beautifully contrasted and blended, to produce an effect altogether different and superior to that of the original form. It blooms during the months of September and October, and its flowers continue in perfection for three or four weeks.

As before remarked, this *Cattleya* is found in the low-lying regions near the Rio Negro, in Brazil, where the temperature is high, and consequently, in our treatment of this plant we place it at the warmest part of the *Cattleya* house. Some of the plants we cultivate in Teak-wood baskets suspended from the roof; others we have grown in pots, and they appear to thrive equally well in both positions. There is no doubt that in order to flower them well, they require good exposure to light. We use rough fibrous peat and sphagnum moss for potting; but although all *Cattleyas* thrive in this material, we do not advocate the use of a great quantity of it about their roots; the system of potting should be the same as we have previously advised for *C. Mossia* and others, and the drainage must always be kept free. *B. S. Williams* in the *Orchid Album*, t. 310, December, 1887.

BRUGMANSIAS PLANTED OUT IN A COOL HOUSE.

Assuming that Mr. Freeman's enquiries (p. 23) refer to the above, permit me to supplement the answer given in reply to correspondents, which applied to plants in pots. Most likely the dropping of the flowers was due to cold. The sudden early and severe frosts, amounting to 14°, caught not a few cultivators napping more or less soundly; and as planted-out *Brugmansias* are prone to moult to the glass, there are few other inmates of the greenhouse more exposed to sudden chills, or that are more suddenly punished through depressions of temperature.

The sub-hardy growth of *Brugmansia* in the open air in summer is apt to deceive cultivators as to the amount of cold they will endure with impunity under glass. There is also a very general tendency to over-estimate the temperature of houses. Not seldom throughout the summer, and almost as a rule in the late autumn, or early winter, the temperature of cool houses is far lower than that in the open air throughout the summer. This arises from a variety of causes, chiefly from through ventilation and proximity to the glass. Many of the sudden and apparently inexplicable checks and accidents that occur to plants under glass in the late autumn, originate from these two simple but very potent causes.

Apart, however, from these, the temperature of cool-houses is mostly too low, as well as too irregular for the successful blooming of *Brugmansias* so late in the season. Though the mere exclusion of frost suffices for the preservation of the life of *Brugmansias* and many other semi-tender plants throughout the winter, such low temperatures are wholly inadequate to sustain free growth or develop perfect flowers. Doubtless, too, the paucity of light has something to do with the dropping of the bloom in the later autumn and winter months. Such fine trumpets as those of *Brugmansia suaveolens* probably need considerable intensity of light for their full expansion. Heat, however, is the most important factor, as the growth of *Brugmansias* in stoves or intermediate houses in winter has proved. There is

another curious characteristic in relation to the flowers of *Brugmansias* in cool temperatures and under semi-obscure conditions—the blooms that do open are far more persistent under such circumstances. For example, blooms of *Brugmansia suaveolens* at midsummer seldom remain fully expanded more than six or, at the most, twelve hours. Blooms expanded in November or December will keep open eighteen, twenty-four, and occasionally thirty-six hours. Similar differences of durability may be noted in the cut blooms, though in neither case do the cut flowers last so long when cut as on the plants. Neither is the odour so full in winter bloom. The flowers, in a word, seem to possess less vitality, and gain in persistency what they lose in vital energy or force—a result hardly to be anticipated. But in all this it must be borne in mind that there are *Brugmansias* and *Brugmansias*, and that striking differences—contrasts, in fact—exist between the two typical species named by Mr. Freeman; *B. sanguinea* is altogether hardier than *B. suaveolens*, the flower forming more of a tube than a trumpet. It is also without scent, and is more of a winter and early spring than a summer bloomer. These differences account for the differences noted in the present state of the two plants by your correspondent,



FIG. 29.—POLYPODIUM CRASSIFOLIUM (SEE P. 173): TWO CROPS OF SPORES ON ONE FROND.

and suggests somewhat different treatment. Like Mr. Freeman, we have these two species of *Brugmansias* growing side by side in a very cool house, from which only the frost is excluded. Both are giants in their way, and we have had as many as 2000 blooms open at once on our *B. suaveolens*, filling the entire house and garden with incomparable fragrance, and occasionally emitting light in the dark.

As a rule this plant blossoms three times in the summer, with a few stray flowers through October and sometimes up to Christmas. It is then spurred closely back to the old wood like a Grape Vine, and seldom breaks again till the end of April. *B. sanguinea*, on the contrary, is now in full growth and blossom, and will continue so till the middle or end of May. Then it in its turn will be spurred in, and allowed to break in as low a temperature as the season and a through draught can command. It breaks strong, grows on finely, and flowers through the autumn, winter, and early spring, as already described. Of course there are many other ways of cultivating *Brugmansias*, but as ours seem grown under very similar conditions to Mr. Freeman's, and the above treatment has been successful for twenty or more years, it is hoped it may be of some use to your correspondent, and others who grow large planted-out *Brugmansias* in cool houses.

The soil you recommend will doubtless grow *Brugmansias* well, but being gross rooters I prefer rough turfy loam with a dash of rotten dung, and a

sprinkling of crushed bones or charcoal, or anything else. In such compost, a thorough drainage, and sewage only, to quench their thirst when in vigorous growth or full bloom, there will be little likelihood of such mishaps as bud or bloom dropping unless these, as I have surmised, are pinched off by cold. *D. T. Fish*.

GARDENING AND TREE PLANTING AT KEISS.

The seat of Francis Tress Barry, Esq., is situated in the county of Caithness, about 8 miles from the town of Wick, and 600 miles north of London as the crow flies. The Castle here is a noble pile of baronial architecture, and from its situation has a commanding appearance, especially seaward, and its internal arrangements and decorations are in keeping with its exterior. The northern portion of Caithness may be described as an undulating plain, and mostly devoid of trees; this is accounted for by the heavy gales of wind that are so prevalent in these parts, but Caithness is by no means a poor county; its agricultural products are greater than some others of the more southern shires. My principal object is to draw attention to what I saw at Keiss, and to what can be done effectively by simple means. Mr. Barry, after he acquired the property of Keiss some years ago, saw the difficulty of getting trees and shrubs to grow, on account of the wind from the sea, which is so detrimental to their growth, and took measures accordingly.

Keiss Castle is entered from the high road leading from Wick to John o' Groats (the Land's End of Scotland) by a handsome gate and a neat lodge; the approach road is 16 feet wide, and winds in gentle curves some 400 yards up to the Castle; on each side of this road is a margin of turf 7 feet broad; and as purple Heath is very abundant in this district, Mr. Barry conceived the idea of placing a border of this purple Heath, 6 feet broad, at the back of the turf edging. Accordingly a selection was made of the best Heath in the district, which was lifted in squares 15 inches broad and 4 inches thick and laid closely together in its new position, where it has grown into one dense growth. At the time of my visit last August the Heath border was in full bloom, and it must be said that the effect was very beautiful, and well deserving of imitation. Mr. Munro, the gardener, takes much interest in those Heath beds, and endeavours to keep them neat and tidy, as well as everything else which he has under his charge.

The kitchen garden, which lies to the north-east of the Castle, and consists of a piece of ground 2 acres in extent, is surrounded by a substantial wall of stone. Vegetables of all sorts, and bush fruits do well, but Apples and Pears are a precarious crop; still, at the Apple Congress held in Edinburgh two years ago some fair specimens of the former were exhibited. Plums, as a rule, do well in the North.

The flower garden is placed to the south of the kitchen garden, and contains but little of the ordinary bedding out, but spaces for lawn-tennis and bowls, together with grassy terraces, are extensive, and well kept. From this garden some of the views are grand, and that looking seaward is boundless, while to the south the view takes in the whole of Sinclair's Bay, with Achergill Castle on the verge of the seaward cliff. This was long the residence of the late Sir George Dunbar, who in his day did much for horticulture and agriculture in those parts.

Barrock, once the residence of the late Lady Sinclair, lies about 6 miles south-west from Keiss, and has the advantage (as regards the feasibility of growing trees) of being 4 miles distant from the sea. In this quarter numbers of species of Orchises are found; and the pretty little *Primula scotica* grows very abundantly in the meadows. The deceased lady, with praiseworthy perseverance, planted everything she thought would grow, to form shelter screens. The finer sorts of trees were planted by her behind these, and now there are found good sized plantations about the place, in which are many trees of large size. The late Mr. Sinclair, of Forsa, near

Thurso, affords another example of what intelligence and perseverance can accomplish in the matter of improving a district by means of arboreal vegetation. Should the tourist or botanist think of visiting this interesting district, the months of July or August should be chosen for doing so, the long days of the northern part of Britain constituting one of the greatest charms. The sun rises so early and sets so late, that its gleams continue on till midnight, and mingle with the returning light in the morning, so that it may be said there is hardly any night. *John Downie*.

FLORISTS' FLOWERS.

GREENHOUSE PLANTS: THE CINERARIA.

My plants during December and January this year greatly suffered from attacks of mildew, and repeated dustings with flowers of sulphur were necessary to destroy it. For the greenfly, an ever-present pest, I fumigate the houses about once a month. My specimen plants are now in 8-inch pots well exposed to the light. The large outer leaves have been tied down to the rims to allow of the more free development of the centre growths; these in their turn should be tied out, to form a dwarf compact head of bloom.

THE CHRYSANTHEMUM.

Specimen plants should now be growing. It is of course sternly insisted by the framers of schedules that specimen plants should have but one stem, and that the stem should be seen distinctly above the mould in the pot. The experienced exhibitor selects his plants of the large-flowered varieties in November from the plants that have produced his large single blooms. Only those that produce a number of growths on the stem will do; these are shaken out of their pots, and repotted in good soil. If placed on a shelf in any heated house or in the greenhouse they soon grow freely. They are potted in the first place in 7-inch pots, next into 9-inch, and lastly into 11-inch, the size usually allowed by the terms of the schedule. All through the winter and early spring months a cool greenhouse temperature is most suitable. Exposure to frost would check the growth of the plants; but a heated atmosphere, except so much as is required to keep out the frost, would cause a weak growth, and might force the plants into flower prematurely. Pompons produce the best plants from cuttings put in during the month of December, or late in November. They form roots if placed on a shelf in the greenhouse; but they must be grown on very freely after roots have been formed. Each cutting should be put singly in the centre of a small pot—the plants when rooted to be potted on into 5, 7, and 9-inch pots as they require it. The compound in which they are grown must be good loam well enriched with decayed stable manure; and a 10-inch potful of bone-dust to a large barrow-load of the soil. If bone-dust cannot be obtained, pounded oyster shells is good to mix with the soil; and I used shells for drainage. The cuttings ought to be put in now for all purposes; and they form roots most freely in a gentle hotbed. Dip the cuttings in soft-soapy water before planting them in the pots, as a preventative—greenfly may be on them unobserved. The whole stock of potting soil should be prepared now. *J. Douglas*

PICOTEE LIGHT SCARLET-EDGED "NELLIE."

This was one of the late Mr. George Rudd's flowers, and it was sent out in 1882. It was a little disappointing at first, as it lacked refinement; but this was probably owing to the fact that the plants were overgrown. But for two years past it has been finely shown at Oxford by Mr. Martin Rowan, of Clapham, and in its best form, and was the admiration of all who saw it. Mr. Rowan appears to be pre-eminently successful in cultivating it, and in a communication from him, which appears in the recently published report for 1887 of the Carnation

and Picotee Union, he remarks that the light scarlet-edged Picotees were shown in fine form at Oxford, Favourite and Cynthia being mentioned in particular on account of their excellence, and "in them Nellie had to sustain the severest competition for supremacy in her class she has yet had to meet. The interest in the latter variety seems to increase with each season, and some little discussion has lately arisen as to its merits relatively with Favourite. The conditions of complete rivalry between them are wanting, inasmuch as Nellie is naturally a later flower. Nellie is a gem, only late in blooming. This needs to be borne in mind, for though I have, each season, had some blooms of Nellie at about the same time as other sorts, it has been the later ones only which have shown the full refinement of which the flower is capable. The truth is, we are fortunate to possess in Favourite and Nellie two successional varieties of high-class quality, and both should be grown." Favourite is a comparatively recent introduction, and though raised at Thame some few years since, was unknown to the general cultivator until brought by Mr. Thomas Anstiss, of Brill, to the exhibition of the National Carnation and Picotee Society, at South Kensington, in July, 1884, showing it in grand form. It is now foremost at all early exhibitions. It has a pure white ground, a lovely light salmon-rose edge; and the petals are stout and of the finest form. It is one of those varieties which can be depended upon; and it is more likely to carry off the premier prize than any Picotee I am acquainted with. But no one appears to be able to produce Nellie in the beautiful form in which Mr. Rowan gets it at Clapham. *R. D.*

CULTURAL MEMORANDA.

ARDISIA CRENULATA.

SMALL plants of this, covered with berries, are at all times effectively decorative. Seed sown now in a pan of sandy soil, watered, placed on a shelf in a stove or Cucumber-house, and covered with a square of glass, will in due time germinate. The seedlings, when large enough, should be pricked out in a pan at 2 inches apart, and after watering be put again into heat near the glass. The plants should be potted singly before they get crowded in the pan, shifting them when they require it, and continuing to grow them on in heat. During the summer season they may be well grown in a warm pit or frame, when they should be afforded a little more fresh air than they would get in the stove. A mixture of light loam and peat in equal parts, with a sprinkling of sand added, should be used in potting off the plants.

CINERAS.

If the tops of any of the varieties of this plant which the cultivator is desirous of increasing be taken off with a couple of joints of growth and inserted in 3-inch pots filled with sandy soil, and then plunged in a hotbed or propagating pit, watered, and be kept close, they will soon take root, and with proper attention afterwards in the way of pinching, and shifting them into larger pots before the roots get matted in the cutting-pots, they will be of good service as decorative plants before the growing season is over. A compost consisting of half peat and light sandy loam, and a little sand added, will be suitable for these plants.

BORONIA MEGASTIGMA.

This hard-wooded greenhouse plant is not so much grown as it deserves to be. It is of very slender habit and delicate foliage, with erect virgate glabrous branches. The sub-globose campanulate flowers are solitary and freely produced from the axils of the leaves, towards the top of the branches. They are of a beautiful lemon yellow inside, while the outside is of a dark brownish-purple, and are deliciously fragrant. The plant is quite as easily grown as a Heath or an Azalea is, and, like them, should be potted

firmly in fibry peat, giving sufficient silver-sand to render it somewhat porous. The plants will do very well in a cold frame or pit during the summer and early autumn months; afterwards putting them into a heated pit or greenhouse where a night temperature of from 45° to 50° can be maintained, with 5° higher by day, with fire-heat, running up 10° or 15° higher by sun-heat, air being given. Extra care should be exercised in the matter of giving water at the roots. When the condition of the soil indicates dryness give sufficient soft water to thoroughly moisten the ball of earth and roots, afterwards allowing the soil to again become moderately dry before repeating the application. The flowers which are discernible in the autumn, do not open until the spring, when the flowers of a small plant will fill the atmosphere of a large-sized house with their perfume.

AGAVE AMERICANA AUREO-Variegata.

Plants of this handsome American Aloe growing in pots ranging from 3 to 6 inches in diameter are of much decorative value when associated with other plants, the bluish-green of the fleshy leaves, which have an edging of creamy-yellow, being very remarkable. Larger plants grown in pots and tubs are frequently seen to advantage stood at intervals on terraces, lawns, and other parts of country gardens. This Agave is easily increased by potting up the suckers or offsets which are produced from the base, using a light sandy loam, with a little leaf-soil added, and growing them on in any light place out of the reach of frost or excessive damp.

ACACIA ARMATA AND A. DRUMMONDII.

This free-flowering, easily managed spring-flowering plant may be had in flower during the winter months by gently forcing the plants. Cuttings of the young growths taken off now and inserted in sandy soil round the edge of small pots, watered, and put into heat, will soon root. They should then be potted singly into small 60's in a mixture of fine sandy loam and leaf-mould—about four parts of the former to one of the latter—and be put back in heat and watered. As soon as the roots have taken to the soil pinch the shoots to make them branch, afterwards putting the plants on a shelf near the glass in a greenhouse or where the night temperature is not likely to fall much below 50°. Give water at the roots when necessary, and give more pot-room before the roots get matted, using the loam in a rougher state at each subsequent shift. *A. Drummondii*, having long yellow flowers, is also an excellent variety, and equally easy of cultivation.

WINTER FLOWERING CARNATIONS.

The present is a good time to take off the desired number of cuttings of winter flowering Carnations. The young side shoots slipped off when about 2 inches long and inserted in $4\frac{1}{2}$ inch pots, previously crocked and filled with light sandy mould, plunged in a hotbed, watered and kept close, will soon take root. They should then be potted singly into small pots, put back in heat for a short time to establish themselves in the pots, when they should be shifted into a less warm structure, afterwards attending to the plants in the way of giving water at the roots, keeping them free from the attacks of aphids, and shifting them into larger pots as they require room at the roots, using a compost consisting of four parts good loam and one of sifted old hotbed manure, with a dash of sharp sand added. Support the plants and harden them off in due time. This must be done gradually, advancing with the approach of fine weather and the progress made by the plants. *H. W. Ward*.

PLANTS AND THEIR CULTURE.

CRINOMS, HIPPEASTRUMS, AND HYMENOCALLIS.—The stock of these should now be looked over, as many plants will be showing signs of growth. It may not be necessary to repot all the stock—indeed, if they are in tolerably large pots, with the soil and drainage in good condition, it is quite unnecessary. A top-dressing of some concentrated fertiliser, with plenty of water during the growing season, will be all that is required; but in the case of small tubs, which it is desired to grow on, potting would be advantageous. A good yellow loam with a dash of silver-sand, bone-meal, and charcoal will suit them

well. *Crinum*s are a showy family of plants, and not so much cultivated as their merits would warrant; many of them are stately plants, producing gorgeous heads of flowers, usually deliciously scented—they are of various degrees of hardness. C. Powellii is quite hardy, and C. Moorei, C. Macowani, and C. capense are nearly so; while C. Kirkii, C. augustum, and C. amabilis are stove species. Those nearly hardy species make excellent subjects for conservatory decoration, especially if they can be planted out. Of the *Hymenocallis*, *macrostephana* (a stove species) is by far the best. There are now many beautiful hybrids of *Hippeastrums* or *Amaryllis*; but of the original kinds, *Ackermannii*, *reticulatum*, and *vittata*, are well worth growing.

Newly Potted Plants.—Avoid giving much water with the watering-pot; endeavour rather to keep the soil moist by repeated dampings. Syringing the plants (when practicable, as in the case of stove plants or most soft-wooded subjects), pots, stages, and indeed every available place, should be damped. Attention to this matter will prevent the soil from becoming dry. If, at the time of potting, the soil was in proper condition as regards moisture, and the damping, &c., carried out as advised, the plants seldom require any other watering until the roots get to the sides of the pots, by which time they will have a good hold of the new soil, and may then be watered in the usual way. Stove plants which have been recently potted are better kept in a temperature slightly higher—70° at night will be quite high enough for this month, but 85° to even 90° in the day when raised by sun-heat will do no harm.

Dipladenias and Ixoras.—Although these differ widely in general appearance, their cultivation is nearly identical. They both require a high temperature more or less all the year round, even while resting, and the roots of *Dipladenias* soon perish when kept in a low temperature, 60° being quite low enough, except in the case of *D. boliviensis*, which seems to be harder than any of the others; but both *Dipladenias* and *Ixoras* require abundance of heat and moisture during the growing season—75° at night, with a rise of 10° or 15° with sun-heat in the day; under this treatment they grow very rapidly. *Dipladenias* which have been resting should now have all weak points and the immature parts of their shoots cut out, at the same time taking them off their trellises; and if it be considered necessary repot them, use the best fibrous peat, with sufficient rough silver-sand to ensure free passage to water; pot firmly, and see that the drainage is made perfect, as they are very impatient of an excess of water about the roots. They are much benefited by being stood or half plunged in tan or cocoa-nut fibre refuse, through which run some hot-water pipes. In such a position very little water will be needed, and to protect them from becoming waterlogged it is advisable to stand them on something, such as a seed-pan, with its bottom nearly all knocked out, which answers very well. The plants will break all the better if the shoots are all laid horizontally around the rim of the pot; or, better, if they can be laid loosely on the top of the plunging material, tying them up to their trellises immediately they break. If they are trained to the rafters of the house, 18 inches from the glass should be allowed, as when they are placed too near the glass they suffer from the great fluctuations in the temperature in such places. *Ixoras* should be similarly treated as regards soil and temperature, but of course no trellis is required; and in pruning, cut them hard back, reducing them to the desired shape or size.

Conservatory Climbers.—These will now be making a move, and in many cases they have a comparatively small root-run. The soil at the end of the season will pretty well have been exhausted, and in such cases all those which have been pruned back should have as much of the old soil removed as can conveniently be done without injury to the roots, the remainder gently pricked up, and a top-dressing of good sound material put on, either peat or loam, according to the requirements, giving a good soaking of water when finished. In many cases, climbing plants, play a most important part in the embellishment of the conservatory, and with occasional plants brought in while in flower a very good effect can be made. But, be that as it may, a good selection of climbers is essential to the proper furnishing of any conservatory. I append a list of plants which are well suited for covering the roof or other large spaces, and which are such as would mount up to the higher parts of the house. Of *Bignonias*, *Cherere*, *speciosa*, and *Chamberlaynii*; *Tecoma capensis* and *jasminoides*; *Kennedya*s, *rubi-*

cunda, *Comptoniana*, and the beautiful *Marryatæ*; *Tacsonia insignis*, *Van Volxemii*, and *exoniensis*; *Passiflora kermesina*, *Hahnii*, and *coccinea*; *Bougainvillea glabra*, and *Senecio macroglossus*, with its Ivy-like leaves and yellow *Marguerite*-like flowers, which are freely produced in early spring. Those are suitable for a conservatory, where the temperature is kept about 45° at night in winter. For a cooler house, or where frost is scarcely excluded, the following are suitable:—*Bignonia capreolata*, *Stauntonia latifolia*, *Akebia quinata*, *Lardizabala biteminata*, *Mandevilla suaveolens*, *Passiflora cerulea* and *Constance Elliotti*, *Physianthus albens* and *Clematis indivisa lobata*. The above is a select selection of strong-growing, free-flowering climbers, and will in many cases be ample, as well as variety enough to furnish the positions indicated.

Zonals.—Any of these that have been flowering during the winter may be cut down, using the tops of the shoots as cuttings, either for growing on for next winter or for flowering earlier. Select the stouter cuttings, about 6 inches in length, with as many leaves attached as possible; and it is best to put them singly into small pots—thumbs answer very well. As a compost light loam, with a pinch of sand at the base of the cutting, answers very well. Stand the cutting-pots where a temperature of about 60° can be afforded them, where rooting will take place in about three weeks. They may then be potted into 60's and gradually hardened off. This is a good time to put in cuttings of show and fancy *Pelargoniums*—the treatment afforded zonals suiting them equally, but they take a little longer to form roots. *F. Ross, Pendell Court.*

THE HARDY FRUIT GARDEN.

PROTECTING APRICOT TREES.—Since writing last, a very low temperature has been experienced, the thermometer showing 17° of frost on one occasion, which, although it has checked the swelling of the buds in general, was of such severity that protection had to be given, the buds being too far advanced to be left unprotected any longer. But now that a change to milder weather has taken place, the trees must be fully exposed night and day, and the curtains only used when frosts threaten.

Peaches and Nectarines.—The pruning and nailing of these should now be done. As regards pruning, if the trees of these received proper attention last year in the way of disbudding, and the removal of gross and useless wood in the autumn, but little will remain to be done now; but should there be still a surplus of young wood, the same should be thinned out, leaving that which is best placed and best furnished with fruit buds, so that when nailed in, the young wood will be about 6 inches apart. Leave short shoots of their full length, but any that are strong had better be shortened back half-way, taking care to cut to a wood-bud. Assuming that the trees were unnailed from the wall before being pruned, and all the old nails and shreds removed, the sound nails, after being taken from the wall, should be placed on an old shovel or something of that description, and burnt over a fire. After cooling somewhat they may be put into linseed oil, which will in a great measure prevent them rusting. When nailing use narrow shreds, and no more of these than are necessary to fasten the trees to the wall, leaving the shreds sufficiently loose that the wood may have ample room to swell. For fastening the main branches use tar twine with something soft placed between the same and the branch, to prevent injury to the bark, and which is preferable to using wide shreds, which only form a refuge for insects, and from which no amount of syringing can dislodge them. Should the trees be infested with scale dress them with the following mixture:—Take a 60-sized flower-pot of soot, one ditto of sulphur, one ditto of clay, and half the same sized pot of soft-soap. Mix these ingredients well together in a bucket, and add sufficient water till the whole is of the consistency of paint, when it may be applied with a brush. After the nailing is finished the temporary copings and the poles for stretching the curtains may be placed in position, so that when protection is needed there will be nothing else to do besides the fixing of the curtains. *A. Ward, Stoke Edith Gardens, Hereford.*

FRUITS UNDER GLASS.

VINES.—Pot Vines swelling their fruit must receive abundance of weak manure-water; and if the pots are not plunged in a leaf-bed this can scarcely be overdone. Attend to the stopping of shoots—two or three leaves should be left beyond the bunch; pinch all lateral shoots at one leaf, and any additional growth should be pinched off as it appears. When Hamburgs and free setting sorts come into bloom, let the temperature range from 65° to 70°. Should the weather be dull and sunless, the pollen may be dispersed by a Pampas plume being gently drawn over the bunches. If the ventilation is so arranged at the front of the house to allow the outside air to pass through, amongst or over the hot-water pipes, a little cink of air should be left on most nights, but be careful not to cause a cold draught, by opening the top ventilators at the same time, or the object in view will be defeated and serious injury will result. Vines which are breaking regularly may have the temperature advanced 5°; when two or more shoots issue from one bud, remove the weakest, and as soon as the bunches can be discerned, a gradual rise of temperature should take place until 70° be reached by the time the Vines come into bloom. Muscats are better by being kept 5° higher than that recommended. Remove all the bunches from a shoot except one, as soon as it can be seen which are likely to be the most compact and shapely. In the case of free-setting kinds, the sooner the bunches can be thinned after they are set the better, but with shy setters this is better deferred until it can be seen which berries will swell and which will not. Another house may now be started to succeed the others. The temperature for starting may now be from 50° to 55°, according to the state of the weather: if stormy, let the lower reading be the rule. Syringe the canes morning and afternoon with water at about 70°. As soon as the Vines burst their buds discontinue the syringe, and damp with a can and rose. Avoid throwing water on the hot-water pipes, and filling the house with steam. Proceed with the pruning of all Vines yet not done, and let the wounds be dressed as soon as dry with styptic, to prevent injury from bleeding. If not already done, remove all Grapes hanging on the Vines; this can be done with a portion of the wood which can be placed in bottles of water, and kept in a dry room. Start Vine-eyes in a gentle bottom-heat, and let the atmosphere of the house range from 50° to 55°, maintaining a moist atmosphere by frequent syringing with tepid water. *Wm. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

FORCING-PITS AND FRAMES.—Enough fermenting material should now be prepared and made into hot-beds when ready, in order that all Potatoes intended for forcing may be planted before the end of the month, and that more seed of Carrots and Turnips may be sown; the Potatoes should have been started in boxes as advised for previous plantings.

It will be advisable during mild weather to have the herb border thoroughly cleaned, or a fresh one planted if it be thought necessary, before other work demands attention. This part of the kitchen garden, which ought to have special attention, is too often found in a very untidy state, or, what is equally as bad, no systematic arrangement is attempted, but the herbs are grown in odd corners, causing much loss of time in collecting supplies. If it be decided to plant a new border of herbs, choose a piece of ground that is easily accessible, and which has been well manured and deeply dug; the clumps of Thyme, Savory, Marjoram, Tarragon, Sage, Mint, Chives, Sorrel, &c., should then be divided and replanted very firmly. Mint is sometimes difficult to grow successfully in dry sandy soils, and in such places it should be planted by itself in the coolest and dampest situation possible; any pieces remaining after sufficient have been planted should be laid-in by the heels in a separate place, for use until the others are established. Space should be reserved for Shallots, Garlic, Parsley, Chervil, Marjoram, Basil, &c., until the time comes for planting and sowing them. Continue to cover up more Seakale and Rhubarb whenever required, before the present supply gets exhausted. The latest Mushroom beds outside should now be made up as soon as possible, choosing a place behind a north wall, or some similar cool spot. *W. H. Diers, Ketton Hall.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, FEB. 13—Chambre Syndicale of Ghent.
TUESDAY, FEB. 14—Royal Horticultural Society: Scientific, Fruit, and Floral Committees; and Annual General Meeting.
THURSDAY, FEB. 16—Linnean Society.

SALES.

MONDAY, FEB. 13—Nursery Stock (First Portion), at Todman's Nursery, Eltham, by Messrs. Protheroe & Morris (three days).
TUESDAY, FEB. 14—Roses and other Plants, at the City Auction Rooms, by Messrs. Protheroe & Morris.
WEDNESDAY, FEB. 15—Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms.
THURSDAY, FEB. 16—Japanese Lilies, at Protheroe & Morris' Rooms.
FRIDAY, FEB. 17—Orchids in Flower and Bud, 10,000 Liliun anratum, &c., at Stevens' Rooms.
SATURDAY, FEB. 18—Imported and Established Orchids, at Protheroe & Morris' Rooms.
Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms.
Lilies, Roses, &c., at Protheroe & Morris' Rooms.

The Royal Horticultural Society. On Tuesday next the annual meeting of the Royal Horticultural Society will be held at South Kensington, and in view of all the circumstances, the event will be of unusual interest and importance.

In the first place it is now certain that the Society must remove almost immediately from South Kensington, where its career has been so thoroughly unfortunate. In the next place an opportunity is now offered for thoroughly reorganising the Society on a strictly horticultural basis, including most, if not all of the suggestions which have secured the assent, not only of the Council, but also of two general meetings. These suggestions are numerous enough and varied enough in all conscience, but there is, happily, substantial agreement on all matters of principle, while details must be settled in course of time as circumstances dictate.

As many of our readers already know, a strong outside committee has been appointed to confer with the Council as to the best means of reorganising the Society, and putting it upon a sound basis. That committee has had the advantage of the sugges-

tions of many of the most capable and trusted of horticultural representatives, through the medium of the Press and otherwise, and it is not the fault of the committee if more have not been in counsel together. So far the committee and the Council have acted loyally in concert one with the other, and there is every prospect that they will continue to do so. The committee has only been in existence a short time, but it has we believe already done good work; it has held several meetings, and, if we are well informed, it has already arrived at some important conclusions.

The first matter of pressing importance has necessarily been the question of site, and we are informed that there is now every probability of a site being obtained for the future operations of the Society so far as the metropolis is concerned. This will be eminently satisfactory to the Fellows, at least for the present. Excellent apartments is likely to be secured for the offices, and for the library and reading-room of the Society in Victoria Street, Westminster, while ample accommodation is available at a few minutes' distance for the exhibitions and larger meetings of the Society. So far as the Lindley Library is concerned it appears, according to the trust deed, that when the Society quits the South Kensington gardens the trustees have unrestrained liberty to place the library wherever they please, but remembering the history of the trust and all the circumstances of the case, there is little doubt that the library will in future, as in the past, be placed in the rooms of the Society. The new apartments of the Society will, in all probability, be so convenient that the general utility of the library will be very considerably enhanced, and the trustees will in future be enabled to carry out their original intentions, and render the library much more freely available than it ever has been, or could be, at South Kensington.

As to the general policy of the Society, that has already been fully discussed publicly and privately, and the general principles affirmed at two general meetings already. Suffice it to say that it is felt that no aspect or section of horticulture should be neglected, and no section receive undue importance. The Society, it is hoped, will no longer be a purely Metropolitan Society, but an endeavour will be made to extend its legitimate influence by the formation of branches and the appointment of representatives in every district of the country. The constituency, it is hoped, will be greatly enlarged by the adoption of low rates of subscription for those who are not disposed to pay the higher amounts. Privileges and suffrages, it is hoped, may be conceded according to circumstances, so that horticulturists, of whatever department or grade—scientific, practical, social or commercial, rich or poor—may feel that they have not only interests, but rights, in the Society. These, we believe, are the high aims which the Council and the committee set before themselves, and we have every hope that in time we may look for the realisation of some at least of these objects. Such a programme must evolve and be executed bit by bit, and necessitates patience and time for its fulfilment. Circumstances are sure to arise which will demand modification in this or in that respect, but success will be obtained exactly in proportion as the horticulturists of the Empire will consent to subordinate their specialist fancies, their sectarian prejudices, and their personal interests to the general welfare of the body corporate.

The existing charter is practically obsolete in many of its provisions, and must undoubtedly, sooner or later, be replaced by a document more in accordance with the requirements of the times;

but as a matter of practical expediency it is felt by those who have considered the subject that the consideration of this cardinal reform must for the present be postponed. In the meantime a great deal can be done in the direction of necessary reform by the recasting of the bye-laws, and this operation will, we believe, be taken in hand immediately after the annual meeting.

The main business of that meeting will consist in the election of new members of Council. The whole of the Council, it is announced, will resign, but it is proposed that, while some of the old body will remain, a relatively very large infusion of new members, selected by the committee, will take the places of others who propose to resign, and either not to offer themselves for re-election, or who if re-elected will decline to serve. The construction of the charter and bye-laws is such that, without some such procedure, the wishes of the Fellows and of the committee cannot be carried out. This is a fact that must be remembered, as the Council is sometimes exposed to blame for having done things which under existing regulations it could not legally avoid doing. It must suffice to say that, so far as we can judge, there is every disposition on the part of the Council, collectively and individually, to act for the best as regards the welfare of the Society quite irrespectively of any personal consideration. This has been shown already, and we believe that on Tuesday next other striking illustrations of this self-abnegation will be manifested. A very large proportion of the new Council will, it may confidently be expected, consist of gentlemen recommended by the outside committee, and who will in future be members of both bodies, and so keep in touch with outside feeling and with the wishes of the horticultural community at large.

Our recommendation to the Fellows on Tuesday next is so to bestow their votes as to support the general policy of the committee and of the Council, and not to complicate matters and perhaps destroy the budding prospects of the Society by the display of injudicious prejudices, and ill-timed personal motives, however justifiable they may seem to be.

NATIONAL AURICULA AND PRIMULA AND NATIONAL CARNATION AND PICOTEE SOCIETIES (Southern Sections).—A meeting of the committee of the above Societies was held at the rooms of the Horticultural Club, on Tuesday, February 7, when it was decided to hold both exhibitions under the auspices of the Royal Horticultural Society—the Auricula and Primula exhibition on Tuesday, April 24; the Carnation and Picotee exhibition on Tuesday, July 24. The schedules were revised, and will be printed as soon as it has been determined where the exhibitions will be held.

ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY.—The annual general meeting of the members of this Society was held on Thursday, the 2nd inst., in the Philharmonic Rooms, and was attended by about seventy members, and W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, was elected President, in the place of Lord Montague, who retires. The other officials for the forthcoming season were likewise elected.

FLOWERS IN SEASON.—We received recently from Mr. J. CHAMBERLAIN'S gardens, Highbury, Birmingham, a beautiful bunch of flowers of the twining Amaryllidaceous plant, *Bomarea patococensis* (conferta). The rich crimson funnel-shaped flowers are highly decorative in the winter show-house; but as yet the *Bomareas* are not common in gardens in spite of their almost unrivalled attractiveness. Mr. COOPER tells us that the plant from which the branch he sent was cut grew in a corridor, the temperature of which is that of a cool



NEW PHOTO: FRASER & CO. 22 MARK LANE CANON ST LONDON E.C.

LÆLIA ELEGANS VAR. *NYLEPTHA*.
GROWN AND PHOTOGRAPHED BY H. MEASURES ESQ

greenhouse. With this came flowers of *Laelia anceps* Morada—one of the finest of the dark-lipped section. It was evident that the plant from which it was taken was well grown and long-established, the spike being very robust, and flowers of large size. Of a glorious *Anthurium* received from the same source we may speak later on.

LINNEAN SOCIETY OF LONDON.—The next meeting will be held on Thursday, February 16, at 8 P.M., when papers will be read:—1. "On Self-Fertilisation and Cleistogamy in Orchids," by H. N. RIDLEY, Esq.; 2. "Notes on the Birds and Mammals of Hudson Bay Territory," by Dr. JOHN RAE.

LETHORION.—A correspondent writes that, on trying this newly-introduced insecticide with a box of matches in his hand an explosion took place, which seriously injured his hand, the box of matches being quite burned up. He thinks that a caution ought to be given with such dangerous compounds. We deemed it right to communicate with the inventors of this substance, who reply that there are no explosive materials in the Lethorion, and that the "explosion" in question did not proceed from the Lethorion, but from the incautious way in which the matches were used. The inventors would do well to submit their invention to chemical analysis, in order that the public may be reassured on this head. There seems no doubt that the invention is a very useful one, but common sense demands that ordinary care should be taken in its use, and in this case, according to the complainant's own statement, this does not seem to have been done.

CHISWICK GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—On the 22nd inst. E. W. BADGER, Esq., Birmingham, will deliver an address "On the Advantage to Gardeners of a more thorough Knowledge of the Science as Contrasted with the Art of Gardening." At a later date he will discuss the raising of hardy fruits (Apples and Pears particularly) to bloom later than most of our existing kinds do, so as to escape or minimise the effects of our late spring frosts.

READING HORTICULTURAL SOCIETY.—The annual spring exhibition of this Society is fixed for June 6, a week or so later than usual. The summer exhibition will take place on August 15, both, as usual, in the Abbey Ruins.

READING CHRYSANTHEMUM EXHIBITION.—This, which is under distinct management from the Horticultural Society, will take place on Friday, November 9, in the spacious Town Hall. The Hon. Secretary is Mr. RICHARD CATCHPOOL.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of the members of this Society will take place at the Caledonian Hotel, Adelphi, on Monday the 13th inst., chair to be taken at 8 P.M. During the past year a considerable number of new members have joined the Society; and there has also been a very satisfactory addition to the number of honorary members, the latter subscribing one guinea per annum.

NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY.—The monthly meeting of the Society will be held at the Mechanics' Institute, Nottingham (Room No. 75), on Wednesday, February 8, at 7.30 P.M., when a paper on the Cineraria will be read by Mr. J. MEADOWS, Basford. Specimens of cut flowers, fruits, &c., will be exhibited.

CHINESE PRIMROSE MAGENTA QUEEN.—Mr. B. S. WILLIAMS is about to send out a new variety under this name, and has forwarded us some detached flowers of it, which are of medium size and good form. The petals are irregularly fringed, of a rich magenta-crimson, while the eye is five-sided, brownish, with a few yellow streaks, and the mouth and tube a clear golden-yellow.

HARPENDEN HORTICULTURAL SOCIETY.—The Secretary of the above, Mr. J. J. WILLIS, informs us that the tenth annual show of this Society has been fixed for Wednesday, August 29.

JARDIN DES PLANTES.—We have received a copy of the *Index Seminum*, or Catalogue of Seeds for exchange. Its richness may be estimated when we say that the list occupies seventeen quarto pages of four columns of close type. Communications should be addressed to Professor COINT, 27, Rue Cuvier, Paris.

A NEW PARK FOR BERLIN.—Recently a public park has been opened in the southern part of Berlin, which, in honour of Her Imperial Highness the Crown Princess, the patroness of horticulture, has been named the Victoria Park. The site, which lies on the northern slope of the Kreuzberg, is, in so far, very favourable for the landscape gardener, that fine views of Berlin can be obtained from the higher ground. The idea of forming a park here is an old one; but it is only recently that the difficulties that beset the carrying of it out have been overcome, and the plan carried out.

IRIS STYLOSA ALBA.—Mr. T. S. WARE has kindly forwarded to us a flower of this rare and pretty Iris, which he states has been grown in a cold frame at his Tottenham nurseries. The flower is practically white, but there is just a suspicion of lilac in the standards, which are of one tint throughout; the falls have a pale cream tinge, with a bright yellow spot in the centre; the base of each segment is dull yellow. This Iris will certainly be welcomed in all gardens when it is better known.

CHLOROPHYLL IN THE EPIDERMIS.—The existence of chlorophyll in the epidermis or skin of leaves is generally thought to be very unusual. Mr. SPENCER MOORE, however, by some recent researches published in the *Journal of Botany*, shows that it is much more frequent than is commonly supposed.

EDINBURGH CHAIR OF BOTANY.—Several gentlemen are reported as likely to become candidates for this appointment including Professor BAILEY-BALFOUR, of Oxford, Mr. GEDDES, Mr. G. MURRAY, Professor McNEIL, of Dublin, and Professor TRAILL, of Aberdeen. In so large a University there is room for two Professors, at least—one to undertake histology and physiology, the other morphology and taxonomy, as in the German Universities.

MR. P. J. BERCKMANS.—The *Horticultural Art Journal* (Rochester, U.S.A.) gives a portrait of this gentleman, the successor to MARSHALL WILDER in the presidency of the American Pomological Society. Mr. BERCKMANS is a Belgian by birth, but migrated to the United States in 1850, and ultimately established himself as a fruit cultivator in Augusta (Georgia).

CAMBRIDGE BOTANIC GARDENS.—We have received a copy of the exchange list of seed issued by the Curator of the Botanic Garden, Cambridge, Mr. R. J. LYNN, and which is a carefully prepared document.

COOL SHOW-HOUSE FOR ALPINES, &c., AT KEW.—A want long felt by those interested in herbaceous and alpine plants has at length been supplied by a house answering to the above description recently erected in the herbaceous grounds adjoining No. 2 Museum, and now open to the public. Lovers of outdoor plants who may have tried perhaps in vain to get good clean flowers of *Hellebores*, &c., during the past season of fogs and smoke will at once see the advantages of such a house as the above. Its length is 30 feet by 10 feet wide, with a path and stages on each side, and above all it is a cool house in every sense of the word, no artificial heat whatever being used. In private gardens the want of a house of this description would hardly, if at all, be felt, as much the same advantage would be derived by the aid of a bell-glass or handlight, and which

could be lifted at will by the owner. In a public establishment, however, such as Kew, plants that want protection of any kind—and there are a great many, especially during winter and spring—are far more appreciated when grown or shown in a place easily accessible to the general public. Many of the very choicest of our alpine gems, deprived of the kindly shelter of the warm snow, such as they get in their native homes, either refuse to flower or their attempts to do so are frustrated by our treacherous frosts and biting east winds. Such plants that were previously grown in the cold pits attached to that department, and which were seen only by those specially interested, will now be placed where they can be admired by all visitors to the gardens. There are many plants also not quite hardy enough in the open air during severe winters that will do well in such a house as the above, which at the present time is gay with such flowers as *Helleborus niger* and its varieties, *Snowdrops*, *Iris reticulata*, *Primula floribunda*, *Helleborus orientalis*, &c.

FILMY FERNS.—The famous collection of Filmy Ferns formed by the late Mr. COOPER-FORSTER, has been presented by his son, Mr. STUART FORSTER, to the Royal Gardens, Kew. Mr. FORSTER's success in the cultivation of Filmy Ferns was exceptional, even when compared with the best managed collections known; and when it is remembered that Mr. FORSTER grew the whole of his plants in several small houses on the top of his house in Grosvenor Street, his success seems all the more remarkable. Some of the specimens he grew are unique for size and health, and it is satisfactory to know that the collection generally has not suffered under the care of Mr. STUART FORSTER, who had them in a specially constructed house at Biahfield, near Bracknell, in Berkshire. Mr. COOPER-FORSTER was a frequent visitor to Kew, where the Filmy Ferns were of special interest to him. Until just previous to his death he freely exchanged plants with Kew, and he was always ready with suggestions and advice when the welfare of any precious plant at Kew was concerned. The Kew collection of these plants has always been rich, and now, with the addition of the collection formed by Mr. FORSTER, it stands without a rival. This is the second valuable gift of Ferns made to Kew recently, the other being that of the Carboneau collection, already noted in our pages.

PHYLLXERA.—M. MILLARDET, according to the *Revue Horticole*, has ascertained, after prolonged experiment, that hybrid Vines obtained by the cross-fertilisation of European varieties with American forms resist absolutely the attacks of Phylloxera and other vegetable parasites. We can but be sceptical as to the validity of the term "absolute," but in any case we congratulate our neighbours on their perseverance in applying the resources of horticulture to the overthrow of their enemies.

TRINITY COLLEGE, DUBLIN.—The following plants are now in flower in the College garden:—*Iris Ilustro*, *I. reticulata*, *I. r. cyanea*, *I. stylosa*—these are and have been lovely; as also early species of *Crocus*, in a frame; *Narcissus minimus* is fully open on a sunny outside border, and is by far the earliest Daffodil of the year. *N. pallidus praecox*, *N. Ard Righ*, *N. variiformis*, &c., are now good in pots.

A CONTRAST.—Germany has, according to *Agricultural Science*, thirty-three horticultural schools, of which the principal are at Potsdam, established in 1821; Proskau, 1868; Geisenheim, in 1872; and the Flora at Cologne, in 1872. Besides these, there are, not mentioned by our contemporary, the Pomological Institutes and Forest Schools. In Belgium there are two well-equipped schools, that of Ghent and of Vilvorde, the model of which, it will be remembered, formed so remarkable an exhibit at the Health Exhibition. France has a school of horticulture at Versailles, with a President, and nine Professors and forty scholars, who have free instruction for three years. Denmark, as we know, educates her gardeners highly, as she has done her dairy-

farmers, with the result that much too large a proportion of the butter trade in this country is in the hands of the little Scandinavian kingdom, while Ireland and our own grazing counties are falling behind; and, to revert to horticulture proper, we have not even the ghost of a school of horticulture; and Chiswick—poor Chiswick—is the only public establishment where even the semblance of an experimental garden is maintained. "Oh! but," it is said, "the educated gardeners are not practical—there is no work in them." Perhaps not in particular individuals; but is it not true that the Germans are practical enough to be able to oust us in practical and commercial matters simply from their superior brain-power—no, we will not say power, for that would not be true—but from more careful brain-development, just as in military matters they overcame the French in 1870?

"L'ORTICULTURA."—Under this title has been issued at Turin the first number of a monthly horticultural journal devoted to economic and decorative gardening. The new-comer is a well printed octavo, with woodcut illustrations. One feature of the journal consists in the publication, on a separate sheet, of an illustrated dictionary of botany. The specific names are all printed with a capital initial letter, which is, of course, an error.

"KEW BULLETIN."—The February number contains a list of the seeds of herbaceous plants which can be sent in exchange from the Royal Gardens, Kew, or distributed in small quantities among its regular correspondents. The list is a very rich one.

CHRYSANTHEMUM GUNNERSBURY HERO.—This is a very useful late blooming variety of the Japanese section, of a rich golden-yellow colour, and is a free flowerer according to Mr. A. J. GILBERT, gr. to Miss H. MANSELL, Queen's Road, Guernsey, who says:—"The Guernsey Hero Chrysanthemum is a root-sport from the well-known variety Mrs. Charles Carey, but it is a much better bloomer, and has quite a good habit. I have cut as many as seventy-eight blooms from a plant in a 14-inch pot." We have seen specimens of the variety, sent from Guernsey; the flowers were of good bright colour, full, and of good size. Certainly it is a good late variety.

BOTANICAL SOCIETY OF ITALY.—A National Botanical Society has been established at Florence. Professor CARUEL has been elected President, General RICASOLI and Professor ARCANGELI Vice-Presidents. Florence is particularly well placed for such a society, and we are pleased to hear that the Italian botanists generally are supporters of the Society. It is worth notice that this new Society in large measure originated with the Tuscan Horticultural Society, which is co-operating fully with the new Society.

NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—A landscape gardening committee has been added to the other committees of this flourishing Society.

FORCED FLOWERS IN BERLIN.—It is matter to rejoice over, writes a correspondent, how much the interest in Orchids has increased in Berlin; and whereas formerly but very rarely Orchid flowers were to be observed in the florists' shops, this winter Cattleya, Oncidium, Odontoglossum, and, this last week, Cypripedium flowers were to be found in them every day. As regards the other flowers, these consist mainly of Violets and Lilies of the Valley; Roses, Camellias, Tulips, Hyacinths and Cyclamen are of course to be found everywhere. The last-named, as one-year-old flowering plants, bearing fifty and more blooms, and produced in large numbers, and find ready customers. In the fabrication of bouquets the foliage of Mahonia aquifolia has become an indispensable material, and it is scarcely possible to obtain one that does not contain some of it.

PUBLICATIONS RECEIVED.—*Review of Forest Administration in British India for the year 1885—86.* By B. RIDDEXTROP. (Simla: Government Central Press.)—*Agricultural Produce Statistics of Great Britain for 1887.* (London: EYRE & SPOTTISWOODE.)—*Bulletin of the Botanical Department, Jamaica.* (Kingston, Jamaica: Government Printing Office, 79, Duke Street.)—*Bulletin of the Botanical Department, Trinidad.* (Port of Spain: Government Printing Office.)—*Note sur la Culture de la Vigne sous serre.* Par CH. JOLY. (Paris: G. ROUGIER ET CIE., 1, Rue Cassette.)

NOTICES OF BOOKS.

GARTENKUNST UND GARTENSONST UND JETZT.
By H. Jäger. (Berlin: Paul Parey. 8vo.)

"Gardening and Gardens Past and Present," is a *résumé* of the subject by H. Jäger, Royal Gardens Inspector, Eisenach, a competent authority on all such matters as concern the gardener, landscape gardener, and garden architect. Much of the work consists of condensed accounts of such gardens of antiquity as are to be found in ancient authors. This part could very well have been still more condensed, the matter having no horticultural value. The numerous examples given of gardens of the Renaissance, and yet more modern periods, down to the present day, are of much interest, and will be found capable of furnishing ideas to those engaged in laying-out and beautifying existing gardens, especially where this is brought about by architectural adjuncts, the living materials used—incomparably poorer than that now employed—not having survived to our day. A good many instances are given of that misdirected labour of former days, Topiary work, as found in French, English, Austrian, and Italian gardens, some of which is actually in existence, notably at Hatfield Palace and Schönbrunn. Mention is made of the several artists, either followers of Le Notre or his pupils, who created wonderful combinations of architecture and gardening throughout the continent of Europe. These were Druze, Perault, Desgardez, Chapelle de Lisle, Charles Revel, &c.

A good portion of the work is taken up by descriptions of gardens as laid out in England, a style that has given its name all over the Continent to the free and unconstrained treatment of the ground and of the materials used in forming garden scenes. Excellent examples of gardens of repute in Germany are given, and which the reader is assisted in reconstructing in his mind's eye by means of many excellent plans and sketches.

The book is furnished with 245 engravings of a great variety of garden objects, garden scenery, and plans, architectural furnishing, &c., and is well printed on good paper.

LÆLIA ELEGANS VAR. NYLEPTHA.

(SEE SUPPLEMENTARY SHEET.)

PRESERVING the same habit of growth and form of flower as the type figured in *Select Orchidaceous Plants*, the beautiful variety which we illustrate from an excellent photograph by Mr. Herbert Measures from the specimen in his father's collection at The Woodlands, Streatham, differs materially in colour and in the fine development of its showy labellum, the front lobe of which measures nearly 2½ inches across. Each flower has a breadth of 7 inches; the sepals and petals on first opening are faintly tinged with rose, but change to sulphur-yellow as the flower ages; the tube of the labellum is pure white, the erect tips of the lateral lobes are crimson, and the front portion a rich crimson edged with a lighter colour. The stems of the plant are 2 feet 6 inches in height, and have much the appearance of a stout Cattleya guttata, which, with the invariable small spots in the segments of all the varieties of *L. Turneri*, and other contributory evidence, have given rise to the reasonable supposition that they may be derived from the natural intercrossing of varieties of *L. purpurata* and *Cattleya guttata*; and the consequent expediency for separating them from the other branches of the *L. elegans* group, which probably sprung from the union of *L. purpurata* and *Cattleya intermedia*, all the plants mentioned growing together.

The hybrid character of the whole group is sufficiently demonstrated by the various stages of imperfect development always exhibited in four of their pollinia. However, no matter what its origin, the

noble variety under notice, belonging to R. H. Measures, Esq., is very distinct and beautiful.
J. O'B.

HYBRIDISATION.

LIKE PROFESSOR M. Foster, I read the inquiry of "A. B." (p. 121) as to whether hybrid plants have any special tendency to reproduce themselves by buds instead of by seeds, and I in part agree with the editorial appendix, in which you infer that such may really be the case. Professor Foster's instance of *Iris balkana* crossed with pollen of *Iris Cengialti* is very interesting, but, as I surmise, the fact of his having cut the flower was conducive to the bud or vegetative growth being produced by the hybrid plant, and not the fact of the hybridisation itself. Some *Irids* usually adopt this vegetative method of reproduction. For example, I may quote the *Maricas*. *Marica gracilis* flowers here nearly every year in a warm stove. Its flowers are very lovely and very evanescent. It rarely seeds in cultivation, but here, with us young plants are constantly produced from the floral region of the flattened scape. At flowering time the scape is moderately rigid and erect, but the development of the vegetative buds into little plants has the effect of rendering the scape less rigid, and finally, the weight of the young plants, and its own elongation after flowering, cause it to topple or flop over, and the scape dangles over the side of the stage; the young plants also reverse their position by turning upwards to the light. In a state of Nature these scapes—which are 2 to 3 feet in length when fully grown—would fall on the ground at about that distance from the parent plant, the result being a "rotation of crops," i.e., new soil and locality for the young plants as borne at its apex. The non-production of flowers, as in the Potato Onion; or the artificial removal of flower-buds, as in the case of *Lilium*, of the *L. Wallichianum* or *L. longifolium* section, often results in the formation of buds in the leaf-axils, and always so if the stems be bent down and buried in the soil or earth. Some *Alliums* are often very chary in producing flowers. A. anomalum just occurs to me as an instance of this kind. Now and then it does produce flowers, but the plant seems quite to mistrust its sexual organs for the purpose of reproduction, and resorts to the device of producing bulbils or bulblets, as in its esculent ally the bulb-bearing Onion. The genus *Agave* may be divided into two sections—indeed it is so divided naturally; the flowers of *Agaves* proper being generally fertilised by flies and bees, and so seeding freely under cultivation; while *Fourcroya*, which in general appearance agrees with and resembles *Agaves* in all essential particulars, rarely or never sets a seed, although bulb-like buds are produced in quantity, and these, within certain limits, serve to reproduce the parent plant. A good example of increased vegetative development is constantly observed in Ferns which rarely or never produce spores. *Adiantum Farleyense* and *Polypodium vulgare* var. *cambricum* may be cited as good illustrations of what I mean, seeing that both exhibit a much larger leaf area than either of the sexually fertile parent types from which they have originated.

I more than doubt Professor Foster's idea that "hybrids have a greater tendency to transgress morphological laws than offspring born in more lawful wedlock." My own opinion is that cultivation (other than hybridisation) is far more conducive to the leaning towards teratology; and I am convinced that cultivation, including the act of cutting off the only developed flower on the hybrid *Iris balkana* × *Cengialti*, was the predisposing cause of the young plant's appearance on the flower stem. That sexual organs in plants are the outcome of diminished, restricted, converted, or altered vegetative energy seems to me a fact difficult to disprove. That there are these two conflicting powers at work in all vegetative organisms is as clear to most gardeners as is light from darkness. All the best efforts of gardening as a science depend on the due encourage-

ment and restriction of vegetative energy—or we may call it leafy growth. To what end is all our root-pruning, planting in restricted areas, or grafting strong growing plants as scions on restricting stocks if it be not to encourage the production of sexual results in the shape of flowers and fruits? I used the above illustration of “light from darkness” in a double sense, knowing that light alone restricts vegetative development (I do not say growth) just as darkness facilitates the unfolding of vegetable fabric or sun-woven tissues of all kinds.

Some few years ago General Pleasanton started experiments with coloured glass as applied to the roofs of plant-houses, and especially vineries; and he also started the idea that the violet rays of the spectrum rendered Grape Vines more productive. He was laughed at by practical men, and even by chemists and others, at the time, mainly because although his crop was a large one, the quality of the fruit was not so good as other cultivators could grow under ordinary white glass roofs. Now, I see by a newspaper paragraph that no less an authority on vegetable physiology than “the great Panjandrum himself”—the renowned Sachs—has discovered that violet rays do really conduce to the production of flowers as opposed to mere leaf-growth in plants generally; so that at least half a truth lay hidden in General Pleasanton's vinery after all.

I must apologise for taking up so much space in thus offering some few “guesses at truth,” and I submit with all deference to my good friend, Professor Foster, that our editor has had far more reason to thank the ordinary cultivator than the manipulative hybridiser for examples of misbehaviour amongst garden plants. *F. W. Burbidge, F.L.S., M.R.I.A.* [What about *Cypripedium Sedeni* × ? Ed.]

CRESTED FERNS.

In some species of Ferns the crested or tasselled varieties are very elegant, while in other cases it is quite a question of taste as to whether the curious multifid growths add much to the normal beauty of the species. However, crested Ferns are very popular at the present time, and several additions have recently been made to the list, both from those species that have not hitherto departed from their natural character, and improved varieties of the older crested sorts.

It is remarkable that these crested forms rarely revert to their normal state when raised from spores. Some slight variations occur generally, and occasionally a very distinct form presents itself; but I have large quantities of seedlings growing together where the variations have been very slight indeed.

The varieties of *Pteris serrulata* and *P. cretica* are among the most popular of the crested Ferns; of *P. serrulata* there are many distinct forms. First-class Certificates have been awarded for several varieties at different times, the first being to Messrs. Veitch & Sons in 1863, the variety being named *P. serrulata cristata*; the next came from Messrs. Cripps & Co., in 1866, named *P. s. polydactyla*. This was followed by one from Mr. Edwards in 1869; and in 1872 three varieties obtained first-class honours—two from Mr. Chambers, of Isleworth, and one from Mr. Dixon. I must not omit the Chiswick variety, which obtained distinction in 1870, and is now considered the best crested form of *P. serrulata* major. Among other varieties that have gained distinction May's variety of *compacta* is a useful one, and Naylor's variety is a distinct intermediate form. The crested form of *P. cretica* is very pretty; there are also some crested varieties of *P. cretica albo-lineata*, *P. Mayi* being the best; this variety is becoming very popular; it is of dwarf compact habit, and very regularly crested. *Microlepia hirta cristata*, a very elegant Fern, the fronds terminating in a light tasselled crest, the side pinnae are also slightly crested at the extremities. The crested form of *Lomaria gibba* is another very pretty Fern when seen in good condition. The *Gymnogrammas* contribute some good crested forms, of which *G. Wettenthaliana* (silver) and *G. Parsonsi*

(golden) are the most distinct. Of *Adiantums*, the most useful crested form is *A. cuneatum grandiceps*; the fronds are more elongated than in the type, and terminate in a broad tasselled crest. A slight variation of this form was exhibited at Kensington last spring, and was awarded first honours under the name of “Gordon's tasselled” *A. Ludemannianum*, is a curious form in which the pinnules are produced in tufts on an irregularly divided rachis. *Lastrea Richardsi multifida* is very pretty when grown on freely from a young state without receiving a check. *Nephrodium molle corymbiferum* is an old favourite. There are two crested *Davallias*, *D. Mariesi cristata* and *D. elegans polydactyla*; both of these have gained First-class Certificates, but I cannot see much to admire in them, especially the first-mentioned, in which the crest certainly detracts from, rather than adds to the elegance of one of the most lovely Ferns grown. In *Nephrolepis davallioides furcans* we have one of the most elegant of all the crested Ferns. *N. Duffii*, is also a distinct and pretty variety. *Woodwardia radicans cristata*, *Doodia aspera multifida*, and *Osmunda japonica corymbifera*, are desirable varieties, especially the last-named, which is one of the most unique examples we have in all the Ferns which produce multifid growths. The crested forms of some of our native Ferns are very numerous, especially the *Athyriums* and *Scolopendriums*; of the former many of the varieties are very elegant. *Lastrea filix-mas* is also prolific in varieties; *Polystichum vulgare*, *Osmunda regalis*, and *Polypodium vulgare*, all produce crested varieties. *Pteris*.

SCOTLAND.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

The last meeting of one of the most successful sessions of this Association was held in the Music Hall Buildings, Aberdeen, on Friday evening, the 3rd inst. There was a good attendance. The feature of the evening was the reading of a paper sent by Mr. J. Fraser, Kew Green, Surrey, entitled “The Influence of Light on Plants, as applied to Horticulture.” The writer treated his subject in an instructive and exhaustive manner, and was warmly thanked for his communication. Discussion followed the reading of the paper. The usual vote of thanks terminated the meeting and the session of 1878–8.

DUMFRIES HORTICULTURAL IMPROVEMENT ASSOCIATION.

At the usual monthly meeting, held in Greyfriars' Hall on the 2nd inst., Mr. Riddick in the chair, Mr. Rowe, Nunfield Gardens, Dumfries, read an interesting paper on “Orchid Culture.” He said that one of the essential points in the culture of Orchids was suitable houses, the houses he preferred being light span-roofed structures with the ends facing north and south. He strongly recommended the advisability of storing all the rain-water possible in tanks constructed beneath the stages. Although much had been written about the practice of heating the water for Orchids, he had a small pipe in the tanks for that purpose in cases of emergency, such as having to water soon after heavy rains or snow-storms.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

The ordinary monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh on the 5th inst. Mr. D. P. Laird, President, in the chair. Mr. Robert Lindsay, Curator of the Royal Botanic Gardens, Edinburgh, read an interesting paper, entitled “Historical Plants.”

An interesting exhibit of spring flowers from Mr. Smith, of Newry, was on the table; it contained some interesting Croci, *Sisyrinchium grandiflorum*, and a large form of Snowdrop, named *Galanthus nivalis maximus*, amongst others.

VEGETABLES.

RUNNER BEAN NE PLUS ULTRA.

In order to get this Bean up to the high character in which it was seen in the conservatory at South Kensington during the past summer, some twenty years' persistent work of selection had been gone through. It originated with Mr. Neal, gardener to P. Southey, Esq., Bampton, Oxford, and he began first by selecting pods with five beans, and went on until he had got six, and eventually seven and eight beans in a pod. During these twenty years Mr. Neal did not buy a single bean, but worked away in the most persistent manner with his own selections, until he has evolved what may be termed a perfect Runner Bean, for the pods are long, straight, and symmetrical from end to end. Mr. Neal has calculated, that for every bean he has added to the pods he also secured an additional inch of solid flesh that can be eaten. Mr. Neal has now succeeded in obtaining pods from 10 to 14 inches in length, as straight as it is possible for them to be grown; and he asserts that, if thirty beans of his *Ne Plus Ultra* be planted $1\frac{1}{2}$ foot from bean to bean they will produce more than a pint of ordinary Scarlet Runners. If any one would have fine Runner Beans for show purposes, let him dig out a trench and manure it well as he would for Celery, and by keeping the plants well watered they will grow to a length of 14 feet. One successful exhibitor grows his Beans in circles, and trains them to tall stakes. *R. D.*

THE FLOWER GARDEN.

HARDY WALL PLANTS.—The majority of these may now be pruned, nailed, or tied in, and in doing so keep a watchful eye for such insects as scale, and take means to eradicate them. In extreme cases of insect attack we would advise that the plants be cut down to within a foot of the ground, and the branches burnt forthwith. Far better to sacrifice one season's crop of bloom than to have disfigured plants. *Ceanothus Veitchii*, *Jasminum officinale*, and the different varieties of *Loniceras* should have last year's growths cut back to a short spur. In *Kerria japonica* cut out all weak and spindly growths, reserving only the strongest, from which the unripened point only need be removed. Late flowering Clematis of the Jackmanni type should be cut in rather close, whilst those belonging to the early flowering sections and which produce flowers on shoots of the previous year's growth should be merely thinned out, retaining the strongest and best ripened shoots. Tea-scented Roses on south and west walls which are required to produce early flowers may be pruned; and the following, immediately after flowering:—*Chimonanthus fragrans*, *Forsythia viridissima*, *Garrya elliptica*, and *Jasminum nudiflorum*.

Propagating.—Where the means for early propagation exist, and when strong, healthy cuttings are obtainable, *Verbenas*, *Lobelias*, *Alternantheras*, and *Iresines*, may now be put in. An easy and quick method of propagating these is to employ shallow boxes 4 inches deep, filled to within an inch of the top with suitable compost, over which put a layer of sand; cover the boxes with panes of glass, and place on the hot-water pipes in a house where a temperature of from 65° to 70° is maintained; so treated, they will root in less than a fortnight. *Tropæolums*, *Gnaphaliums*, *Heliotropes*, and other soft-wooded bedding-out plants, may be now propagated. *Dahlias* and tuberous-rooted *Begonias*, where it is desired to increase the stock—the former by cuttings and the latter by division when the young growth is about an inch high—may now be started in heat in boxes. A fortnight hence will be early enough for increasing the general collection of bedding plants.

Hotbeds.—When circumstances compel recourse to these means of propagating the treatment of the fermenting material may at once be taken in hand so as to have a bed in readiness by the end of the month. Although these beds are but poor apologies for a propagating pit hotbeds will serve their purpose very well if not made use of at too early a period, and if great care be exercised in giving air and

otherwise guarding against injury to the inmates by ammoniacal gases.

Flower-beds.—The severe frosts having caused upheaval of spring-flowering bedding plants, these should be pressed down with the hands, taking the opportunity to hand-weed the beds where found necessary. Autumn-planted Carnations and Pinks, and newly-planted herbaceous stuff should also receive this kind of attention. *J. Horsfield, Heytesbury.*

THE LAST OF ITS RACE.

"Nor a thing to be regretted" was the reply of a Philistine to whom the photograph was shown, and, indeed, the tree of which we give an illustration (figs. 30 and 31) cannot be commended for its symmetry; but beauty is often one of the most really unimportant of attractions, and so it is in this case. We do not suppose the last of the aborigines of Tasmania, who died not so very long since, was a very attractive person, nor, in all probability, did the last old lady who spoke the Cornish tongue find many admirers for her beauty sake. The interest attaching to the tree represented at p. 181 is, that it is the last existing representative of its race in the island of St. Helena. Formerly, doubtless, there were many more, but goats and the destructiveness of man have destroyed this and many other species peculiar to that remote islet. As in point of structure it possesses peculiarities of its own, it is evident that the loss of such a tree is equivalent to the tearing out of a page of a record, or, to suit the Philistine mind, let us say the destruction of a page of a ledger. In this country, indeed, generally, Composites are herbs, or at most bushes. Asters, Senecios, Daisies, Chrysanthemums, Dahlias, as all know them in our gardens, are not to be classed with trees, but here we have a plant nearly allied, generally, to Aster, which forms a good sized tree with spreading naked branches, bearing small stalked, spatulate, toothed leaves crowded towards the ends of the branches, and which leave when they fall very prominent cicatrices. The heads of flowers are borne in dense clusters, as shown in the smaller illustration (fig. 30). The tree in question is about 20 feet high, and grows near the entrance gates of Longwood, the place of the enforced retirement of Napoleon, who must often have seen it. Originally described under the name *Psadia rotundifolia* by Sir Joseph Hooker, it was figured by Melliss in his work on St. Helena, p. 294, t. 41, and is mentioned by Hemsley in the "Report of the Botany of the Challenger Expedition." So that the record of the tree is not likely to be lost, while specimens exist in the Kew herbarium from Burchell (anno 1806—1808), Melliss, 1868 and 1877, as well as from Mr. D. Morris, the Assistant-Director of the Royal Gardens, Kew, who gathered specimens in September, 1883, and succeeded in introducing seed to Kew, where it has germinated. We are indebted to Sir Joseph Hooker for the use of the photograph.

HOME CORRESPONDENCE.

GARDENERS' ORPHAN FUND.—For the information of your correspondents who evince so warm an interest in this Fund, and to whom I feel deeply grateful, I shall feel obliged if you will kindly allow me to state that the question of money-boxes was considered at the last meeting of the Executive Committee, with the result that sample boxes are to be presented at the next meeting for approval; a number of boxes of the approved pattern will then be ordered for distribution among such of our friends as will kindly undertake the charge of them. *George Deal, Chairman.*

WHAT IS A "NELIS" PEAR?—It is often wondered what is the meaning and origin of Nelis applied to a Pear. Perhaps it is easily explained, and perhaps the following suggestion is libellous. A gardener who raised a new late Pear, asked a literary friend for a good name for it. He suggested "autumnalis" which the raiser adopted, but wrote as two words, "Autumn Nelis." Soon after a rival raiser brought out a still later Pear, which was to supersede it, and was accordingly named the "Winter Nelis" (or *vernalis*). *C. W. D.* [And this is how history is written! Now for the facts. John Charles Nelis was a well known Belgian pomologist, who died in 1834,

as may be seen from Leroy's *Dictionary of Pomology*, where our Winter Nelis is described and figured as Bonne de Malines. *Ed.*]

MEDLAR JELLY.—I enclose a receipt for making Medlar jelly, which has been in the family for years, and is made every season with great success. If properly done it should be a stiff jelly, and improve if kept some time before use. Medlars are very commonly grown in Jersey, and the finer the fruit the better the flavour:—Take some Medlars when quite ripe, wash and put them into a preserving-pan, or boiler with close-fitting lid, with just as much water as will cover them. Let them simmer slowly till they become a pulp (which will be from four to five hours), then strain through a jelly-bag, taking care not to squeeze with the hands at all, as that would make the jelly muddy, but let it drain to the very last drop, as the last of the liquor is the richest. To every pint of juice add three-quarters of a pound of loaf-sugar, and boil for about one hour. When cold it will be a stiff jelly. *M. Gibaut.*

ARALIA JAPONICA.—Did the dry summer of 1887 affect this species so as to prevent it blooming in the autumn? I have a fine specimen in the open air on a south aspect that has grown freely and



FIG. 30.—*PSADIA ROTUNDFOLIA*.

flowered profusely for a few years past, but for some reason not a single bloom was put forth this season. The buds plumped up as usual during the end of the summer, but not one put forth an inflorescence. On examining the buds to-day I find every one of them completely rotten, though not a leaf of the large plant bears a trace of injury from the sharp frosts. Strange to state, not one of my plants in a cold-house bloomed also, though in former years they scarcely once failed to do so. Is this a general experience? *R. D.*

HARDINESS OF LAPAGERIAS.—Referring to Mr. J. Roberts' note on this subject (p. 152), I may remark that I have often wondered how the large number of plants placed in the open air about the grounds of Colston Bassett, Bingham, Notts, by the late Mr. G. T. Davey, have fared. They were, I believe, planted two or three years previous to the visit of the Royal Horticultural Society to Nottingham, and Mr. Davey's idea was to imitate as far as possible the appearance of the plant in its native habitat, and to this end the plants were placed in the ground just within the fringe of shrubby borders, clumps of shrubs, &c., so that the shoots could attach themselves to the branches, and growing upwards, find their way among the outer branches and there bloom. I think I am right in stating that more than one hundred plants were placed out at Colston Bassett, and it would be interesting to know if any of them have survived. Colston Bassett lies between Nottingham and Grantham, and it would, I assume, be a colder locality than round London. Mr. Roberts' experience with seed of the white *Lapageria* is, I think, the general one. I have never heard

of a white variety being produced from seed taken from a white parent, but it may have happened. Seed of *Lapageria rosea* is frequently offered in seed catalogues, but the white seldom, if ever. It is the fact, that the white *Lapageria* has to be obtained by means of layers that makes it comparatively scarce and high in price. The layering of *Lapageria alba* is done on a somewhat extensive scale at the Royal Exotic Nursery, Chelsea. The shoots are laid down on a bed of sandy peat about the months of November and December, and slightly covered; in February and March they break into upward growth at various points, and root downward also, and the ascending shoots twine themselves about twine suspended from the roof. When strong enough, the rooted plants are removed, potted, and grown on into size for sale. *R. D.*

THE ST. BRIGID HELLEBORES.—I now send you a few seedling Christmas Roses raised in the garden of Mrs. Lawrenson, near Dublin, by that lady. They are all the produce of the seeds of *H. niger angustifolius* cross-fertilised with pollen of *H. n. altifolius*, *H. n. ruber*, *H. n. caucasicus*, &c. The seed was gathered and sown in 1885, so that the fifty-one plants (seedlings) now in flower are only about two years old from germination (Jan., 1886). All throw the flowers well up on the stalks. Nearly all have pale or apple-green leaf-stalks, and flower stems more or less dotted with red. Some have rosy buds and the sepals behind heavily flushed with rosy-pink, others are pure white. The leaves resemble, 1, *H. niger* type; 2, *H. n. angustifolius*; 3, *H. n. altifolius*; and the flowers fall into three groups—1, deep or cupped flowers, having broadly imbricated sepals; 2, flat or saucer-shaped flowers, with broad and imbricated sepals; and 3, starry flowers—the sepals not or only very slightly imbricate. Some have flesh-pink or even blood-coloured stigmas, others whitish or greenish ones. I and Mr. F. W. Moore have numbered the fifty-one plants, and made a classified report of them. So far as we know this is the first and only batch of Christmas Roses ever raised of which the history is clear and authentic. At the time of fertilisation no other Christmas Rose—i.e. forms of *H. niger*—were in the garden except *H. niger angustifolius* (St. Brigid)—and in order to fertilise the stigmas of the St. Brigid variety flowers were obtained from Mr. Walter Ware of Bath. The St. Brigid variety never seeds by self or insect fertilisation in Mrs. Lawrenson's garden, so that there can be but little doubt of these being true cross-bred varieties, especially as the size, aspect, and coloration of plants, leafage and flowers show them to be intermediate in character between the parent forms. They, however, possess that increase of size and added vigour so generally characteristic of cross-bred seedlings. I am anxious that your readers should know of the ease and rapidity with which beautiful forms of Christmas Roses may be raised from seed if judicious cross-fertilisation be resorted to and the ripened seeds at once sown. *F. W. Burbidge.* [A beautiful and interesting selection. *Ed.*]

CYCLAMEN COUM.—The treatment suggested by your correspondent, Mr. G. F. Wilson, in your last issue, is, I understand, exactly the treatment given by Mr. Atkins, of Painswick, who succeeded in raising quite a new race, now bearing the name of Atkins varieties. Mr. Atkins styled the Cyclamens "a beautiful genus of limestone-loving plants, seeming to prefer a south or westerly aspect." In our own experience we have followed Mr. Atkins closely in the treatment, and our success is all that can be desired; indeed, taking the whole of the hardy Cyclamens, not even *C. europeum* excepted, I know of none that will not thrive all the better for a liberal admixture of lime rubbish, &c., in the soil. They delight in a free soil where stagnation of moisture is impossible. In chalk districts, such as that presented at Broxbourne, Cyclamens grow like weeds, and one may count seedlings of all kinds coming up by the thousand. *C. coum*, as your correspondent says, with the above treatment, is a truly charming alpine, and no rockery, in my opinion, is perfect without them. *C. Atkinsii* and its varieties are the result of a cross between *C. coum* and *C. ibericum*. These two species, if simply planted together, and left to themselves, will give the same results, although when grown apart the seed from either comes perfectly true to name. *C. neapolitanum* is another old species that one does not so often see in gardens as could be wished. It blooms in autumn, but just now the leaves on well-grown plants are a perfect picture, almost as interesting, indeed, and certainly more beautiful than many flowers. *D.*

SOLANUM CORNIGERUM.—In Mr. Ridley's notes on *Solanum cornigerum* (p. 756, Dec. 17, 1887), it is stated that "its native country does not appear to be known!" As a contribution to information upon the subject I may mention that *Solanum mammosum* is well known as a native of the West Indian Islands. In Jamaica it covers acres of pasture land, and becomes quite a nuisance to the "pen-keeper" (local for grazer). It is known to the negroes as "cockroach poison," from its being credited with the power of removing these pests to household comfort in the tropics. Without close examination, it appears to me that *Solanum cornigerum* should only be regarded as an abnormal form of *S. mammosum*, an opinion I shall take steps either to confirm or abandon at an early date. In Trinidad, *S. cornigerum* exists in quantity on waste lands near the sea. I have not had time as yet to note, but I expect to find the forms of fruit

charter, which appears essential for the working of the Society, to appoint a Board of Examiners to examine gardeners who are candidates for Associate membership. The Councils of the Institute of Chemistry and Society of Actuaries obtained similar powers a few years ago. At first they permitted all persons who were in practise to become members, but after a certain date no one was permitted to be elected Associate or Member without examination. Of course a certain number of "duffers" may at first get elected, but that cannot be helped. *A Member of the Fellows' Committee.*

BORDER CARNATIONS.—Last summer was the most prolific in seed production of border Carnations I have ever known. There is nothing like a hot dry summer for the setting of the flowers, the fertilisation being apparently accomplished naturally, that is,

Carnations at their best. Plants which bloomed this year similarly raised threw up a dozen stems each, and carried several dozens of flowers. Young plants in the form of fresh layers produce perhaps one stem only with just half a dozen of flowers, and of course should be the finest; but no appreciable effect is obtained in that way, unless some half-dozen of plants are clumped together. Strong seedlings not only send up their stems closer together, but as a rule they are shorter and stouter than are those from layers. Of course the best kinds should be so propagated as to ensure perpetuity, but when a plant, as was the case with mine here this season, gave some eight to ten layers, and as many hundred of seeds, from which will probably spring quality as fine as the best parents, it is not to be wondered at if the seedling method should find most favour in the production of Carnations. I wish to make it clear that flowers of the finest quality produced seed most liberally. It was not a case of perpetuating the worst, but really of the best, and that fact may well encourage many to go in for the growth of Carnations from seed. No seed—not even Sweet William—germinates more freely. No plants seem hardier, or in a comparatively youthful state more indifferent to heat or to cold, to wet or to drought. They do not like snout or smoke, but happily we are here still somewhat out of the reach of these atmospheric abominations. I grow a few selected French Carnations also, because they give, if smaller, at least very perfect double flowers, and some pleasing colours for buttonhole bouquets, I think them particularly pleasing, but probable as much can be said for all Carnations having the biggest form. *A. B.*

PEAS THAT POSSESS COLOURED FLOWERS.—

In answer to an enquiry made by a correspondent ("Alpha") I give the names of some garden and field Peas which have flowers that are other than white in colour:—

Imperial Dwarf Blue Pea—the flowers open green, like most other Peas, and remain veined and tinged with green.

Mummy Pea, of which Crown Cluster is one form, has two-coloured flowers.

Purple-podded Pea has flowers of bluish-violet, not so deeply coloured on the standards as on the wings.

Giant Sugar Pea (without parchment) has flowers of a purplish tint.

Pois Café, a Canadian variety of an agricultural class, has red flowers, and brown seeds; in *P. Géant*, the flowers are violet coloured.

Pois sans parchemin, Mange out demi-nain a Ciel noir: flowers violet colored.

P. s. p. à Cosse Jaune has flowers white and yellow.

P. s. p. à fleur rouge, has pale red flowers.

A Pea of the same name has violet flowers with a red keel.

Pois s. p. nain gris has flowers violet-coloured.

The German varieties of Sugar Pea (*Kapuziner* *Erbse*) have generally red flowers.

Field Peas—Spring Gray Pea, Partridge Pea, Winter Gray Pea—have violet-coloured flowers. *Sans Parchemin*.

—In reply to your correspondent's enquiry, the three following varieties of the garden Pea have coloured flowers, viz., the old Crown, or hunch-flowering Pea (sometimes known as the Mummy Pea), the Purple-podded Pea, the tall Sugar or edible-podded Pea, and several varieties of the type. I have also obtained many other varieties with coloured flowers by intercrossing the white-flowered Peas with the above and the maple and grey Peas (also having coloured flowers, but usually considered as agricultural varieties), but the seedlings have little value for garden purposes. I do not know that I am right, however, in classing the Crown, Purple-podded, and Sugar Peas as varieties of the garden Pea in the sense sought by "Alpha," although all the sorts I have named intercross freely, and I should like to know if there be any recent botanical authority on the classification of Peas. I am not aware that any of the coloured-flowered Peas vary materially, excepting in the temporary variations which usually follow from intercrossing. The best descriptions of the various sorts of garden Peas are to be found in Messrs. Vilmorin-Andrieux & Co.'s valuable work, *Les Plantes Potagères*, of which there is now an English edition. *T. Laxton, Bedford.*

CHRYSANTHEMUM JUDGES.—Now that Chrysanthemum societies are engaged in the formation of the prize schedules for the coming season, the question of the judges should be well considered;



FIG. 31.—*PSIDIA ROTUNDIFOLIA*, THE LAST OF THE RACE. (SEE P. 180.)

credited to *S. mammosum* and those to *S. cornigerum* both on the one plant. *J. H. Hart, F.L.S., Superintendent Botanical Department, Trinidad.*

THE ROYAL HORTICULTURAL SOCIETY.—I think we shall all agree with Mr. Woodbridge's suggestion, that the Royal Horticultural Society should take powers in the new bye-laws to elect gardeners as Associate Members. I am sure that this suggestion will meet with every consideration from the committee of Fellows which has been appointed to confer with the Council on the best method of making the Society popular. It appears to me that it would be desirable to limit the period during which gardeners might avail themselves of the privilege of being elected Associates, say till May, 1889. I think that the Associates should pay a subscription of 10s. *Gd.*, and that they should not be qualified to be elected unless they had been, say ten years in the profession. I hope that the Council will take powers in the new

through atmospheric instrumentality. I am not referring to the small flowered Continental strain, which seeds fairly well generally, but to fine border flower of some ten or more colours, self predominating. Judging by the products of my own sowing of a moderate quantity of seed, which brought me late in the autumn (under glass) some 5000 plants, I must have saved enough seed to raise 50,000, and with such a lot thrown into our gardens it cannot be said that the Carnation is being neglected. No doubt the finest strain in the world throws some twenty parent single flowers, but that is the limit; therefore the reduction in the bulk will be slight. I was during December engaged in potting, dibbling out into frames, and otherwise disposing of my big lot of seedlings, and in a couple of months they will go out into the open ground, being planted up in beds in rows a foot apart for the first year. No doubt many will bloom during the autumn, and certainly the following year all will carry big heads of bloom. That is the way to see border

much of the popularity (with the exhibitors especially) of any society depends upon the awards. I consider that in a great measure many of our leading exhibitions owe some of their reputation to the absence of mistakes of this class, as well as to the value of the prizes; no matter what may be the value of such prizes, if any doubt arises in the mind of an exhibitor as to the judges appointed not being of admitted ability that exhibitor is very chary about sending to the show. A short time since one of your correspondents hoped to see only practical growers of the flower appointed, and not theorists. I am not so sure that the growers of Chrysanthemums are the only persons qualified to make the best judges. I think a man who has not been a grower for exhibition is quite as capable of judging the qualities of individual blooms as the grower himself, and in some instances makes a much better judge than a grower would who has had no experience as an adjudicator. I am quite prepared to admit that if a judge of acknowledged ability has the advantage of being a grower of the first rank, he has an advantage over the judge who has not the grower's practical knowledge, for the simple reason that he is able to give additional weight to those varieties which are admitted to require more skill in producing in the best condition, hence the advantage of possessing a grower's knowledge as well as a judge's capabilities. This line of argument may appear strange to some persons, I will, therefore, endeavour to explain my views, which are not hasty conclusions. Let us take two men, Mr. J. Wright and Mr. George Gordon, whom I consider to be two of our best Chrysanthemum judges, and men who are not perhaps regarded as growers, although they may have been so once, but I am not able to say. There are many other good judges of Chrysanthemums who I do not intend to slight in any way by omission, notably Mr. James Douglas, but as I understand he was formerly an exhibitor he does not illustrate my argument so well as the two former, because he is still a grower of Chrysanthemums, if not an exhibitor. Where are there two men who judge at so many Chrysanthemum shows as the two first-named? How such men gain such a wide experience is in this way. At one exhibition to-day they have before them a stand of blooms; in this stand is a specimen of Madame C. Audiguier, for instance, as a Japanese, and Lord Alcester among the incurved, which are regarded as being fine specimens. To-morrow they go to another place in perhaps opposite parts of the country; the same two varieties are placed before them, this time in a better condition than they were yesterday. Perhaps the day following, at another place, the same sorts are presented in a much worse condition than at either place; thus the key-bloom of each variety is gained—thus at all subsequent exhibitions where they may act, they know what form each variety ought to be presented in, thus each bloom gets its proper weight by comparison from day to day, as it is well known to them that such and such a sort was staged at one place in capital condition, and it ought to be so again, because what one grower can do with a certain variety another can do also. With the method of judging by points, as is now generally practised where the competition is at all close, each flower gets its just reward according to the condition it is presented in, and it is almost (if not quite) impossible to justify the awards in a large class of, say, forty-eight blooms, where competing stands are close. By any other method than point judging comparison of the stands is not so accurate, nor is it so quickly done. I have endeavoured to explain my views of the subject to the satisfaction, I hope, of those who do not agree with the appointment of men as judges who have not distinguished themselves as exhibitors. *E. Molyneux.*

FREESIAS.—I am glad to see the culture of these lovely plants brought to the front, as they form a valuable addition to our stock of choice winter flowers. Here Freesias have been grown more or less for five or six years with varied results; but this season they are very fine, some of the spikes being nearly 2 feet high, and with three or four branches, and this season I have quite changed the method of culture, with the results above stated. The bulbs are kept very moist, and in a temperature from 50° by night, and 60° to 70° by day, the place chosen for them being a shelf close to the glass. I believe it reduces the strength of the bulbs to dry them off. I had a strange experience with part of my stock during one season. The earlier plants were watered as long as the foliage remained green, were kept in the same pots on a dry shelf, and left there

till wanted for potting in August. They were then shaken out, repotted, and treated as in the previous season, but not a bulb of this batch could be induced to start; they remained in this state till the following, that is, last August, when they were again shaken out with the others that had bloomed, and were repotted, as this winter we wanted more white flowers. The whole stock were started at one time, all pushed at one time, and bloomed altogether, and no difference could be detected in any of them, all being good. Our stock commenced blooming at Christmas, and will last two or three weeks longer. Now for the lesson taught by the partial failure. I take it that the bulbs were kept too hot and dry for too long a period, and became too much dried. After the repotting we were sparing with water, as is usual with other newly potted bulbs. I may inquire here, Why water bulbs sparingly when in pots? If you plant a bulb in the open border it has to take its chance as to rain or snow, and most bulbs come stronger than those in pots. We have never watered our Freesias so liberally before from the potting time onward as was done this season, they having had more than double the quantity of water, and they are now twice as strong as formerly. I intend keeping them watered the whole of the season, and let them make their own push. When our plants began showing the spikes for bloom I said to my foreman, "Give them some farmyard manure-water;" and before they had been on high living for a fortnight there was a marked difference in their appearance. When in a large London nursery recently, and talking to one of the principals about these he said, "Why rest them by drying?"—remarking that they were grown to very large size in a private garden (he naming the place), and the gardener in charge of this garden never allowed them to dry off. *Pro.*

LYCORIS RADIATA AND AUREA.—Has any reader of the *Gardeners' Chronicle* ever grown and flowered these two Japanese bulbous plants? They are usually known in gardens as *Nerine japonica* and *N. aurea*, under which names they are often offered in bulb catalogues. If any successful cultivator (I know several who are unsuccessful) of these plants would kindly make known the details of the treatment he gives them, others besides myself would feel grateful to him. The genus *Calostemma*, of which there are three species known, two of them being grown in English gardens, are equally unsatisfactory under cultivation with *Lycoris*. Perhaps some bulbophile can show us how easy they are to flower "when one knows how." *W.*

IS IT POSSIBLE TO BE WHOLLY FREE FROM POTATO DISEASE?—I have grown a large number of different varieties of Potatoes, mostly new, from different firms, including Messrs. Carter, Sutton, Laxton, Tait, &c., kindly placed at my disposal for trial. The almost unprecedented drought in the three southern counties of Ireland prevented, in a degree, satisfactory comparisons as to quantity, quality, &c., but one result was general—there was not a single tuber of any variety in field or garden diseased or blighted, and up to this moment, either with myself, or in the three southern provinces, have I seen one. This fact, which I admit may differ from the experience of others, induced me to ask myself, as I now do you, the above query, or, in other words, the Peronosporal fungus, not having appeared this year (season) past may we expect to be finally rid of it? [No.] You will readily see what an important matter this is. *W. J. Murphy, Clonmel.*

CYCLAMEN GROWING.—It has doubtless occurred to many, as it has to the writer of these notes, that this beautiful decorative subject, one of comparatively easy management, of varied hues of colour in its flowers—bright, pleasing, and charmingly diversified—with pretty foliage to boot—a plant that will give us flower, and that in a bountiful way, for six months of the year, and this just now when there is a decided dearth of other flowering subjects in fair Flora's domain—is not by any means cultivated to the extent or in the manner that it deserves. The "market growers" of it can be counted on the fingers of one hand: these may be trusted that the plant does not suffer under their management; but of the private growers—gentlemen's gardeners and amateurs—what shall be said of these? Ah! we have a sorry revelation to make in this connection, but "truth must be told." With only a few exceptions they are not at all happy in their management of this useful decorative subject. They mismanage, starve, neglect it; failure is

"writ large" on their undertaking in this matter, and hence the miserable displays, if displays they may be called—lingering death, rather!—that we occasionally lighted upon in our journeyings to and fro. This question of Cyclamen culture is beginning to be of much interest to the owners of gardens. They see brilliant displays of the plant at various trade establishments, and where the plant is well done, they purchase the seed, and yet success does not crown their efforts; not because the seed is not good, but because the methods of raising and growing the plant are not well understood. We heard recently of a gentleman who, after having seen one of these fine displays, wanted to engage a gardener who, amongst other things, could grow Cyclamens well. The gardener must then look to his own interests, and study the wants of these plants, as he does of other subjects with which he succeeds—a task which is not at all formidable—if he is to keep abreast of the times, thus enabling him to take up successfully the culture of a class of plants that has rapidly, by reason of its prettiness and adaptability, become a favourite with the public. The present time, when the Cyclamen, under proper management, is beginning to appear in its bright array, seems to be an appropriate one in which to draw the attention of the craft to this matter. *B.*

CYLINDERS FOR PHALÆNOPSIS.—The cultivation of these plants has recently been the subject of frequent comment and suggestion, the latest being that the use of salt was in some way beneficial to them. It has not been suggested how the salt affected the Phalænopsis, and the only good that I could see in its use would be in the destruction of vermin, such as slugs, &c. Certainly the salt would remain where it was put, and would not have the slightest effect on the atmosphere, as, for instance, ammonia would. In the use of cylinders, however, there is nothing hypothetical, nor even new; but they have proved so satisfactory since we have used them for Phalænopsis, that I hasten to recommend them to others who have not yet tried them. We use tall cylinders made of Teak, the shortest being 1 foot high by 4 inches in diameter; the upper half is filled with large pieces of charcoal and crock, and the plant has a little sphagnum about its base. The roots soon become attached to the cylinder, and the plants have grown wonderfully in the year or so during which they have been thus treated. When suspended in baskets the leaves of these plants are apt to get injured by coming into contact with the wire suspenders. (Has this strange occurrence ever been explained?) We have tried *P. grandiflora*, *P. Stuartiana*, *P. amabilis*, and *P. violacea* in the cylinders, starting only with a few to test the treatment, and the result is so satisfactory that this spring we intend planting all our Phalænopsis except *P. Parishii* in cylinders. We have lost a good many of the flowers of these plants owing to fog, and, curiously enough, whilst some plants have suffered severely, losing almost every bud, others have not suffered at all, although hanging by the side of the former. What is it in the fog that is so injurious to flowers—want of light, excess of moisture, or some deleterious gases held in suspension in the fog? How is it, too, that white flowers out-of-doors, such as Christmas Roses, and therefore exposed to the full influence of fogs, are not affected by them? Perhaps the Scientific Committee of the Royal Horticultural Society would think the subject worthy of investigation. *W.*

THE PAST FRUIT SEASON.—I think the experiences of the past year have been in many respects very useful ones, and will have been the means of inculcating some useful lessons in fruit growing. Those who always give the fruits of the garden a full share of their careful culture will have been well rewarded, although the past season was a most trying one. On gravelly soils generally fruit trees do not succeed for many years together, and fruit crops of good quality are not the rule, and especially would this be true under the heat and drought of the summer of 1887. By heavily mulching the soil in which the trees were growing, and by having planted their roots in loamy soil, and not in the staple soil of the garden, we are enabled here to get good crops of all kinds of fruit. How often do we find the bush fruits planted on a piece of ground and left unmoved for a great number of years, and as the bushes die off, as they inevitably will, are replaced by younger ones, but still in the old soil? This is a practice which most good cultivators will condemn—if only a few rows of each kind of young bushes, and which can be easily avoided in gardens by planting annually in fresh ground a few rows of

young bushes. In my opinion a succession of young trees and bushes should be kept up in all gardens of whatever size, and to do this a few of each would require to be purchased annually. This may cost a little money, but it is cheap in the end. Where deep cultivation of the soil on which the Strawberry is grown is carried out the ordeal of the past season will scarcely have been felt, the plants having borne magnificent crops of well-flavoured fruit. When Strawberries have occupied a piece of ground for three years it is, I consider, sufficiently long; and when the last crop of fruit is cleared the plants may be trenched in together with heavy manuring. Such old Strawberry grounds are excellent quarters for Cauliflowers to winter under handlights; and quarters that have carried crops of early Peas or Potatoes are very suitable to be planted with Strawberries, and which afford a desirable change in the rotation of crops. All kinds of fruits in this garden were large in size, well coloured, and in most cases very free from insects. The late Pears, even after the frost of October 26, when we registered 18° of frost, were not gathered until the second week in November, yet these fruits were in no way injured by remaining hanging on the trees. I think we are, as a rule, too hasty in gathering fruit, and a large quantity of fruit, especially Pears, is picked much too soon, and because we fear the frost. Marie Louise Pears were in use for dessert throughout the greater part of the month of December, and I have only just now (January 20) finished using a lot of fine Glou Morceau: Winter Nelis and Josephine de Malines have been excellent; Beurré Rance has ripened well with us this season, which is an unusual incident. Apples of all kinds have kept better than usual, the examples of King of the Pippin and Blenheim Orange have been preserved up to within the last few days. Cox's Orange Pippin is the variety now in best condition for dessert purposes, and among other later varieties that are keeping well are Dumelow's Seedling, Annie Elizabeth, and Northern Greening. *Edward Ward, Hewell, Bromsgrove.*

EXHIBITION FUCHSIAS.—What is wanted in exhibition Fuchsias is quick free-growing varieties that will bear stopping, and soon put forth a fresh growth; a symmetrical habit, or, I might say, a free habit that will admit of the plant being grown to almost any shape, and a generous freedom and continuity of bloom. I have seen some Fuchsias that seemed to exhaust their floriferous quality at one time of blooming; others will go on flowering for weeks. It is this type that Mr. Lye, of Clyffe Hall, has so persistently worked for; and the fact that the varieties he has raised are so markedly coming to the fore as exhibition plants in many parts of the country is the best proof of their adaptability for this purpose. Mr. Lye is too sensible a man to boast of his productions; but in writing to him a few days ago, I asked him to give me a list of the very best fifteen varieties he has raised for exhibition purposes. In reply he forwards such a list, and he does not hesitate to say, "I would not mind showing the following Fuchsias against any varieties sent out; but some of my new ones of this year will surpass many in the following lists:—Dark varieties: Abundance, extra good; Charming, Elegance, Final, Hon. Mrs. May, James Welch, Lye's Rival, and Thomas King. Light varieties: Annie Earl, Beauty of the West, Favourite, Harriet Lye, Mrs. James Glass, Pink Perfection, and Surprise, extra good." I have seen most of these exhibited at Bath, Trowbridge, &c., and can bear testimony to their high quality. *R. D.*

SOCIETIES.

LINNEAN.

FEBRUARY 2.—Mr. Carruthers, F.R.S., President, in the chair. Dr. William Schlich, Mr. Isaac Thompson, and Mr. W. S. McMillan were formally admitted Fellows of the Society. The President called attention to the loss which the Society had sustained by the deaths of Professor Asa Gray, Professor Anton de Bary, and Dr. Boswell (formerly Syme), which had occurred since the date of the last meeting, and gave a brief review of the life and labours of each. Mr. C. T. Drury exhibited a collection of abnormal British Ferns, and made some remarks on the extraordinary number of named varieties which had been recognised, and which now

required to be carefully examined and compared with a view to some systematic arrangement of them. A discussion followed in which the President, Mr. J. G. Baker, F.R.S., Dr. Murie, and others, took part. Dr. Amadeo exhibited and made some observations on a new species of *Tabernaemontana*. A long and interesting paper was then read by Mr. Henry T. Blanford, F.R.S., on the "Ferns of Simla, based upon a collection which he had himself made there, not much below 4500 feet, nor above 10,500 feet." His remarks were illustrated by a map, and by the exhibition of a number of the more noticeable Ferns collected, many of which were extremely beautiful. Criticisms were offered by Mr. C. B. Clarke, F.R.S., Mr. Gamble (Conservator of Forests, Northern Circle, Madras), and Dr. William Schlich (Inspector-General of Forests to the Government of India). A paper was then read by Mr. H. J. Veitch, F.L.S., on the "Fertilisation of *Cattleya labiata* var. *Mossie*," in which he detailed the results of experiments he had made, illustrating the various stages by a series of delicate drawings executed by Mr. Berjeau, several of which were enlarged and treated diagrammatically for the better explanation of the observations made. A discussion followed, in which Mr. H. N. Ridley, Mr. Baker, and others took part, and to their inquiries for further particulars Mr. Veitch replied. The next paper, by Mr. Joseph S. Baly, F.L.S., contained descriptions of new species of *Galerucina*, and being of a technical nature was taken as read. The meeting then adjourned to February 16.

TORQUAY HORTICULTURAL.

WE print from the *Torquay Directory* a most useful proposition concerning sick and needy gardeners, made by Messrs. Curtis, Sandford & Co., Devon Roseries, Torquay:—

For some years past the Torquay Horticultural Society has fallen upon evil times. What with bad weather at the exhibitions and a falling off of contributors, it has had great difficulty in keeping afloat. The last year was especially disastrous, and has landed the Society in a considerable debt. Originally the Society contented itself with an annual exhibition in the summer, usually held in a marquee in the Public Gardens. Of late years spring and autumn exhibitions have been added—with, of course, a corresponding expense. It should be mentioned, however, that the spring and autumn shows are self-supporting—that is to say, that the income just meets the expenditure. Curiously enough, the actual loss is incurred by the summer show, which really ought to be the most remunerative of the whole. But such is the case, and the members, at the annual meeting on Friday, resolved to discontinue the summer display. If, however, persons are inclined to come forward and guarantee the expenses, the Society will no doubt see its way clear to revising the decision it has arrived at. In connection with this matter, Messrs. Curtis, Sanford & Co., of the Devon Rosery, have sent us the following letter.

A ROSE-DAY FOR TORQUAY.

"Sir,—We very much regret the necessity which our Horticultural Society wisely sees of abandoning the usual summer show, commonly called the Rose Show.

For ourselves we should have been very pleased to stage again, as we did last year, the best collection of Roses it was possible to cut in our rosery, exactly as if we were competing for prizes, which money we gladly gave up last year towards helping the Society out of its financial difficulty.

In consequence of the decision of the committee at their meeting held on Thursday, published in your present issue, to abandon the show, we now intend to have an exhibition of Roses at our rosery, to be held on our new premises, on either Wednesday, the 20th or 27th of June next. The exhibition will be perfectly free and open, and we shall give a welcome to every lover of the Rose; but we intend to have collecting-boxes placed among the stands towards a fund, which shall be the nucleus for helping gardeners in distress, the widows and orphans of gardeners, and to assist gardeners to emigrate from the Torbay district with their families, or to help towards the alleviation of any genuine distress among gardeners who are known to us or our friends.

We propose to accept boxes of Rose blooms from any amateur gardener who may have sufficiently good specimens for exhibition, which we should stage

in our best room, and we may be able to offer a few prizes; this, however, we have not yet decided upon.

If the plan should answer, and give pleasure to our friends and patrons, as well as a little timely assistance to our poorer brethren in the gardening profession, we shall continue (D.V.) from year to year to have a Rose day for Torquay.

Full particulars of this, our first venture, will be advertised in May next.—We are, sir, yours faithfully, *Curtis, Sandford & Co., Devon Rosery, Torquay, January 20, 1888.*"

Messrs. Curtis, Sandford & Co., we learn, intend, should funds come in, to extend a helping hand to the many gardeners, especially in the North, who, through frequent exposure to extremes of temperature from which they suffer in Orchid work, get into bad health, and to whom a change into the lovely county of Devon, and the seaside town of Torquay for a few weeks, would be a means of setting them up in health. Dr. Ramsay, of Torquay, whose generosity to gardeners is well known, will assist them in getting the use of a sanatorium here on special terms, and he would look after them medically, and they secretarially. It is thought that where the gardener is too indigent to pay the special terms for board and lodging and fare down, the medical and secretarial work would be free; and that they could, with the assistance of the man's master, pay for this necessary cost. The invalid would have comfortable rooms for a few weeks, plenty of good food, companions amongst his brother gardeners, and the sea air and breezes of Torquay.

MANCHESTER HORTICULTURAL IMPROVEMENT.

FRUITS AND FLOWERS OF THE CHANNEL ISLANDS.—Mr. E. Griffiths Hughes, of this city, read a paper on the "Fruits and Flowers of the Channel Islands" before the members of this Society at their meeting on Thursday evening, February 2. Mr. Bruce Findlay, President of the Society, was in the chair.

Mr. Hughes said the production and consumption of fruit and cultivation of flowers in England has grown within the last few years to dimensions which can hardly be realised by persons not connected with the various branches of horticulture or floriculture. Very few years ago our open markets and market halls were used for the sale of vegetables and fruits which came from the country districts during the summer months and autumn, and were principally grown in the open air, with the addition of Oranges, Apples, Pears, and other fruit imported from foreign lands. The few Grapes which were seen were imported and poor in quality. The flowers consisted of a few English-grown Roses not especially cultivated for sale, but were brought by the market gardener from a superabundance of crop which were produced by attention paid to the trees from a natural love for this particular flower inherited from his father and grandfather. This state of things is now wonderfully changed. Eatable fruit of every description is produced in every part of the country, and not only the kinds which our variable climate will permit to be grown out-of-doors, but large areas are covered with glass for the production of such fruit as were not thought of a few years ago, but which are now supplied in large quantities, and sold in the ordinary way of trade. The same remark applies to flowers, the sale of which grows in proportion as the numerous uses which the fashion and tastes of the people are enlarged by an appreciation of them. The introduction of steam and quick travelling has brought within easy reach fruit and flowers from the Channel Islands, and they are brought to our market day by day as fresh and beautiful as if gathered from our own gardens the day before. I will now give you an account of a visit I paid in the month of June to these charming islands, for the purpose of learning for myself the system adopted in the cultivation of fruits and flowers, and the local peculiarities which make the islands fruit and flower-producing places beyond any other from which we receive our supplies.

St. Helier, Jersey, is the port from which all the produce from the island is shipped, most of it to England. The St. Helier of fifty years ago is fast disappearing, the mania for improvements, and the conversion of what is looked upon as the reminiscences of past generations into something new, has taken a strong hold upon the people of the whole island. When one sees beautiful avenues of trees and thousands of old fruit trees destroyed for the purpose

of satisfying the greed of the people, and large tracts of land which once nourished the Apple and Pear trees, adding so much to the delight of the visitors and the pride of the inhabitants, converted into the unpicturesque, one may well say that a great change has taken place. From what I could gather, this demolition is likely to be carried on to a still greater extent, so that before long the whole island is likely to be converted into a vast Potato garden, in order to meet the requirements of the English markets. The extent of the Potato industry can scarcely be recognised by those who have never visited the island, and not even by the visitor unless he happens to be there when the gathering is in full swing, about the beginning of June. Last year the growers obtained over half a million sterling for Potatoes. Add to this amount the commission of the middleman and the profit of the retailer, and last year's crop could not have been consumed for much less than a million sterling. The cultivation of Grapes and Tomatoes is increasing greatly in Jersey. I have not been able to get at the exact quantities exported last year, but the quantity of Tomatoes has risen within the last six years from nil to hundreds of tons in a season. Apples and Pears which were formerly exported in large quantities have had to give place to the more profitable productions, and before very long will vanish altogether from the island. Strawberries and Raspberries are not cultivated for export purposes, the difficulty attending the packing of soft fruit being detrimental to them. They are, however, cultivated for home use, and in the dry and warm climate form very acceptable delicacies to visitors. The island of Guernsey is the very paradise of wild and cultivated flowers. The Violet and Fuchsia are almost in perpetual bloom, subtropical plants are interspersed amongst the natural flora of the island, and grow vigorously in the open grounds. The cultivation of flowers for the English market is carried on to an extent inconceivable except to those who have a knowledge of the resources of the island. The flowers exported in large quantities from Guernsey consist of Primroses, Stocks, Gladioli, Wallflowers, Pinks, Chrysanthemums, Anemones, Snowdrops, Narcissus, Tea-scented Roses, and many others. Several of the kinds of flowers are exported in such large quantities that the packages are numbered by thousands, and the Board of Trade returns show that the exports of flowers alone from the Channel Islands to England number over 30,000 baskets. I feel sure that there are many nooks and corners in England, sheltered from the north and east winds by hills, which, if covered with glass and secured by intelligent and practical gardeners as allotments of their own, under favourable circumstances, could be made highly remunerative, and in the aggregate be productive of large revenues. They would also give employment to thousands of men, women, and children in producing supplies for our markets, instead, as at present, and probably for some time to come, of importing them from abroad. *Manchester City Press.*

ENQUIRIES.

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

SUITABLE PLANTS FOR THE ROCKY MOUNTAINS.—*Rocky Mountains* would be glad if any reader of the *Gardeners' Chronicle* could tell him what plants, such as vegetables, fruit trees or shrubs, or other useful perennials, would be likely to succeed on his rancho, which is situated on the lower hills of the "Rockies," about sixteen miles south of Calgary, on the Canadian Pacific Railway, about 3200 feet above the sea. Only grass and a few Cotton-wood trees (*Populus*), grow there naturally; Oats ripen well. The latitude is about the same as London, but the thermometer goes down sometimes in the winter to 50° below zero.

FIELD MICE.—A very troublesome pest—the result, no doubt, of the dry summer and warm autumn of last year—is now bothering us considerably, viz., the short-tailed field-mouse. There is scarcely anything green, or with succulent bark, but what is attacked. The depredations began in the autumn with some late Grapes, bunch after bunch of which was destroyed, in spite of all precaution. We set all sorts of traps, poisoned berries, both on the bunches and on the borders, and at length we were obliged to cover the bunches, or no doubt the vermin would have destroyed the whole. When dessert was not forthcoming the little marauders began on a

patch of late Broccoli, many of which they ate up entirely with the exception of the leaves; others they just cut off level with the ground. They have since attacked, in turn, Lettuces, bedding Calceolarias, Holly bushes, Cinerarias, and Chrysanthemums. We have destroyed scores, but the surrounding grassland furnishes an endless stream of recruits, and "still they come." I am particularly exercised about sowing the larger sorts of seeds—Peas, Beans, &c.—as I am confident they will attack them. We have generally kept them off with paraffin and red-lead, but I am afraid this remedy will fail. Can any one suggest a better? *West Cheshire.*

NOTICES TO CORRESPONDENTS.

ANTHURUM SCHERZERIANUM: *D. E. C.* If the plant has begun to show signs of growth it can be potted, or, better, put in a deep pan or broad shallow tub, making use of rough fibrous peat and sphagnum moss. Keep the ball of roots rather high in the pan or tub, and be sure that the drainage is good. During the period of growth it requires a high temperature, with considerable moisture in the air and at the root, but during the resting-period much less water should be afforded it, and the temperature of a warm greenhouse will be found more suitable than that of the stove. A thin shading must be employed during bright weather, to preserve the foliage and flowers from injury.

BIRDS EATING CARNATIONS: *H. H.* Try suspended threads with small feathers attached, or keep a bird searer about in the garden early and late.

CATLEYA CITRINA: *J. H. S.* When the flowers open the foliage should be found on the pseudobulbs which flower. It is, like other Catleyas, an evergreen species, under ordinary treatment, i.e., only those pseudobulbs of more than three years old have no leaves. The temperature mentioned is sufficiently high for the season.

DIPLODENIAS: *D. E. C.* See this week's "Plants and their Culture," p. 175.

DISQUALIFIED EXHIBITOR: *K. J. Z.* The framers of the schedule are to blame, as they, instead of using the word "varieties," should have employed "kind," or "distinct species," and we think the judges erred in disqualifying you, for although you showed Cyclamen in two colours, these really made but one "kind," or "species."

FERTILISING MOSS: *A. S., Monmouth.* must send his full address before we can publish his note.

FRUITING OF THE SWEET BAY: *T. W. M.* It was due to the fine warm summer of 1887.

GRAFTING WAX: *T. D.* This can be made in different ways: the simplest is to melt beeswax in an earthen vessel, and when liquified stir into it as much mutton fat as will render it moderately pliable and free from stickiness. A little Burgundy pitch and resin may be added. This grafting wax should be used in a semi-liquid state, and should be kept warm while being used by means of a lamp.

HYACINTHS: *E. P.* The bulbs are allowed to flower, but only so far as to prove the bulbs being true to name, and they are then cut off. Hence the immense quantity of such blooms now imported into our markets in the flowering period of the Hyacinth.

INSECTS: *E. J. B., Upton Park.* The insects which have bitten off the flowering heads of the Orchids are the common *Blatta americana*, which generally swarms on board ship from the hotter parts of the New World. It has the same habits as the smaller *B. orientalis*, found in kitchens, bakehouses, &c., in great numbers, which are so difficult to get rid of.—*E. T. B.* The beetle which you discovered eating your *Dendrobium Bensoniæ* is a small imported Longicorn, which we have never before seen, and therefore cannot refer you to any previous notice of it. It has the aspect of a native of the Eastern Islands. *F. O. W.*

LIFTING WELLINGTONIA (SEQUIA) GIANTUM: *J. C.* To lift trees of 20 feet in height it would be necessary to lift in one solid mass the earth containing the roots, of the weight of several tons. This can readily be done by means of a transplanting machine, such as Barron of Elvaston makes use of. The operation requires much care and experience to be successful, and is best performed after growth has begun—say late in April to July.

All coniferous trees, it should be mentioned, bear removal ill when of large size, however carefully the work may be done, they often remaining stunted and making hardly any growth for several years afterwards.

MENLAR JELLY: *H. H.* See a letter from a correspondent on this subject on p. 180.

NAMES OF FRUIT: *H. H.* Pears: 1, Uvedale's St. Germain; 2, Old Colmar; 3, Beurré Rance; 4, Bergamotte d'Esperen.—*W. H.* Apple. Too late in the season to recognise it. Send in November or December another time.—*Stuart & Mein.* 1, Cox's Orange Pippin; 2, Gloria Mundi; 3, Duke of Devonshire; 4, Dutch Mignonne; 5, Northern Greening.

NAMES OF PLANTS: *C. S. & Co.* 1, *Chimonanthus fragrans*; 2, *Lonicera Standishii*.—*W. Cutbush & Son.* *Leucothoe axillaris*.—*D. L. M.* *Brassia verrucosa*. The Oak is one of the evergreen sorts—probably the Fulham variety; the specimen of *Aloe vulgaris*.—*G. H.* *Cattleya Trianae* var. *delicata*.—*H. R. W.* *Odontoglossum Wilckeanum*.—*J. F. P.* 1, *Croton Newmanii*; 2, *C. undulatum*; 3, *C. chrysophyllum*; 4, *Heliconia anreo-vittata*; 5, *Nepenthes Mastersiana*, probably, but cannot say from the small specimen sent; 6, *Carex riparia variegata*.

RENEWING GORSE COVER: *S. F. & Co.* If possible the site of the covert should not cover that of the old one, but should be made on land that has not carried Gorse recently. Plough, or, better, dig the ground; and if it be poor in quality, or has no good sward that can be dug in, a heavy dressing of dung should be afforded. Harrowing, followed by sowing the seed in shallow drills 15 inches apart, or by dibbling it, afterwards rolling the land, may be done early in March. It may be necessary to thin out the plants where standing too thickly; and the land sown should be defended against the inroads of cattle and sheep by hurdles of some description. Keeping the land free from coarse weeds should be attended to at least twice a year, till the Gorse cover the ground. A good method to follow with this kind of work, and where afforestation is intended, is to let the working men in the locality have the land as allotment gardens for two years or more rent-free, or nearly so. The operations connected with taking off crops of Potatoes, Beans, Cabbage, and deep-rooting vegetables like Parsnips and Carrots, form an excellent preparation for a seed-bed, or for future planting of forest trees.

TOMATO SEED: *Henry Pain, Sydney, N. S. Wales.* The stamps and your address have been sent to the seedsman who has the seed to distribute.

TO KILL THE STUMES OF ASH AND OTHER TIMBER TREES: *T. A. B.* Kindling fires over such roots will kill them. Drilling holes in them, and filling these with salt, is pretty effectual; but blowing them to pieces with gunpowder or dynamite is the best method, and it moreover breaks up the surrounding soil, rendering it well fitted for future cultivation.

VALLOTA: *H. T.* The base of the bulbs, and the roots, have been eaten by some creature—perhaps the grubs of a weevil or woodlouse. Examine the soil at night.

COMMUNICATIONS RECEIVED.—E. Cooper (many thanks; a grand species, on which we will report later on).—*W. G. G.*—*A. Wicksworth*.—*J. H. H.*, Trinidad.—*A. M. J.*—*H. T. S.* (we will examine and report).—*M. J. Sutton*.—Garden and Forest.—*A. G.*—*C. B. W.*—*T. M.*—*J. R. J.*—*H. H.*—*D. A. F. B.*—*D. O.*—*E. K.*—*J. D.*, Rothesay.—*F. W. B.*, Hugh Low & Co.—*Messrs. Sander*.—*J. T. B.*—*J. S. B.*—*W. A. S.*, New York.—*C. L.*, Ghent.—*C. S. & Co.*—*J. V. & Sons*.—*S. Hibberd*.—*J. C. & Co.*—*D. Tallerman*.—*W. Gardiner*.—Young Enquirer.—*A. D. W.*—*G. Y.*—*R. I. L.*—*W. G.*—*F. R.*—*J. R. J.*—*Drover & Sons*.—*J. F. W.*—*W. S. M.*—*J. C. W.*—*C. G.*—General Berkeley.—*W. B.*—*D.*—*J. R.*

THE WEATHER.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING FEB. 13. (AVERAGE OF FORTY-FOUR YEARS.)

Feb. 12	39°·1	Feb. 16	39°·0
" 13	39°·0	" 17	39°·1
" 14	39°·0	" 18	39°·1
" 15	39°·0	Mean for the week ...	39°·0

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending Feb. 6.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.	.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	1 above		30	+ 11	— 24
1. SCOTLAND, N.W. ...	3 above	10	23	+ 16	— 72
2. ENGLAND, N.E. ...	1 above	8	26	+ 5	— 67
3. ENGLAND, E. ...	3 below	1	44	— 7	— 39
4. MIDLAND COS. ...	1 below	6	37	— 8	— 33
5. ENGLAND, S. ...	3 below	6	43	— 13	— 3
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	3 above	19	11	+ 12	— 70
7. ENGLAND, N.W. ...	0 (aver.)	5	18	— 9	— 57
8. ENGLAND, S.W. ...	3 below	9	30	— 29	+ 21
9. IRELAND, N. ...	2 above	13	8	+ 15	— 66
10. IRELAND, S. ...	0 (aver.)	21	11	+ 3	— 46
— CHANNEL ISLANDS	2 below	11	19	— 16	— 1

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	1 more	24	4.7	7	11
1. SCOTLAND, E. ...	less	18	2.5	11	21
2. ENGLAND, N.E. ...	2 less	14	1.0	12	14
3. ENGLAND, E. ...	3 less	13	0.9	17	23
4. MIDLAND COS. ...	4 less	12	0.6	21	19
5. ENGLAND, S. ...	4 less	11	1.0	17	18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	7 less	18	4.5	16	15
7. ENGLAND, N.W. ...	4 less	16	1.6	10	14
8. ENGLAND, S.W. ...	7 less	17	2.0	24	21
9. IRELAND, N. ...	4 less	17	2.8	9	17
10. IRELAND, S. ...	7 less	13	3.0	9	22
— CHANNEL ISLANDS	5 less	21	1.8	17	28

THE PAST WEEK.

The following summary record of the weather for the week ending Feb. 6, is furnished from the Meteorological Office:—

"The weather was dull and cold generally during the earlier part of the period, with some falls of cold rain, sleet, and snow, but as the week progressed the air became very mild and humid. Although the sky continued cloudy or overcast very little rain fell in any district except the extreme north of Scotland, where a heavy fall was experienced on the 4th.

"The temperature was low in most districts during the first three days of the week, especially over England, but subsequently rose rapidly and continued very high and uniform. The average for the week has not differed materially from the normal; in Scotland and the greater part of Ireland an excess of 1° to 3° is shown, and in most parts of England a deficit of 1° to 3°. The highest of the maxima, which were recorded either on the 5th or 6th, varied from 50° in the 'Channel Islands' to 54° in 'Scotland, E.,' 'Scotland, W.,' the 'Midland Counties,' and 'England, S.' The lowest of the minima, which were

registered in most places on the 2nd, when the thermometer fell to 10° at Hillington and Geldoston, to 11° at Stowell, and to between 13° and 17° in most of the other English districts. In Scotland, Ireland, and the north-west of England, the readings were higher, ranging from 20° to 29°.

"The rainfall has been more than the mean in 'Scotland, N.' but less in all other districts.

"Bright sunshine has been very deficient, the percentage of the possible amount of duration ranging from 7 in 'Scotland, N.' to 21 in the 'Midland Counties,' and to 24 in 'England, S.W.'"

MARKETS.

COVENT GARDEN, February 9.

A BETTER demand for good Grapes is now springing up, and prices are likely to steadily advance. Apples in good request, *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, 3-sieve ...	2	0-5	Pears, per dozen ...	3	0-5
Grapes, per lb. ...	2	6-4	Pine-apples, Eng., lb. ...	1	0-2
Kent Cobs, 100 lb. ...	50	0-...	— St. Michael. each	2	0-5
Lemons, per case ...	12	0-21	0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, p. doz. ...	6	0-...	Mustard and Cress, punnet ...	0	4-...
Beans, Kidney, lb. ...	1	6-...	Onions, per bushel ...	7	0-...
Beet, red, per dozen	1	0-2	Parsley, per bunch ...	0	6-...
Brus. Sprouts, lb. ...	0	4-...	Potatoes, per cwt. ...	4	0-5
Carrots, per bunch ...	0	6-...	... kidney, per cwt. ...	4	0-5
Cauliflowers, each ...	0	3-...	Rhubarb, per bundle	0	4-...
Celery, per bundle ...	1	6-2	Seakale, punnet ...	1	6-2
Cucumbers, each ...	1	0-2	Shallots, per lb. ...	0	6-...
Endive, per dozen ...	2	0-...	Spinach, per bushel ...	3	0-...
Green Mint, bunch ...	1	0-...	Spruce, per bundle ...	1	0-...
Herbs, per bunch ...	0	4-...	Tomatoes, per lb. ...	1	0-2
Leeks, per bunch ...	0	6-...	Turnips, per bunch ...	0	6-...
Lettuce, per dozen ...	1	6-...			
Mushrooms, punnet	1	0-1			

POTATOES.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton.; and heavy market.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	8	0-18	Ficus elastica, each.	1	6-7
Azaleas, per dozen ...	24	0-36	Foliage plants, vari-		
Bouvardias, per dozen	9	0-12	ous, each ...	2	0-10
Cinerarias, dozen ...	8	0-12	Genistas, dozen ...	8	0-15
Cyclamens, per dozen	12	0-24	Hyanthids, doz. ...	8	0-10
Cyperus, per dozen	4	0-12	Lily of the Valley, 12 pots ...	18	0-24
Daffodils, dozen ...	9	0-12	Marguerites, doz. ...	9	0-12
Dracena terminalis, per dozen ...	30	0-60	Myrtles, per dozen ...	6	0-12
— viridis, per doz.	9	0-18	Palms, in var., each	2	6-21
Dielytras, dozen ...	12	0-24	Pelargoniums, scar-		
Epiphyllums, doz. ...	12	0-24	let, per dozen ...	6	0-9
Ericas, various, doz.	9	0-18	Primula sinensis, per		
Euonymuses, in var., per dozen ...	8	0-18	dozen ...	4	0-6
Ferns, in var., doz.	4	0-18	Solnnums, per dozen	9	0-12
Evergreens, in var., per dozen ...	6	0-24	Spiraeas, dozen ...	9	0-15
			Tulips (pots of), doz.	6	0-10

OUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blms.	4	0-6	Narcissus, paperwhite, Fr., 12 bunches ...	2	0-4
Azaleas, 12 sprays ...	0	6-1	— Various, 12 bun.	1	6-4
Bouvardias, per bun.	0	6-1	Pelargoniums, 12 spr.	1	0-1
Camellias, 12 blms.	1	0-3	— scarlet, 12 spr.	0	6-9
Carnations, 12 blms.	1	0-2	Primulas, double, 12 sprays ...	1	0-1
Chrysanth., 12 bun.	12	0-18	— single, 12 bun. ...	4	0-6
Cyclamens, 12 blms.	0	6-1	Roses, Tea, per doz.	3	0-8
Eucharis, per dozen	4	0-8	— coloured, dozen.	2	0-4
Gardenias, 12 blooms	12	0-18	— red, per dozen ...	4	0-9
Heliotropes, 12 spr.	0	6-1	— Safrano, dozen ...	1	6-3
Hellebors, or Christ-mas Rose, 12 blms.	0	6-2	Tuberose, 12 blms.	1	6-2
Hyacinths, Roman, 12 sprays ...	0	6-1	Tulips, 12 blooms ...	0	6-1
Lily of Valley, 12 spr.	0	6-1	Violets, 12 bunches ...	1	0-1
Marguerites, 12 bun.	3	0-6	— French, bunch ...	1	6-2
Mignonette, 12 bun.	3	0-6	— Fr. Farms, bunch.	5	0-7
Poinsettias, 12 blms.	4	0-6	White Lilac, French, per bunch ...	6	0-7

SEEDS.

LONDON: February 8.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that there was not much trade doing on the seed market to-day. Just now no considerable quantities of seeds are changing hands: meantime, there is no important alteration in values, all descriptions being still obtainable on very moderate terms. English red Clover seed continues to be pressed for sale, lower figures being again accepted. For spring Tares there is an increased demand, and full prices are paid. Holders of Hemp seed want more money for the small supply available. No variation in Canary seed. Rape seed keeps firm: Mustard is neglected. Blue Peas dull.

GARDEN POTS

OF BEST QUALITY.

Large Stock ready for Delivery.

Please Send for Price List.

JOHN MATTHEWS,

ROYAL POTTERY,

WESTON-SUPER-MARE.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

JENSEN'S

Every grain fertilizes because the Guano is perfectly pure. It is most economical, one part of Manure to 100 parts of soil being ample for garden use.

FISH-POTASH

FISH-POTASH contains Ammonia, Phosphates and Potash in large proportions, which are the principal elements of fertilization.

GUANO.

GUANO—2-lb. Tins, 1s.; in Bags, 7 lbs., 2s.; 14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d. 1 cwt., 16s.; 2 cwt., 30s. Special terms for larger quantities. Analysis guaranteed.

J. JENSEN & CO. LIMITED.

109, Fenchurch Street, London, E.C.

COCOA-NUT FIBRE REFUSE (best only),

1s. per bag; 30 bags, 20s.; truck (about 2½ tons), 20s., f.o.r. PEAT (good brown), 20s. per ton in trucks. Yellow Fibrous LOAM, 10s. per ton; truck of 6 tons, £215s. Finest TOBACCO PAPER and CLOTH, 50s. per cwt. J. MEARS AND CO., 3, Bury Court, London, E.C.

PEATS } NOW CUTTING FROM NEW ESTATE:—

ORCHID, HARDWOOD, and FERN.

At from 16s., 12s., and 10s. per yard, in trucks.

ORCHID PEAT: SELECTED and PREPARED,

Per 9s. 6d. sack.

LOAM { SPLENDID QUALITY OF YELLOW FIBROUS,

IN TWO TON LOTS and UPWARDS, FREE on RAIL. Per 16s. ton.

SAND { BEST QUALITY of COARSE CRYSTAL.

FREE on RAIL.

Per 8s. ton.

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OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations. Non-Poisonous Paints for Inside Work, Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

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Bones—Bones—Bones
CRUSHED BONES in all sizes for Vine Borders, Lawns, Potting, Grass Lawns, &c.; also **BONE MEAL** for Poultry Feeding, Garden GUANO, dissolved BONES, and special MANURES for all purposes. For prices, apply to **HARRISON, BARBER, AND CO. (Limited)**, Garratt Lane, Woodsworth, Surrey, S.W.

EPPS'S SELECTED PEAT

Is acknowledged to be the best for all kinds of CHOICE PLANTS, FERNS, HEATHS, &c.; and their Specially Selected do. for Orchids, by innumerable unsolicited Testimonials. Rhododendron PEAT, LEAF-MOULD, LOAM, SAND, SPHAGNUM, COCOA-NUT FIBRE, CHARCOAL, &c., and all kinds of Garden Requisites, and NURSERY STOCK. For Price List and Testimonials, **EPPS & CO., RINGWOOD, HANTS.**

PEAT FOR ORCHIDS, &c.

Peat of first-rate quality, suitable for ORCHIDS, RHODODENDRONS, AZALEAS, HEATHS, FERNS, and other choice Plants, for Sale in any quantity at moderate prices either by the sack, or by the yard; also first-rate PEAT MOULD.—For printed particulars, apply, **D. CAMERON, Forester, Mount Masael Estate, North Cray, Foot's Cray, Kent.**

By Royal Letters Patent.—Carbon Cones.



LETHORION (VAPOUR CONE).

For the distribution of certain principles in a state of vapour, in Greenhouses and Conservatories, whereby their active properties are most closely brought into direct and intimate contact with vegetable productions, for the purpose of DESTROYING PARASITIC LIFE with a certainty hitherto unachieved, and without hurt or prejudice to the most delicate and fragile organization of plant life. The old system of fumigating with cloth or paper is now quite unnecessary.

Cone.	cub. feet.	PRICES.	Per case.
No. 0,	50 (for Window Cases and Small Frames from 10 cubic feet)	Each. 6d.	Two doz. 10s. 6d.
" 1,	100 (for Frames, &c.)	9d.	15s.
" 2,	500 (for Small "Lean-to's," &c.)	1s. 3d.	13s. 6d.
" 3	1000 (for general use in Larger Greenhouses)	2s.	11s.

Directions for use with each Cone.

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GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from **PRICE'S PATENT OANDLE COMPANY (Limited)**, London.

GARDEN MATS, LOAM, &c.—New Archangel MATS (large size), 10s. per bundle of tea mats; Large Heavy Russian, 7s. 6d. per dozen. Yellow Fibrous LOAM, Silver SAND (coarse and fine), Brown Fibrous PEAT, at lowest prices, by the ton or truck. RAFFIA, 7s. 6d. and 9s. per dozen pounds.—**BRINKWORTH AND SONS**, Reading.

ROCKERIES, FERNERIES, WINDOW CASES, CAVES, WATERFALLS, WINDOW BOXES, AQUARIA, ARTIFICIAL ROCKWORK for Ballrooms, Halls, Staircases, &c., temporarily erected and constructed, under personal superintendence of **HARPHAM AND HOWES**.

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SPAN-ROOF or LEAN-TO GREENHOUSE.

—The Invicta Patent Dry Glazing supercedes all other systems for durability, elegance, and cheapness. No putty, no outside painting, glazed with 21-oz. glass, fitted throughout with Condensation Bars. Circular Lean-to Vinery, 100 by 12 feet, £100; Span-roof, 50 by 12 feet, £85, including fixing. A boon to Gardeners are the Invicta Patent Glazed Garden Lights for Frames, Pits, &c. Two-inch strong Lights, fitted with Condensation Bars, glazed with 21-oz. glass, 6 by 4 feet, 16s.; 8 by 4 feet, 20s.; 10 by 5 feet, 29s. each. Carriage paid on all orders for Five Pounds and upwards.

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HORTICULTURAL GLASS.

A large quantity of all descriptions and sizes in stock, at the lowest possible prices.

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RUSSIA MATS & RAFFIA

NEW SEASON'S ARCHANGEL MATS.

Taganrog, Petersburg, and every other description of Russian Mats.

RAFFIA FIBRE.

SPECIAL QUOTATIONS on APPLICATION.

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To Nurserymen, Seedsmen, and Florists.

W. PETERS AND SONS, 44, Tenter Street, South Goodman's Fields, London, E. are now Selling, at extremely Low Prices, Finest Quality Plaited RAFFIA, New, Heavy, Full-size ARCHANGEL MATS, ST. PETERSBURG MATS, and PACKING MATS. Prices on application.

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HOTHOUSE SHADINGS. Neptuns Works, Manchester. COTTON WOOL and WADDING for Florists and Nurserymen. Send for Samples and Prices.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of **WATSON AND SCULL, 90, Lower Thames Street, London, E.C.**

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"Now for the golden wine of English meadows! A cool, deep, sparkling beaker of liquid topaz Nor Reims, nor Rhine can match!"

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EXCELLENT NERVE-SOOTHER for NEURALGIA or TOOTHACHE. Sold by Wine Merchants and Grocers throughout Great Britain. EXPORTED to America, China, Australia, &c.

PAMPHLET and List of Agents, post-free. PRICE 16s. per dozen, case, &c. included. Carriage paid on two dozen. Sample Bottle, carriage free, 2s.

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CHEAP HORTICULTURAL GLASS.

Packages and packing free, and delivered to any London Station.

100 squares of Glass, quality guaranteed.	15 oz.	21 oz.
13 1/2 by 8 1/2 for 10/- for 14/-		
12 " 9 " 10/-	14/-	or 300 squares 15 ounce, 8 by 6,
12 " 10 " 11/-	15/6	or 250 squares 8 1/2 by 6 1/2, or 220
14 " 10 " 13/-	19/-	squares, 9 1/2 by 6 1/2, or 170 squares,
14 " 12 " 17/6	24/-	9 by 7 1/2, or 150 squares, 10 by 8,
14 " 12 " 19/-	29/-	for 106. Carriage paid for all orders
18 " 12 " 21/-	31/-	over 23.
20 " 12 " 24/-	35/-	

Glass cut to any size at the above proportionate prices. Best LINSEED-OIL PUTTY. PAINTS, ready mixed for use, in tins of 1 lb. to 14 lb., at 6d. per pound. Special quotations given for large quantities.

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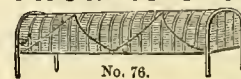
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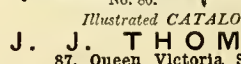
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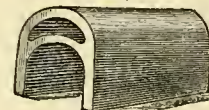
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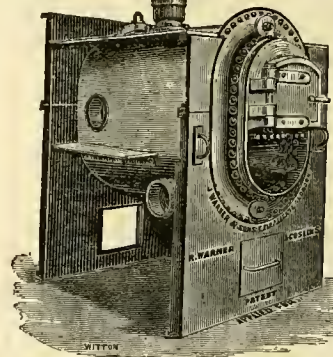
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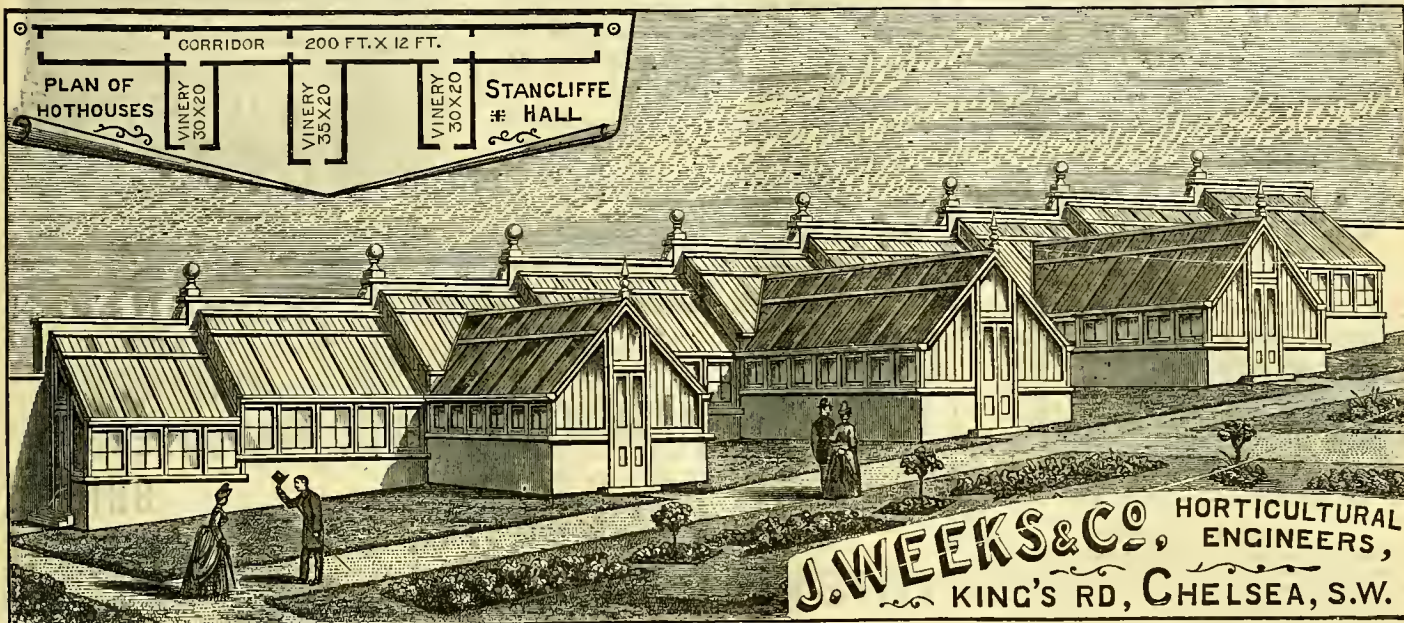
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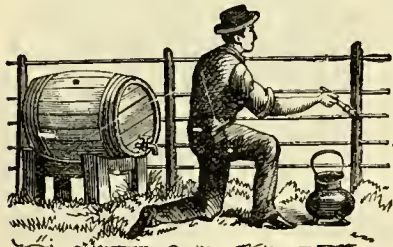


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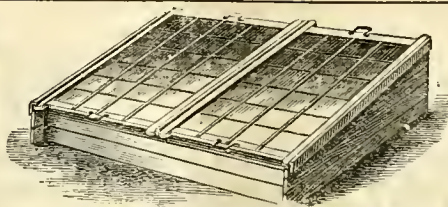
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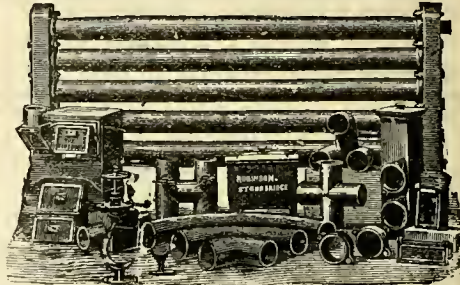
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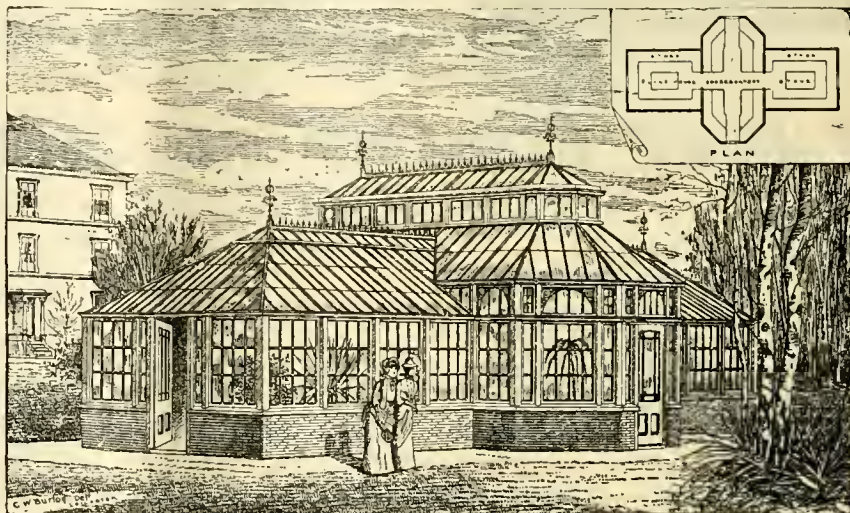
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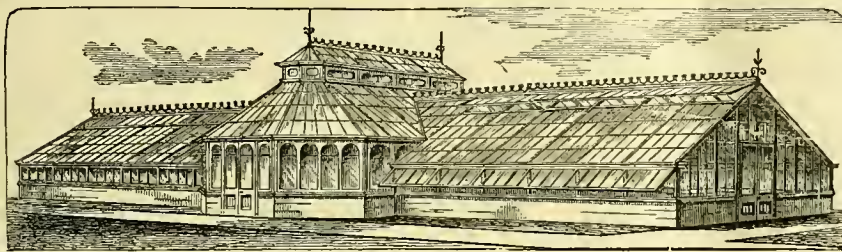


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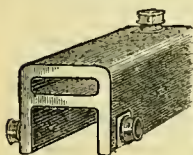
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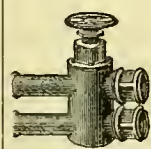
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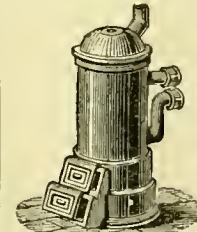


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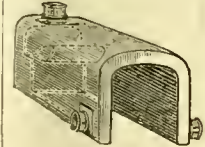


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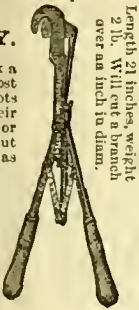
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As the S. M. Co.'s "Standard" Tree Pruner is admitted to be the best Pruner for work a distance from the ground, so will the two "MYTICUTTAHS" prove the handiest and most powerful for Pruning and Trimming close to the ground, such as the removal of shoots from roots of trees; also Shrubs, Fruit and Flower Bushes, Vines, and other climbing plants, &c. Their construction enables prickly Shrubs and Bushes to be Pruned without lacerating the hands or wrists, even if gloves are not worn. They will with ease cut the hardest wood growing without injuring the part left by splitting and drawing the sap several inches up and causing decay, as other implements are known to do.

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GARDENING APPOINTMENTS.

Mr. ALFRED SMITH, who during the last four years, has been Fruit Foreman at The Hendre, Monmouth, has been appointed Gardener to Sir L. M. PILKINGTON, Bart., Chevet Park, Wakefield.

Mr. C. ARCHARD, late of Coombe Warren, has been appointed Bailiff to the Brading Harbour Co., St. Helens, Isle of Wight. His address will be Bay View, Brading, Isle of Wight.

Mr. E. SHEPARD, late Head Gardener to the Misses BANNERMAN, Roden Hall, Wellington, Salop, has been appointed Head Gardener to N. ECKERSLEY, Esq., Standish Hall, Wigan, Lancashire.

Mr. MAY, from the Orchid department at Trentham, has been appointed to succeed Mr. MCPHAIL, as Gardener to Colonel COOPER, at Markree Castle, Collooney Castle, Ireland.

Mr. R. SHARPE, succeeds Mr. RAFFILL, as Gardener at Low Hill Gardens, Bushby, near Wolverhampton.

A PROVINCIAL NURSERY and SEED

FIRM doing a large General Trade is desirous of meeting with a thorough good business MAN, of general experience, who can compile Catalogues, Special Offers, Advertisements, &c., in the most attractive style.—State wages, age, &c., to A. C. C. *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, at a large Provincial Establishment a MAN, thoroughly competent to undertake the Management of the Glass Department. Must have been accustomed to the Management of Men, Execution of Orders, and have a good knowledge of Plants generally.—Apply, with qualifications, wages expected, to PROVINCIAL, 41, Wellington Street, Strand, W.C.

WANTED, a SINGLE-HANDED GARDENER (with some help).—Young, unmarried, well-trained. Must be able to Milk and attend to Cow, and willing to be generally useful. Wages from 21s.—Write fully to RECTOR, Tendring, Colchester.

WANTED, a FOREMAN for the Houses. One who understands the General Routine of a good establishment. 18s. per week.—G. MARSHALL, The Gardens, Holy Wells, Ipswich.

WANTED, a good all-round WORKING FOREMAN and PROPAGATOR. Cut Flowers a specialty. A married man preferred.—State wages and particulars to WM. TROUGHTON, 4, Church Street, Preston.

WANTED, TWO young MEN, one who understands Growing Bonvardias, Ferns, &c.; the other as Fireman, and to fill up his time in the Houses, &c.—Wages, 18s. per week.—LEWIS AND WILLIAMS, Ember Nursery, Thames Ditton, Surrey.

WANTED, a MAN, to Grow Soft-wooded Stuff and Ferns for the London Markets.—CHILDS, Blenheim Nursery, 65, Rye Lane, Peckham, S.E.

WANTED, AT ONCE, TWO good experienced Young MEN.—Must be well up for Growing Plants under glass.—H. SMITH AND SONS, Nurserymen, Isleworth, near Richmond.

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WANTED, a young MAN, for Outside, and take turn on duty. State age, experience, and wages.—J. SMITH, Weston Grove, Woolstone, Hants.

WANTED, in a Seed Shop, a MAN accustomed to the Execution of Orders. Must have a good general knowledge of Seeds, accurate and prompt in the Execution of Orders.—SEEDS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a WAREHOUSE PORTER, used to the Seed Trade.—WATKINS AND SIMPSON, Exeter Street, Strand, W.C.

WANTED, AT ONCE, a Young Man as ASSISTANT in a Seed Shop.—Apply, stating age, experience, and salary required, to A. READ, Seedsman, Newark, Notts.

WANT PLACES.

B. S. WILLIAMS begs to intimate that he has at present in the Nursery and upon his Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Holloway, N.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS.

JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

SCOTCH GARDENERS.

—JOHN DOWNIE (of the late firm of Downie & Laird), Seedsman, 144, Princes Street, Edinburgh, has at present on his List a number of SCOTCH GARDENERS, waiting engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

WANTED, A GARDENER!!!—Having had long experience and an extensive connection we are in a position to RECOMMEND MEN thoroughly capable of filling with credit any situation in the Gardening World. On receipt of full particulars we will recommend a suitable Man. Correspondence invited.—R. B. LAIRD AND SONS, Successors to Downie & Laird, Seed Merchants, Edinburgh.

TO NURSERYMEN.—A young man, of ten years' practical experience in Nurseries, desires a situation in a Nursery where he would take a Leading Part or be a Working Partner. The advertiser has a good connection, and is thoroughly acquainted with all branches of the Trade. He would be also open to accept an engagement on a Gentleman's Estate as Sub-Agent and Manager of Nurseries. Can give satisfactory references.—J. R. O., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (HEAD).—Seventeen years' good practical experience in Forcing of Fruit, Flowers, and Vegetables. Excellent testimonials.—W. MASTERS, Highnam Court Gardens, Gloucester.

GARDENER (HEAD).—Single; thoroughly practical, trustworthy, and energetic. Well up in all branches. Excellent character and references.—H. B., The Gardens, Harston, Cambs.

GARDENER (HEAD), where two or three are kept; age 34, married.—Mr. BRIGGS, Garnstone, Woolley, Herefordshire, will be pleased to recommend G. Messenger, as above.

GARDENER (HEAD).—G. INGLEFIELD, Gardener to Sir J. N. Kell, Bart., wishes to recommend a man as above. Well up in all his duties. A persevering and energetic man. Highly recommended by late employer, where he lived seven years.—Address above.

GARDENER (HEAD).—Age 37; twenty-two years' experience; thoroughly practical in every department, and capable of undertaking the Management of a First-class Establishment. Good character and testimonials.—R. G. WATERMAN, Woolton, Liverpool.

GARDENER (HEAD).—Middle-aged, married; Scotch. Wishes an engagement for May term. Sixteen years in present situation. Thoroughly practical in all branches of his profession.—WM. SAMSON AND CO., Seedsman, Kilmarnock.

GARDENER (HEAD); age 35, Scotch.—J. MCPHAIL, for the last ten years Head Gardener to Colonel COOPER, at Markree Castle, Collooney, will shortly be disengaged. Highest testimonials, and Col. Cooper kindly allows reference.

GARDENER (HEAD); age 35, married, no family.—A GENTLEMAN wishes to recommend his Gardener, who has been with him eleven years; thoroughly experienced in the profession. Good cause for leaving.—J. D., 51, Priory Street, Tonbridge.

GARDENER (HEAD).—W. SWAN, for thirteen years with the late W. Leech, Esq., Fallowfield, is open to a re-engagement. Thorough knowledge of Gardening in every department. Well up in Orchard Growing and General Plant and Fruit Culture. Thirty years' experience. First-class references and testimonials.—Avenham Park, Preston.

GARDENER (HEAD); no incumbence.—Mr. W. BISHOP, late Gardener to the late Sir E. Jodrell, Bart., and many years at Blyth Park, will be pleased to treat with any Lady or Gentleman requiring the services of a first-class all-round Gardener.—HEAD GARDENER, The Grove, Teddington; or, Head Gardener, Wesley Hall, Bury St. Edmunds.

GARDENER (HEAD); age 40, married, no family.—JAMES WATSON, Esq., late of Langley House, wishes to recommend his late Head Gardener (R. H. Taylor), who has been with him six years, to any Lady or Gentleman requiring the services of a thoroughly practical man. First-class testimonials.—Apply, stating full particulars, to R. H. TAYLOR, 12, Hencroft Street, Slough, Bucks.

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GARDENER (HEAD); age 36, abstainer.—General NEWDEGATE, of Arbury Hall, Nuneaton, Warwickshire, will be pleased to recommend his Head Gardener, C. Marshall, to any Lady, Nobleman, or Gentleman requiring the services of a thoroughly practical man. Four years in present situation; six and a half years previous as Head. Leaving entirely owing to an alteration in the establishment.—Please address as above.

GARDENER (HEAD WORKING), where two are kept.—Age 25; abstainer. Vines, Peaches, Melons, and Kitchen and Flower Garden.—W. GATLAND, Mint Cottages, Banstead, Surrey.

GARDENER (HEAD WORKING), to any Lady or Gentleman requiring the services of a good practical man.—Age 26, single.—J. FORBES, 24, College Street, Putney, S.W.

GARDENER (HEAD WORKING).—Age 35, married; nineteen years' practical experience with Vines, Pines, Peaches, Melons, Cucumbers, Orchids, Stove and Greenhouse Plants, Flower and Kitchen Garden.—G., 1, Robert's Cottages, Lordship Lane, East Dulwich, S.E.

GARDENER (HEAD WORKING).—Age 36, married; twenty-three years' sound practical experience in every branch of the profession.—HAROLD, Mr. Myatt, Weston Heath, Newport, Salop.

GARDENER (HEAD WORKING).—Age 37; twenty years' experience, eight as Head. Good Plantsman and Fruit Grower. Undeniable good character.—C., 6, Clifton Terrace, White Road, Sparkbrook, Birmingham.

GARDENER (HEAD WORKING).—Age 47, married, no family; thirty years' practical experience in all branches of Gardening. Three years' excellent character from present place.—W. B., Riverside, Pulace Road, East Molesey, Surrey.

GARDENER (HEAD WORKING).—Married, one daughter; twenty years' experience as a first-class Grower of Grapes, Melons, Peaches, Orchids, Chrysanthemums; also Forcing Roses, and the general routine of a Kitchen Garden. Wife Lodge Keeper or Poultry. First-class testimonials and certificates from various shows. No single-handed place.—L. W. P., 53, Adys Road, Peckham, S.E.

GARDENER (HEAD WORKING).—Age 27, married, no family, understands Flower and Kitchen Garden, Vines, Cucumbers, Melons, Peaches, Plant-houses. Good references from past and present employers.—D. B., The Rise, Sunningdale, Berks.

GARDENER (HEAD WORKING).—Age 33, married, no family; has a thorough knowledge of Vines (Early and Late), Stove and Greenhouse Plants, Fruit, Flower, and Kitchen Gardening. Can be highly recommended.—W. CAMPIN, Queensbury House, Richmond, Surrey.

GARDENER (HEAD WORKING), where more are kept.—Middle-aged, married, no incumbence. Well up in Growing Grapes, Melons, Peaches, Cucumbers; also Stove, Orchids, and Greenhouse Plants, Flower and Kitchen Garden. Reliable and trustworthy. Good character. Wife as Landdress if required.—C., Florence Cottages, Purley, Surrey.

GARDENER (HEAD WORKING).—Age 40, married; twenty-six years' experience in Vines, Pines, Peaches, Melons, Cucumbers, and all kinds of Stove and Greenhouse Plants, Orchids, and the General Management of a Garden. First-class references, late gardener to C. Liddell Esq., of Peasmarsh, Sussex, who wishes to recommend him and to whom references may be made. Please state wages.

GARDENER (HEAD WORKING), or GENERAL MANAGER on a Gentleman's Estate.—Married, no incumbence. Wife good Dairywoman. First-class references.—G. S., Mr. Searle, Queen's Cottages, Queen's Road, Egham.

GARDENER (HEAD, or SINGLE-HANDED).—Age 32, married; good practical experience in all branches. Good references. Country preferred.—C. N., 121, Taunton Road, Lee, S.E.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 42, married, without incumbence; well up in all branches. Twelve years in last situation.—A. M., 3, Elizabeth Terrace, Stoke Newington, N.

GARDENER (HEAD, or SINGLE-HANDED).—Age 45, married; is a good all-round Gardener of considerable experience; would not object to look after Land. Excellent character from last and former employers.—J. M., 15, Carr's Hill, Balby, Doncaster.

GARDENER (HEAD, or SINGLE-HANDED).—Twenty years in last situation. Thoroughly experienced in Stove and Greenhouse Plants, Vines, Melons, Cucumbers, Ferns, Flower and Kitchen Garden. Exceptional references. Abstainer. Preferably in neighbourhood.—S. H., Providence Cottage, High Cross Lane, Tottenham, London.

GARDENER.—A GENTLEMAN wishes to recommend his Gardener. Thoroughly experienced in all branches. Has been six years in present situation.—The GARDENER, Stanton House, Pembury, Tunbridge Wells, Kent.

GARDENER.—Age 56, married, no family; thorough practical man. Over thirty-five years' experience. Total abstainer. Undeniable character.—F. M., 44, Paradise Road, Clapham Road, S.W.

GARDENER, where two or three are kept.—Age 30, married; understands Vines, Melons, Cucumbers, Stove and Greenhouse Plants.—G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER.—Age 43; long experience. Will tender 5 guineas to any Curator or private Gardener for employment in either of the above untitled with a situation. Energetic.—W. GARDENER, Duke's Head Cottage, High Street, Highbury, N.

GARDENER (SINGLE-HANDED).—Married, no family; understands his business. Wife no objection to Poultry. Good character.—G. F., Mr. Rowe, Borehamwood, Elstree, Herts.

GARDENER (SINGLE-HANDED, or good SECOND, or Public Garden).—Age 22, single; good experience. Total abstainer.—F. HUXLEY, Cemetery Lodge, Bromley, Kent.

GARDENER (SINGLE, or good SECOND).—Age 22, married, no family; understands Vines, Melons, Greenhouse, and Conservatory. Total abstainer. Six months' good character, and good reference.—E. MORLEY, Newdegate, Dorking.

GARDENER (good SECOND or SINGLE-HANDED).—Age 23; ten years' experience Inside and Out. West-end suburbs preferred.—BAKER, Ashford Nursery, Ashford, Middlesex.

GARDENER (SECOND), in a small place, for Inside and Out.—Age 23; seven years' experience. Good references.—E. SMAILES, Bulmer, Castle Howard, York.

GARDENER (SECOND), where three or four are kept.—thoroughly understands Inside and Out. Highly recommended.—A. WOODHAM, West End, Esher, Surrey.

GARDENER (SECOND), in a good Gentleman's establishment, where three or four are kept.—Age 24; understands Glass and Kitchen Garden. Three years' good character from present situation.—J. DOWNING, The Stables, Ythandale, Wimbledon Park.

GARDENER (good SECOND, or otherwise).—Age 25; experienced in all branches. Good references. E. N., Clare Cottage, Page Street, Mill Hill, N.W.

GARDENER, SECOND (with two or three in Bothy), or FIRST JOURNEYMAN, in good place. Age 25.—J. MALTBY, The Gardens, Denton Manor, Grantham, can with every confidence recommend a young man as above.

GARDENER (SECOND, or UNDER).—Age 22; seven and a half years' experience Inside and Out. Three years' good character.—E. RIXON, 42, Parit Road, New Road, Rotherhithe, S.E.

GARDENER (UNDER).—Age 23; two years' good character from present place. Strong, active, and willing.—H. ROSS, 9, Mill Street, Aylesbury, Bucks.

GARDENER (UNDER), in Gentleman's establishment.—Age 20; highest references from present employers.—W. MASON, Beamhurst Hall, Uttoxeter.

GARDENER (UNDER).—Age 21; six years' experience. Can be well recommended.—F. BARTON, Glusburn Bridge, Cross Hills, Leeds.

GARDENER (UNDER).—Age 21; seven years' experience. Three years in present place. Good reference.—J. LEONARD, Pepper Minor, Allerton, Leeds.

GARDENER (UNDER), in a Gentleman's establishment.—Age 17; been used to the above. Abstainer. Good references.—W. BLOODWORTH, Oakfield, The Avenue, Gipsy Hill, S.E.

To Nurserymen.

MANAGER, or FOREMAN of Glass Department in good Nursery.—Eighteen years' experience.—X. Y., Mr. G. Edwards, Balham Nursery, Balham, S.W.

FOREMAN.—Age 25; good practical knowledge of the profession. Good references.—W. B. E., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOREMAN.—Thoroughly understands Grapes, Strawberries, Tomatos, Roses, and other Cut Flowers for London Market. State experience and wages.—C. HURST AND SONS, Seed Merchants, Houndsditch, E.

FOREMAN; age 28.—Mr. JACQUES wishes to highly recommend C. Bidwell as a thoroughly efficient Plant Foreman. Two and a half years' character.—Boston Road, Hanwell, Middlesex.

FOREMAN, in the Houses.—Age 25; ten years' experience in the Cultivation of Stove and Greenhouse Plants, Vines, Peaches, Melons. Good references.—C. LINK, Everingham, Yorks.

FOREMAN, in a Gentleman's establishment.—Age 24. Can be highly recommended. Five years' excellent character from last situation. Ten years' practical experience.—W. GREGORY, 3a, Upcerne Road, Chelsea, S.W.

To Head Gardeners.

FOREMAN, in the Houses; age 25.—Mr. GEO. MOUNT, The Rose Nurseries, Canterbury, can with confidence recommend a young man as above. Has a good knowledge of his profession, and is thoroughly trustworthy.

FOREMAN, or SECOND in the Houses, where some experience in Fruits may be gained.—Expert in Roses in Pots.—PAUL AND SON, The Old Nurseries, Cheshunt, can recommend Three Young Men.

FOREMAN, or SECOND, in a good private establishment, in the Houses.—Used to growing for Market. Good references.—W. AVEY, Bells Hill, High Barnet, N.

FOREMAN, or SECOND, in a good establishment.—Age 25; eight years' experience. Good recommendation from present and previous employers.—G. HEAD, The Gardens, Lockerley Hall, Romsey, Hants.

FOREMAN, or SECOND; age 25.—JAMES CYPHER begs to recommend J. Collett as above. Good knowledge of Fruits, Orchids and Plants. Thoroughly trustworthy and obliging.—Exotic Nurseries, Cheltenham.

PROPAGATOR, of Soft and Hard-wooded Plants, Ferns, &c.—Age 26; wanted a permanent situation. Thoroughly experienced. Large establishment preferred.—L. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PROPAGATOR, or PROPAGATOR and GROWER of Hard and Soft-wooded Plants.—Age 25; good reference. State terms and particulars to JOSEPH HOLMES, Kingsdown, Burwash, Hawkhurst, Sussex.

PROPAGATOR, or GROWER, in a Market Nursery.—Thoroughly understands Glass, Roses, Wall Cucumbers, Tomatos, and Grapes. Could Manage a Branch if required.—E. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PROPAGATOR, ROSE GROWER, or any position in a good Nursery.—Age 24; ten years' experience in Propagating and Growing Plants, Roses (inside and out), Ferns, Cucumbers, Tomatoes, Grapes, &c., for Market. Has had some practice with Weathers, Crosses, and Cut Flower Work.—ROSE, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

JOURNEYMAN (FIRST), in the Houses; age 22.—Mr. GEO. HUMPHREY, Nash Court, Faversham, can highly recommend a steady, respectable, trustworthy young man as above.

JOURNEYMAN (FIRST).—Mr. E. ATKINS, Hargrave, Stanstead, Essex, can with confidence recommend H. Luckey as above. Thoroughly trustworthy and obliging.—Address as above.

JOURNEYMAN (FIRST or SECOND), in a first-class establishment.—Age 21; seven years' experience in Plant and Fruit Houses. Would pay a Premium.—Mr. DAVIES, Head Gardener, Weybridge Park, Surrey.

JOURNEYMAN, in the Houses.—Age 22; seven years' experience, good references.—W. JONES, The Street Gardens, Chorley, Lancs.

JOURNEYMAN, age 23; two years in present place. Can be well recommended.—J. HARRIS, The Gardens, Garstone, Weobley, Herefordshire.

JOURNEYMAN, in the Houses.—Age 21; six years' experience of both Inside and Out. Good character.—G. PECK, Bee Hive, Edgware, Middlesex.

JOURNEYMAN, inside, in a good establishment.—Age 20; three years' good character from present employer. Bothy preferred.—J. MYERS, The Gardens, Hawkswick, St. Albans, Herts.

JOURNEYMAN, in the Houses, in a good establishment.—Can be well recommended from last employer. Seven years' reference. Abstainer.—W. ASHTON, Elsham, Brigg, Lincoln.

JOURNEYMAN, in the Houses or otherwise.—Age 22; six years' experience. Four years' good character from present situation.—GARDENER, Moreton House, Bideford, Devon.

JOURNEYMAN, in the Houses, in a Gentleman's Garden.—Age 21; bothy preferred. Five years' experience Inside and Out. Good character.—A. TROTT, The Gardens, Woodhurst, Crawley, Sussex.

JOURNEYMAN, in the Houses, in a good establishment.—Age 21; two years' good character from last situation. Bothy preferred.—R. WEBB, High Street, Daxford, Cambs.

JOURNEYMAN in the Houses.—C. BROOKS, Red Rice, Andover, Hants, will be pleased to recommend E. Bedford, age 19, to any gardener requiring a trustworthy young man as journeyman.

JOURNEYMAN, Inside or Out; age 21.—Mr. WAITE, Glenhurst Gardens, Esher, wishes to recommend a young Man as above, having served under him Inside and Out.

JOURNEYMAN, in the Houses, under Foreman, in a good establishment.—Age 19; can be well recommended from present employer; six years' experience. Abstainer.—H. ALLEN, Cavendish, Suffolk.

JOURNEYMAN, in the Houses.—Age 21; seven years' experience in good establishments. Excellent character from last and previous employer.—EDWARD BEAN, Lawa Cottage, Mount Street, Diss, Norfolk.

JOURNEYMAN, in the Houses, or otherwise.—Five years' excellent character from last situation. Satisfactory cause for leaving. Abstainer.—T. HOOKER, 24, Crampton Road, Penge, S.E.

JOURNEYMAN, in good private establishment.—Age 21; two and a half years in present situation.—For particulars address to Mr. TILLYARD, Gardener to the Right Hon. the Earl of Yarborough, Brocklesby Park, Ulceby, Lincolnshire.

JOURNEYMAN, in the Houses.—Age 23; six years' excellent character.—Mr. STEVENS can highly recommend F. Thomas to any Gardener requiring a steady trustworthy man.—Mr. STEVEN, Stunage Park, Brompton Brian, Herefordshire.

JOURNEYMAN, in the Houses.—Age 21; seven years' experience in good Garden where there is a first-class Range of Fruit and Plant Houses. Five years Inside. Can be well recommended.—H. WOODLEY, The Gardens, Boldre Grange, Lymington, Hants.

JOURNEYMAN.—Mr. KEAY will be pleased to recommend Two Young Men as Journeyman. Experienced both in Houses and Out-of-doors. Active and steady. Leaving through death of proprietor.—For full particulars apply to D. KEAY, Head Gardener, Hollenden, Tonbridge, Kent.

IMPROVER, in the Houses; age 18.—W. AUSTEN wishes to recommend a Lad as above.—OARDENER, Copt Hall, Mill Hill, N.W.

IMPROVER, in the Houses, Gentleman's Garden, or Market Nursery.—Age 18; well educated. Used to Palms and Ferns.—B., 57, Lyndhurst Grove, Peckham, S.E.

IMPROVER; age 18.—A Gardener's Son requires a situation in the Houses. Four years' experience. Strong, active, and willing. Bothy preferred.—HARRY SILK, White Ness Garden, Margate.

APPRENTICE.—Wanted an Apprenticeship to a Nurseryman and Florist by a well-educated youth (passed Cambridge Junior Local), where he will gain a thorough knowledge of the business.—D. D., Selwyn House, Tonbridge.

GARDENER'S APPRENTICE.—Mr. THOMSON, Gardener to the Duke of Grafton, Wakefield, Stony Stratford, Bucks, wishes to recommend a respectable well educated youth (age 16) under good Gardener.

HORTICULTURAL PUPIL.—A youth from a good Grammar School seeks a situation as Horticultural Pupil where the business as an Art and a Trade can be thoroughly taught.—Terms (to live with his master or out-door) to K. Q., Care of Mr. Longhurst, Frant, Sussex.

TO NURSERYMEN.—Age 20; seven years' experience. Used to Tomatos, Cucumbers, and Cut Flowers. Can serve Customers. Highest references.—W., 9, Duke Street, Deal.

TO MARKET NURSERYMEN.—A young man (age 21) wants situation in London or Provincial Market Nursery. Has had nine years' experience as General Plant Grower in the Houses.—F. EDWARDS, 4, St. George's Place, Richmond, Surrey.

TO MARKET NURSERYMEN.—Wanted, a re-engagement in a Market Nursery. Good experience. Age 21.—G. T., 85, Palace Road, Bromley, Kent.

TO NURSERYMEN and GARDENERS.—Wanted, a situation by a young man (age 21); six years' experience in the Trade; can be well recommended.—W. MATTHEWS, Tysonenon Gardens, St. Clears, Carmarthen.

TO GARDENERS, &c.—Wanted, by a Gardener's Son, a situation under a good Gardener. Indoors and Out. Strong, active, and willing; four years in present situation; age 20. Premium given.—G., Mr. Goddard, 43, Newland Road, Worthing, Sussex.

TO GARDENERS, &c.—Wanted to place a very willing youth (age 16) under a good Practical Gardener. Has had two years' experience.—H. ASHTON, Wraysbury, near Staines, Bucks.

TO GARDENERS, &c.—Lady M. GAGE wishes to recommend a Youth (age 19) to work under a Gardener in a Large Garden; or in a Small Garden and to help in house.—Lady M. GAGE, Radnor House, Sandgate, Kent.

TO GENTLEMEN, &c.—Wanted, by a strong active youth—Teetotaler, not afraid of work, age 18—a situation in a Gentleman's Garden. Can be thoroughly recommended.—JACKSON, Claydon, Winslow, Bucks.

HANDY-MAN, as Coachman, Single-handed; also knowledge of Gardening and Farming.—Age 38, married, no family. Seven and a half years' good reference.—D. D., 4, King George Street, Greenwich, S.E.

To Nurserymen, Seedsmen, and Florists.

MANAGER, SHOPMAN, BOOK-KEEPER, or otherwise.—Advertiser desires situation as above. In last place twenty-five years as Managing Shopman. Excellent testimonials.—E. S., 4, Albany Villas, Ashford, Kent.

MANAGER, or TRAVELLER.—Age 47; thorough knowledge of Nursery and Seed Trade. Would take Management of a Branch Business. Highest references.—W. K., 39, Waterloo Road, Catton, Norwich.

NURSERY CLERK.—Well experienced in Nursery and Seed Business, good general Correspondent, Cashier, or Book-keeper. Capable of taking entire Charge of a Business when Principal away.—Z. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

INVOICE CLERK.—Age 22; desires engagement with a good firm. Five years' experience in two leading houses. First-class references. Moderate salary.—A. BAKER, 4, Primrose Villas, Chesnut Road, Tottenham, London.

CLERK (experienced), as general Corresponding CASHIER or BOOK-KEEPER, Shorthand.—Age 24; acquainted with the Nursery Trade, and could, if required, act as Salesman. Good references.—N. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Nursery and Seed Trade.

CLERK and BOOK-KEEPER.—Experienced; desires re-engagement as such, or other position of trust. First-class references.—CLERK, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Seed Trade

SHOPMAN, CLERK, or TRAVELLER.—Eighteen years' experience; thorough knowledge of Garden and Agricultural Departments. Excellent references.—W., Postmaster, Stewarton, Ayrshire.

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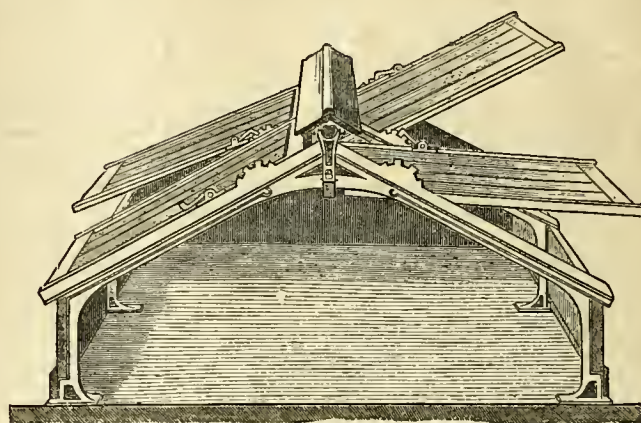
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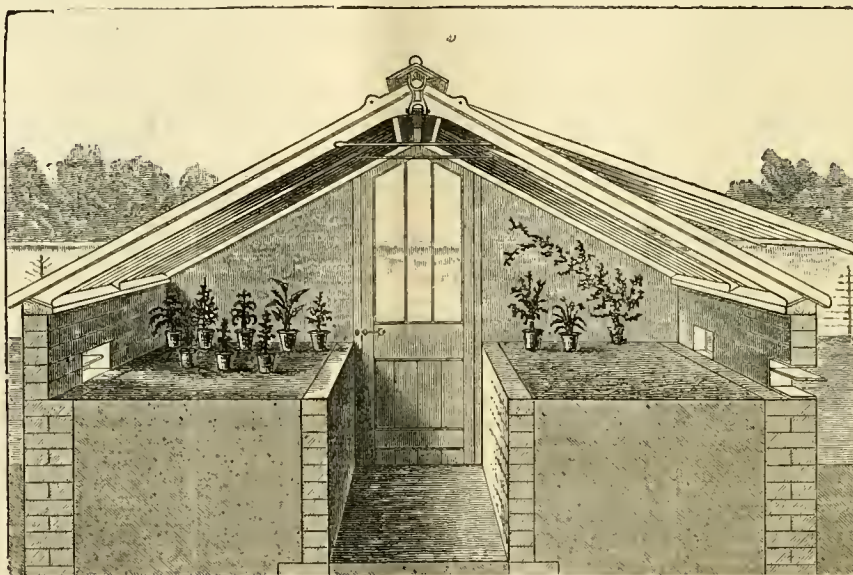
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FOR BRICK WALLS,
WITH LANTERN
VENTILATOR.

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Feet.	Feet.	£	s.	d.
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16	× 10	13	15	0
20	× 10	15	15	0
24	× 10	18	15	0
28	× 10	21	10	0
32	× 10	24	8	0
36	× 10	27	5	0
40	× 10	30	0	0
44	× 10	32	18	0
48	× 10	35	15	0
52	× 10	38	10	0



SECTION No. 10, House 12 ft. wide.

SPAN FRAME
FOR BRICK WALLS,
WITH LANTERN
VENTILATOR.

SECTION No. 10.

Feet.	Feet.	£	s.	d.
12	× 12	14	7	0
16	× 12	17	10	0
20	× 12	20	12	0
24	× 12	24	5	0
28	× 12	27	15	0
32	× 12	31	5	0
36	× 12	34	15	0
40	× 12	38	0	0
44	× 12	41	15	0
48	× 12	45	5	0
52	× 12	48	10	0

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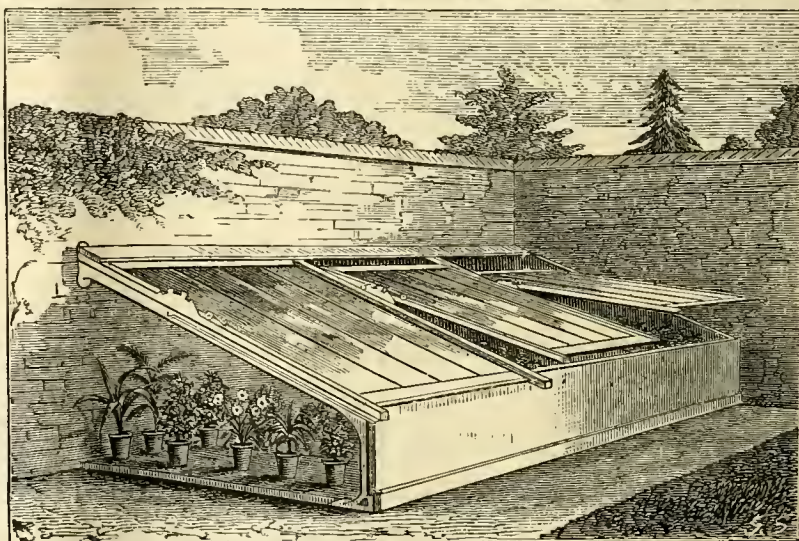
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.
No. 2460.

No. 60.—VOL. III. {THIRD
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SATURDAY, FEBRUARY 18, 1888.

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Back Numbers of the "Gardeners' Chronicle."

NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

NOTICE TO SUBSCRIBERS.—All Numbers of the "Gardeners' Chronicle" from January 1, 1887, are still to be had.

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President.—ALDERMAN GEORGE GALLOWAY, Esq., J.P.
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THE TENTH GREAT SPRING FLOWER SHOW and FLORAL FÊTE will be held in the large Public Hall, Preston, on WEDNESDAY and THURSDAY, March 21 and 22 next. Persons requiring space are requested to make early application. Schedules of Prizes and all other information from

JOHN ATHERTON, Secretary.

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Apply, HEAD GARDENER, Haigh Hall, Wigan.

For Real Quality and Flavour of Vegetables
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Plans and Estimates Free.
See large Advertisement, Feb. 4, p. 154.

Write

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See Advertisement, page 217.
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Swanley, Kent.

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Flowering Orchids.—Special Sale, February 28.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place as above, for which they will be glad to RECEIVE NOTICE of ENTRIES as early as possible.

Tuesday Next.

CAMELLIAS, AZALEAS, Standard and Dwarf ROSES, FRUIT TREES, HARDY EVERGREEN PALMS, FARNES, LILIES, &c., in choice assortment.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 21, at half-past 12 o'clock precisely.

Catalogues had at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, London, E.C.; and Leytonstone, E.

Wednesday Next.

10,000 LILIAM AURATUM, 800 L. KRAMERI, 600 L. SPECIOSUM ALBUM, and L. ROSEUM, just received from Japan, in splendid condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on WEDNESDAY NEXT, February 22.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTANT SALE of ODONTOGLOSSUM ALEXANDRE, DENDROBIUMS, the beautiful new LELIA GOULDIANA, and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 24, at half-past 12 o'clock precisely, a splendid importation of DENDROBIUM THYRSIFLORUM, D. DENSIFLORUM, D. DEVONIANUM, D. WARDIANUM GIGANTIFLORUM, D. CRASSINODE, CYMBIDIUM LOWIANUM, ODONTOGLOSSUM NEBULOSUM, O. MACULATUM, O. ROSSI MAJUS, and EPIDENDRUM VITELLINUM MAJUS, the whole in unusually fine condition, and for Sale without reserve. A grand importation of ODONTOGLOSSUM ALEXANDRE of the best type, from Messrs. Shuttleworth, Carder & Co., and other ORCHIDS; 35 Semi-Established plants of the new and beautiful LELIA GOULDIANA, which produces as many as six of its rich coloured flowers on a single spike; also 275 lots of ESTABLISHED ORCHIDS from well-known private collections.

On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

SALES OF STANDARD and DWARF ROSES, GREENHOUSE PLANTS, PALMS, a consignment of CAMELLIAS, AZALEAS, and OTHER PLANTS from Belgium; LILIAM AURATUM from Japan; an extensive assortment of ENGLISH-GROWN LILIES, including most of the principal varieties; IRIS, TUBEROSES, DUTCH BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Room, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, February 23 and 25, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Upton.

BY ORDER OF THE MORTGAGEES.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Tokenhouse Yard, City, on THURSDAY, March 8, at 2 o'clock precisely, a compact Freehold MARKET NURSERY, known as the Boleyn Nursery, Boleyn Road, Upton, established for many years, containing an area of about three-quarters of an acre of Land, with eleven substantially built Greenhouses, all span-roof, efficiently heated with Hot-water, three Pits, Potting-shed, and Stabling; the whole in good working order, and ready for immediate occupation.

At the same time the adjoining LAND will be LET by AUCTION in Ten Lots, for the Erection of Shops.

May be viewed. Particulars and Conditions of Sale may be had on the Premises, at the Mart, of Messrs. BOLTON, ROBBINS, RASKE, and CO., Solicitors, 45, Lincoln's Inn Fields, W.C.; and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

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PROTHEROE AND MORRIS.

London, E. To be LET or SOLD. Rent, £30. Small FREEHOLD NURSERY. Four Newly-built Greenhouses. Small Stock. (Folio 6572.)

London, W. Compact FLORIST'S BUSINESS, 1200 feet of Glass. Rent, £33. Lease 12 years. Incoming about £250. (Folio 6574.)

London, W. Main Road. Good opening for Beginners. Six GREENHOUSES, DWELLING-HOUSE. Rent only £33; reduced to £10 by re-letting. Lease 11 years. Incoming to immediate purchaser, £160. Splendid opportunity. (Folio 6573.)

Further particulars of either of above Businesses may be had from Messrs. PROTHEROE AND MORRIS, Estate Offices and Auction Rooms, 67 and 68, Cheapside, London, E.C. The folio should be mentioned in application.

Wednesday Next.—(Sale No. 7624.)

1100 extra fine Standard, Half-Standard, Dwarf, and Climbing ROSES, including some of the newest and best varieties of Hybrid Perpetuals, Teas, Noisettes, and others, from one of the most successful English growers; also Pyramid and Dwarf-trained FRUIT TREES, Hardy SHRUBS and CONIFERS, an extensive Collection of choice named BORDER PLANTS, home-grown LILIES, GLADIOLI, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 22, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7625.)

10,000 grand Bulbs of LILIAM AURATUM, 1000 L. BATE-MANNIE, 600 L. CORIDIFOLIUM, &c., from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 23, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7625.)

VALUABLE IMPORTED ORCHIDS.

CATTLEYA WALKERIANA.

CATTLEYA SPECIES.

CYCNOCHUS CHLOROCYLON.

RENANTHERA COCCINEA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 23, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a quantity of the rare and beautiful CATTLEYA WALKERIANA, fine healthy plants of RENANTHERA COCCINEA, just arrived in sound health, also plants of a probably new CATTLEYA collected in a hitherto unsearched district in Brazil; together with fine importations of CATTLEYA MOSSIE, C. SPECIOSISSIMA ERNESTI, LELIA PERINI, L. ELEGANS, MASDEVALLIA INFRACTA, SARCODES, O. LIMMINGHILL, O. DASY-TILE, the BEE ORCHID, O. WELTONI, O. LURIDUM, with fine green foliage; SOPHRONITIS GRANDIFLORA, the finest variety with large brilliant flowers; ONCIDIUM PAPILLO MAJUS, ODONTOGLOSSUM DONNANUM, PLEIONE HUMILIS, and P. WALLICHIANA, CATTLEYA GUTTATA, ONCIDIUM MICROPOGON, and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the

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Dates and further particulars will be duly announced in future Advertisements.

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BANGHOLM NURSERIES, EDINBURGH. GREAT CLEARANCE SALE. 50 Acres of NURSERY STOCK to be SOLD, by PUBLIC AUCTION, on various dates. FIRST PORTION of the SALE on WEDNESDAY and THURSDAY, February 22 and 23 current, at 11 o'clock forenoon.

MR. DAVID MITCHELL, Horticultural Auctioneer, has been instructed by the Subscribers to SELL by PUBLIC AUCTION, the VALUABLE NURSERY STOCK belonging to the above Company, at the Bangholm Nurseries, Ferry Road, and Laverloch Row, Edinburgh.

The Stock comprises millions of Seedling and Transplanted Forest Trees, suitable for Hill and Lowland planting; Ornamental Trees and Shrubs for Park and Villa decoration; Magnificent Collection of Golden, Silver, and Green Hollies, in all sizes, suitable for immediate effect, and for the Trade; named Rhododendrons in quantity; thousands of Grand Conifers, Golden Vines, &c. Fruit Trees, Gooseberry and Currant Bushes, all true to name. The whole Stock in the best possible condition for Transplanting.

Descriptive Catalogues are in preparation, and may be had on application to Mr. DIXON, the Manager of the Bangholm Nurseries; or the Auctioneer, No. 6, Comely Bank, Edinburgh. Cars pass the Nursery every 10 minutes.

CHENE and TAIT, C.A., Liquidators.

67, George Street, Edinburgh, February 2, 1888.

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Three Miles from Bristol, and one from Patchway and Filton Station, G. W. Railway.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS. FIVE DAYS' SALE. Catalogues now ready.

MR. EDWARD T. PARKER has been favoured with instructions to SELL by AUCTION, as above, on MONDAY, February 27, 1888, and Four Following Days, the whole of the very Superior and Valuable NURSERY STOCK, extending over upwards of 28 Acres, in and upon the Nurseries situate at Stoke Gifford. Sale each day at 12 o'clock precisely. Purchasers will be allowed ample time to clear their Lots.

Auction and Estate Offices, 39, Broad Street, Bristol.

High Street, Crediton, Devon.

TO CLOSE A TRUST ACCOUNT.

VALUABLE FREEHOLD SHOP and PREMISES in the centre of the Town for Sale.

MESSRS. AYRE BROS. and BOND will offer for SALE by AUCTION, at the "Ship Hotel," Crediton, on SATURDAY February 25, at 7 o'clock P.M. precisely (subject to such conditions of sale as will then be produced) all that very desirable and Valuable FREEHOLD DWELLING-HOUSE and SHOP situate on the southerly side of and numbered 24 in the High Street of Crediton, Devon, with the Seed Store, Garden, and appurtenances thereto belonging.

The Shop has a first-rate position in the centre of the main Street of the town, and an old-established and successful Seed Business has been carried on for a number of years.

The present tenant, Mr. W. A. Spreadbury, Seedsman, holds the property for the residue of a term of 21 years from Christmas, 1884 (determinable at the end of the first 7 or 14 years by either party giving 6 calendar months previous notice in writing) at a rental of £10 per annum, the tenants paying all rates, taxes and outgoings, except Landlord's Property Tax, and Land Tax (if any).

For further particulars and cards to view apply to the Auctioneers, Crediton, or to Messrs. SPARKES and POPE, Solicitors, Crediton and Exeter.—Crediton, February 15, 1888.

WANTED, a good MARKET GARDEN, with

Glass. Within 30 miles of London.

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WANTED TO RENT, a Small MARKET NURSERY, with not less than 300 feet of Glass, in good condition.

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Apply to E. D., 1, Minton Villas, Uxbridge Road, Ealing Dean.

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FOR SALE, or PARTNERSHIP, a good going business. A fortune to a good man with a few hundreds.—M. S. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE SOLD, a Long Leasehold NURSERY: nearly 80 years' Lease. Ground Rent, £14 per annum. Ten Glass Houses and Pits, well stocked. Price £2100. Apply at St. Mary's Road, Harlesden, near Willesden Junction.

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Capital opening for pushing Flower and Fruit Grower in Established Business, capable of Extension.

SMALL NURSERY, with Two new, well arranged Greenhouses, 100 feet by 16 feet, and 180 feet by 10 feet. Stock at Valuation.

Apply, Mr. J. GREENER, 101, Leadenhall Street, London, E.C.

TO LET, a Nobleman's fine walled KITCHEN Garden, of 2 to 3 acres, with Four Vineries, Stove House, &c., and Gardener's Residence. Close to station and county town. About an hour from London, Brighton, and Portsmouth.

Address OWNER, care of Steel & Jones, Advertising Agents, Spring Gardens, S.W.

To Florists.

TO LET on LEASE, a good PLOT of LAND.

Good position. High Road.

Apply to W. C. CLARKE, 10, Gledhow Terrace, South Kensington, S.W.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so-called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by PULHAM AND SON, BROXBORNE.

ORCHIDS.

A LARGE IMPORTATION OF

EAST INDIAN ORCHIDS

In Grand Condition,

HAS JUST BEEN RECEIVED BY

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES, GARSTON, near LIVERPOOL.

FULL PARTICULARS ON APPLICATION.

SEAKALE for FORCING.—Strong Roots, 12s.

per 100; Second size, very good, 10s. per 100.

RHODODENDRON and AZALEA PONTICA, well set with buds, 1½ foot, bushy, 6s. per dozen.

IRISH IVIES, in pots, staked, 5 to 6 feet, 9s. per dozen.

Package free for cash.

W. FROMOW and SONS, Sutton Court Nursery, Chiswick, W.

THE NEW LATE GRAPE,

"WHITE GROS COLMAR."

First-class Certificate of the Royal Horticultural Society of Ireland. Planting Canes, 21s.; Fruiting Canes, 42s. each. Descriptive List on application.

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

BLACKBERRIES—For Gardens—Fields—

Railway Banks, &c.—The most suitable variety for this country is Vertegans' Best of All, 7s. per dozen; Wilson Junior, 6s. per dozen. Home-grown; carriage and packing free. For novelties not to be found in other Catalogues, see Vertegans' Illustrated List of Specialties, post-free.

VERTEGANS, Chad Valley Nurseries, Birmingham.

SAMUEL SMITH, Tansley Nurseries, New

Matlock, offers:—RHODODENDRON PONTICUM and mixed Hybrids, 4 to 6 inches, 35s.; 6 to 9 inches, 55s.; 9 to 12 inches, 75s. POPLAR, Black Italian, 2 to 3 feet, 12s.; 3 to 4 feet, 15s. GORSE, 2-yr., 2s. 6d. BROOM, 2-yr., 6s. Flowering SHRUBS, in variety, 12 to 2½ feet, 50s. All at per 1000.

CORNER'S SWEDE.—For Sale, about 250 Bushes, in cultivation. Noted prize-taker, and the finest early Swede in cultivation, both as regards quality and quantity. The stock offered has been carefully selected for many years by advertiser.

Address SWEDE SEED, 6, Victoria Street, Bristol.

BRUCE FINDLAY PEA, the sweetest and most prolific. See testimonials in **KELWAY AND SON'S Manual for 1888**.—Langport, Somerset.

SMALL SHRUBS AND CONIFERÆ.—*Arancaria imbricata*, 8 to 9 inches, 40s. per 100. *Abies orientalis*, 8 to 9 inches, 32s. per 100. *American Arbor-vitæ*, 10 to 12 inches, 50s. per 1000. *Cupressus Lawsoni*, 12 to 15 inches, 60s. per 1000. *Cupressus erecta viridis*, 8 to 8 inches, 40s. per 1000; ditto, 1½ foot, extra, 12s. per 100. *Cupressus stricta*, 6 to 8 inches, 40s. per 1000; ditto, 1½ foot, 14s. per 100. *Pinus insignis*, 1 year, 4s. per 100. *Pinus Cembra*, 2 years, 10s. per 1000. *Pinus Nordmanni*, 2 years, 6s. per 100. *Pinus excelsa*, 1 year, 4s. per 100. *Pinus canariensis*, 1 year, 5s. per 100. *Retinospora plumosa*, 10 to 12 inches, 10s. per 100. *Retinospora aquarrosa*, 6 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. *Thuia Lobbi*, 10 to 15 inches, 40s. per 1000. *Thuiopsis dolabrata*, 6 to 8 inches, 4s. per 100; ditto, 12 inches, fine, 12s. per 100. *Yew*, English, 8 to 9 inches, 6s. per 100. *Laurel*, Portugal, 8 to 9 inches, 6s. per 100. *Common Laurel*, 12 to 14 inches, 35s. per 1000. *Rhododendron ponticum*, 4 to 6 inches, 60s. per 1000; ditto, 2 to 3 inches, 30s. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer.

ROSES!! ROSES!! ROSES!!!—The best and cheapest in the world; 40 choice Perpetuals for 21s., purchaser's selection from 400 best varieties. Catalogues free on application. Ten acres of Roses, 100,000 grand plants to select from. Plant now.—J. WALTERS, Rose Grower, Exeter.

Immense Stock of Palms of all Sizes—60,000.

W. ICETON has still the most extensive stock of all the leading kinds of PALMS for Decoration, which he offers very reasonably. An inspection invited. Putney Park Lane, Putney; and 129 and 130, Stands, Covent Garden Market, W.C.

A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate disposal—*Latania borbonica*, *Scaevola elegans*, *Chamaerops excelsa*, and *Phoenix reclinata*—from 10s. per pair. GARDENER, Holly Lodge, Stamford Hill, London, N.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE will be pleased to make SPECIAL OFFERS of their fine selected stocks of Home-grown MANGEL WURZEL and TURNIP SEEDS, raised from picked transplanted bulbs, and harvested in splendid condition. Prices and Samples may be had on application. Seed Growing Establishment, Wisbech.

FOR SALE, A SPECIMEN ORCHID, "LYCASTE MAXILLARIA HARRISONÆ." Has over 100 peduncle-bulbs. Is a tub. What offer.—AMOS GROOM-BRIDGE, Nurseryman and Florist, Tophill Nursery, Plymouth.

DAHLIAS A SPECIALTY.—One of the choicest collections in England. Pot roots for propagating in Show, Fancy, Pompon, and Cactus. Price on application. Trade supplied.—E. HUMPHRIES, Nurseryman, Chippenham.

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LORD BEACONSFIELD. (A Seedling.)

The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883. Strong Canes, £3 per 100; 9s. per dozen. Smaller Canes, 6s. per dozen.

Trade supplied. Cash with order.

A. FAULKNER, Inkpen, Hungerford.

SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the best possible quality.

BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

JOHN LAING AND SONS, The Nurseries, Forest Hill, S.E.

PRIMROSES.—Twelve distinct varieties of Double Primroses, one flowering plant of each, Carriage free for 8s.

The common varieties of Double Lilac, Double White, and Double Yellow, 2s. per dozen.

PRIMULAS.—Fifty distinct varieties of Primula, one flowering plant of each, for 25s. Catalogues of names free on application. MORRISON BROTHERS, Nurseries, Aberdeen.

TREES and SHRUBS for the SEA COAST. CATALOGUE Free on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To Gentlemen, Nurserymen, Builders and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMS, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to 45 and upwards. An inspection solicited. CATALOGUES free on application.

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FINEST LILY OF THE VALLEY CROWNS for Early Forcing, by Oustav A. Schultz, Berlin. For price write to JACOB AND VALENTIN, 56, Cheapside, London, E.C.

THE FINEST MAIN CROP POTATO.

SHARPE'S DUKE OF ALBANY.

A WHITE BEAUTY OF HEBRON.

2s. 6d. per Stone.

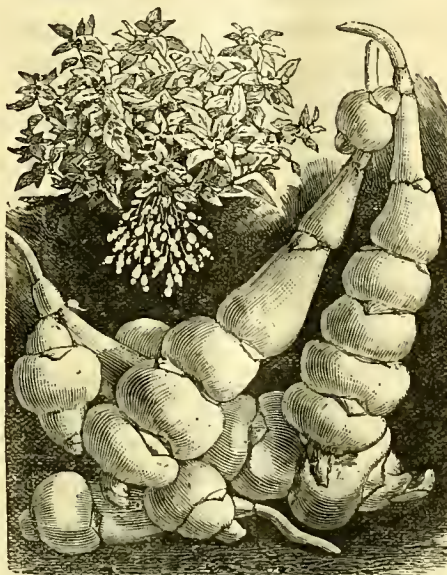
A REMARKABLY HEAVY CROPPER. HANDSOME, ROUNDISH, ROUGH-SKINNED TUBER. COOKS DRY AND FLOURY. FLESH, WHITE; SHAPE, PERFECT; EYES, FLAT. SEASON FROM JULY TO MARCH.

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A NEW VEGETABLE.

STACHYS TUBERIFERA.



Price, per Fifty Tubers, 2s. 6d., free, with Cultural Instructions.

For full Descriptions see *Gardeners' Chronicle* of January 7, or our Illustrated CATALOGUE, which contains over One Hundred other New and Interesting Novelties, both Vegetable and Floral. Post-free on application.

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CARTERS' BLENHEIM ORANGE. A beautiful Apricot colour. PRICE, in SEALED PACKETS, 2s. 6d., and 5s. per pkt., post-free.



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Royal Seedsmen by Sealed Warrants.

237 & 238, HIGH HOLBORN, W.C.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 13 next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next. A. F. BARRON, Hon. Sec., Royal Horticultural Society's Gardens, Chiswick.

LARGE SHRUBS AND CONIFERÆ.

American Arbor-vitæ, 2 to 2½ feet, 16s. per 100; ditto, 3 to 3½ feet, 20s. per 100. *Aucuba japonica*, 1½ to 2 feet, 30s. per 100. *Berberis aquifolia*, 1 to 1½ foot, 50s. per 1000. *Box Trees*, 2 feet, 20s. per 100. *Griselinia littoralis*, 1½ foot, 30s. per 100. *Laurel*, Common, 2 to 2½ feet, 10s. per 100. *Laurel*, Portugal, 1½ to 2 feet, 20s. per 100. *Laurel*, Colchic, 2 to 3 feet, 16s. per 100; ditto, 3 to 4 feet, 20s. per 100. *Laurel*, caucasicum, 2 to 2½ feet, extra, 20s. per 100. *Rhododendron ponticum*, 1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100; ditto 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per 100. *White* and other colours, strong and bushy, 70s. per 100. *English Yews*, 2 feet, 26s. per 100. *Abies Douglasii*, 3 to 4 feet, 35s. per 100; ditto, 4 to 5 feet, 45s. per 100. *Arcaucaria imbricata*, 1½ to 2 feet, 24s. per dozen; ditto, 2 to 2½ feet, 36s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen. *Cupressus macrocarpa*, 2 to 3 feet, 50s. per 100. *Cupressus Lawsoni*, 2 to 3 feet, 20s. per 100. *Cupressus erecta viridis*, 2 feet, 30s. per 100. *Pinus Nordmanni*, 2 feet, 35s. per 100; ditto, 3 to 3½ feet, 18s. per dozen. *Retinospora plumosa*, 1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. *Retinospora aquarrosa*, 12 to 18 inches, 20s. per 100; ditto, 2 to 2½ feet, 50s. per 100. *Thuia Lobbi*, 2 to 2½ feet, 20s. per 100; ditto, 4 to 5 feet, 12s. per dozen. *Thuiopsis borealis*, 2 to 2½ feet, 50s. per 100. *Thuia dolabrata*, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3 feet, 30s. per dozen.

GARLIES MITCHELL, Nurseryman, Stranraer.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rock-work, which produce flowers and render the garden attractive all through the year. New LIST of sixty-four pages Free. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

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STRAWBERRY PLANTS, Sir Joseph Paxton, 12s. per 1000.

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HEPATICAS, *angulosa*, 3s. per dozen; Single Blue, 2s.; Double Blue, 18s.; Single Red, 3s.; Double Red, 2s.; Single White, 3s. One flowering plant of each, free by post, for 2s. 9d. MORRISON BROTHERS, Nurseries, Aberdeen.

BEGONIA SEED.—Sixpenny Packets, post-free 7d.; all colours, mixed or separate. Finest giant single varieties. Crimson, scarlet, pink, rose, white, yellow, orange, salmon. Larger packets, 1s. The best and cheapest procurable. Sow now.—JOHN R. BOX (for 10 years sole partner with J. LAING), Seedsman and Begonia Grower, Croydon.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition of Paris 1878.

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CREEPERS for WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Descriptive LIST and advice Free.

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EWING'S CATALOGUE contains short and plain Cultural Notes, besides Descriptions and Prices of the best Roses; and in addition 28 pages are devoted to Ornamental Trees, Shrubs, Fruit Trees, Climbing Plants, Horticultural Requisites, &c. It is forwarded post-free to applicants on receipt of three penny stamps, or Gratis to Customers. Abridged LIST of low priced carriage and package free collections of high-class Roses, gratis and post-free. EWING AND CO., Sea View Nurseries, Havant, Hampshire.

SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious MUSHROOMS. See Seed LIST, Free.

RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

CHRYSANTEMUMS, 600 varieties, best and newest, strong Cuttings from general collection, now ready, 1s. 6d. per dozen, 10s. per 100; plants in January, 2s. 6d. per dozen, 18s. per 100. W. E.'s selection cheaper. Many of the best prizes in the country have been taken from plants and cuttings supplied by me. Mons. Delaux's grand set of 100 sorts, and other new varieties, at reasonable prices. See CATALOGUE, with Essay on Cultivation, 2 stamps. WM. ETHERINGTON, Chrysanthemum Grower, Swancombe, Kent.

CLEMATIS—CLEMATIS—CLEMATIS.

As now is the very best time for planting the above most useful, showy, and HARDY Climbers, to insure a grand display of bloom this season, **WOOD & INGRAM** have much pleasure in placing before the public the following advantageous offers. Their extensive Collection contains all the best and leading Single and Double varieties, including the old favourite "JACK-MANNI," "Alba magna," "JACKMANNI ALBA," "Countess of Lovelace," "Duchess of Edinburgh," "Gipsy Queen," "HENRI," "Miss Bateman," "Imperatrice Eugénie," "Sir Garnet Wolseley," and "EARL OF BEACONSFIELD."

PRICES:—

Twelve plants (in 5-inch pots), in twelve varieties, including box and package, 12s. nett.

Also, in great variety, from 1s. 6d. to 2s. each, 12s. to 18s. per dozen.

For sorts see Descriptive CATALOGUE, a copy of which will be sent, Free by post, on application.

Special Quotations for Fifty and Larger Quantities.

N.B.—These plants are strong, and are perfectly safe to buy now, having been exposed to the weather all the winter, and are now breaking into growth.

CLEMATIS "INDIVISA LOBATA," a splendid Green-house variety, now in bloom, price 2s. each.

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Terms—Nett Cash with Order from Correspondents unknown to W. & I.—February 13, 1888.

**FRUIT TREES,
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APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarfs, Pyramids, Bushes, Cordons, and Trained Trees, in great variety.

VINES, excellent Canes, 3s. 6d. to 7s. 6d. Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c., from 5s. FIGS from 3s. 6d.

DESCRIPTIVE LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

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LILIUM AURATUM, splendid bulbs, 6s. and 9s. per dozen.

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The following Hardy Herbaceous Plants at 4s. doz.

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A mixed variety of colour will be sent of each class. For Named Varieties see Catalogue, forwarded on application.

12 **DRACÆNAS**, in choice named varieties, for growing on, 6s. and 12s.

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Finest collections of Named Varieties in Cultivation, see CATALOGUE, just published, and may be had on application.

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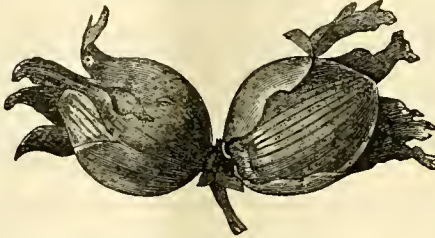
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W. ATLEE BURPEE & CO.,
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SPECIAL LIST OF AMERICAN SEEDS
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Is Now Ready, and will be forwarded FREE TO ALL on application. It describes RARE NOVELTIES in Vegetables and Flowers of real value, which cannot be obtained elsewhere. All Seeds kept in stock at their LONDON Warehouse, 133, CANNON STREET, and forwarded Free per Parcels Post.

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A Large and Select Stock is now offered for Sale.

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FREESIA REFRACTA ALBA.

An importation of this beautiful pure white sweet-scented bulb has just come to hand. We are prepared to quote them at extremely low prices on application.

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SEEDS,

Vegetable, Flower, and Farm,

Carefully Selected,

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Reduced Prices to meet Depression.
DESCRIPTIVE CATALOGUE,
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WHOLESALE CATALOGUE

OF VEGETABLE AND FLOWER SEEDS,

Containing also all the best Novelties of the Season. May be had on application. Any of our Customers not having received one by post will oblige by letting us know, when another shall at once be posted.

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HENDER'S PETUNIAS AND BALSAMS

ARE THE BEST.

Single PETUNIAS, 1s. and 2s. per packet; Fringed, 2s.; Double Fringed, 2s. and 3s. 6d. Double BALSAMS, 1s. and 2s. 6d. Descriptive CATALOGUE of Choice Vegetable and Flower Seeds Post-free. Prices moderate.

HENDER AND SONS, Seedsmen, Plymouth.

COVENT GARDEN CLUB.

AN INAUGURAL MEETING of the above Club was held at the "Covent Garden Hotel," Southampton Street, on Monday, the 13th instant, having been convened by Mr. W. ARTHUR BOARD, at the instance of several of the principal Salesmen in Covent Garden Market, for the purpose of Forming a Club for the promotion of unity and goodfellowship amongst the Salesmen and Residents in the neighbourhood.

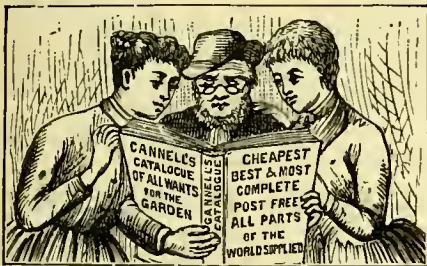
A Committee was formed for carrying out the necessary arrangements, and the Meeting adjourned until 8 P.M. on MONDAY NEXT, the 20th inst., when the Secretary will announce what arrangements have been made.

Salesmen and others are cordially invited to Attend the Adjourned Meeting.

W. ARTHUR BOARD, Hon. Secretary.

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STOCK UNIQUE
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NURSERIES over 200 ACRES
MOST MODERATE PRICES.
TRUCK LOADS Carriage Free.
CATALOGUES GRATIS.
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CHESTER.

CANNELL & SONS, SWANLEY, KENT.



[W. H. CULLINGFORD, Esq., 193, Cromwell Road, South Kensington, S.W., February 13, 1888.

"I am greatly obliged for your Catalogue, which is not only a very interesting volume, but is a masterpiece of skill, industry, and knowledge."

J. BIDENCOPE, Esq., Hobart, Tasmania, December 23, 1887.

"The Roses reached me in magnificent order, and everything to be desired. They are of splendid growth, and arrived in the middle of summer."

"Melbourne Leader," September 3, 1887.

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As a Supplement

TO THE

GARDENERS' CHRONICLE

FOR

Next Week, Feb. 25,

WILL BE

Published an Ink-Photograph,

REPRESENTING THE

LAPAGERIA HOUSE, Worksop Manor,

AND A SPECIMEN PLANT OF

VALLOTA PURPUREA, at Nash Court.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 18, 1888.

CHRISTMAS ROSE CULTURE.

INTENDING growers of Christmas Roses must be a good deal puzzled by the advice given them in the gardening papers just now. Some say, "Get your clumps with a good ball of earth about them—they will transplant easily in this way;" others say, "No; the proper way is to wash out all the soil, and divide the large plants into smaller ones, and plant them out so." One amateur states that Hellebores are indifferent to the kind of soil, and will flourish anywhere, either in sandy soil or clay; whilst another carefully prepares a border 3 feet deep with selected composts, and there plants the Hellebores, so that they can root deeply and remain undisturbed for a long time. A well-known florist gets huge plants—fifteen years old clumps—which he puts in paraffin tubs, feeds them up with manure, and thus gets masses of bloom, quite putting Orchids into the shade. Another has a stock of plants which he forces in pots one year, and then plants them out for a year, after which they are again ready, he says, for forcing. Now, which of all these is the bewildered amateur to follow? Where are the huge clumps to come from, to grow thus in tubs: and what would they cost? I well remember seeing some huge plants of Helleborus niger major in Devonshire three years ago, which I described in the Garden. The week after my communication appeared, a lady called upon the florist, and bought half-a-dozen of the largest plants: paying from 3 to 5 guineas each for them. They were taken up with huge clumps of soil, and forwarded to her ladyship's castle in Scotland, and I have often wondered since what would be the ultimate result. The same nurseryman sent me a clump, in exchange for my own variety. It weighed just a hundredweight and cost as much in carriage as it was worth; we planted it carefully, and at the end of three years it was no bigger. At the same time we took off a dozen or so of outside crowns from the large plant, and put these separately in a properly prepared border, and these bits have now grown into fine large plants. If the

whole plant had been broken up and then planted out we should now have had thirty or forty good useful plants. I should, therefore, say to the beginner—try young plants first, and when you have large ones in abundance you can force them; but do not commence with expensive large plants. Then as to soil. It is my experience that no plant requires a carefully prepared resting-place more than the Hellebore. I believe it will be found that not one-fourth of the plants sent out by the nurserymen survive the transplanting, and I think this arises mainly from unsuitable soil and environments. The green-stalked varieties (*angustifolius*) are the most difficult to grow; at the same time they are by far the best, and, therefore, most desirable. In some parts of Sale and Baguley the nurserymen succeed with them as easily as they do with Cabbages, whilst others, a mile distant, make no progress whatever. It has been just the same with hundreds of plants sent to London nurserymen, and the cause is evidently connected with the soil. This variety seems to like a light black soil, almost peat, and to dislike clay and marl. It can, however, be suited even on such soils by a plentiful admixture of leaf-mould where peat is not available. It also is a gross feeder, and must be well mulched with manure in February and in October, when it is pushing out its new roots, and when it is forming its flower-buds. A plant that is expected to bear a hundred large flowers requires suitable food, in large measure. Depth of soil is also an essential, because the plant must never be allowed to get dry at the roots, therefore surface rooting is to be avoided, and deep rooting ensures moisture. We keep the surface of the soil deeply mulched all through the hot summer for the same reason, and thus retain as much moisture in the soil as possible. If this be well provided for, the situation is immaterial, either in sunshine or shade. For choice, I should take two-year-old plants, and transplant in February, just after the flowering and before the new rootlets begin to push forward. These, in two years, will make large plants, producing fifty or sixty blooms each. If large plants are bought in the autumn for forcing they should be got in October, and after blooming, the plants should be broken up into small plants and planted out as above. A large plant will soon dwindle away if fed up with manure and continuously forced. The largest plant I ever saw in this neighbourhood was lost the second year by over-manuring, as is almost certain to be the case.

I have a large rockery here, specially constructed for Hellebores, and nowhere do they look more beautiful, with their snowy masses of flowers, than clustered above the red sandstone. The blocks of stone are placed edgewise, so as to give about 3 feet in depth for the prepared soil, and the spaces between them are about 2 feet wide; the roots thus go straight down, and are always kept moist by the sandstone. They are overhung by evergreen foliage. In these situations they do amazingly well—better, I think, than in any other situation. *H. n. altifolius* seems also to like its roots amongst rockwork, and it is the same with the coloured Hellebores—the Lenten Roses.

I have not had a large experience of the *H. niger* major varieties, but they seem better suited to a marly soil. They are succeeding admirably with us on the Hellebore rockery, but we added a large proportion of marl to the compost in planting them. In fact we use marl largely with every Hellebore but our own, and successfully. *H. n. major* is, I consider, the best variety for general culture. Its flowers are not so large, but

there are more of them, and the good varieties, such as are grown about Bath and Exeter, are excellent. The value of Christmas Roses for funeral wreaths cannot be overrated, as they keep fresh for a fortnight when placed in the graveyards, whilst the Eucharis and Camellias go brown in a couple of days. Wreaths made with Christmas Roses and Ivy are in great demand in this neighbourhood, and the cultivation by florists is increasing accordingly. Nurserymen who have stocks of Christmas Roses for sale will do well to advertise them now, stating that this is the best season for transplanting. I consider that a large proportion of the losses, as stated above, arise from transplanting just as winter is at hand. All the foreign importations are made in the autumn, and, as a rule, the beds in which they are re-planted make a very poor show the year following. Plants imported now would have a much better chance. *Wm. Brockbank, Brockhurst, Didsbury, February 10.*

NEW OR NOTEWORTHY PLANTS.

LEONTICE DARWASICA.

This is quite a new plant to cultivation, for which we are indebted to the untiring exertions of Herr Max Leichtlin, of Baden-Baden. It was discovered only recently by A. Regel in Bokhara, at an elevation of 5000—6000 feet above sea-level, and will no doubt prove as hardy as the other members of this genus grown at present in gardens. It is figured and described in the *Descriptio Plantarum Novarum et minus cognitarum*, fasc. ix., t. 14, fig. 4, where it is stated that the stalks elongate to 6 or 7 inches, terminating in a raceme of large golden-yellow flowers. In the plant in flower at Kew the tuber is about 2 inches in diameter, somewhat oval in outline, compressed, and covered with brownish scales. The stalks are congested, probably from its being grown under glass and flowering out of season; they are not more than 2 inches, bearing five to seven pretty yellow flowers, three-quarters to 1 inch in diameter. The floral leaves in two series, six in each, the outer three times larger than the inner. The bracts at the base of each flower are oval, and slightly coloured at the margins. The canline leaves, trifoliate, are superfoliate, with a winged or auricled base, radical leaves with roundish oval leaflets, glaucous and sometimes tinted red on the margins. *D.*

CORYDALIS LEDERBOURIANA.

This seems to be one of those plants that flower any time between the latter end of December and April, depending on the size, and strength of the tuber, and the mildness of the season. It is in full flower now, protected only by a square of glass, and last year, under the same conditions, it was a month later. It was found at Soongaria, North-east (Turkistan, by A. Regel, the plants in this country having been introduced through the St. Petersburg Botanic Garden. In many particulars it resembles *C. Sewerzowii*, the tuber, however, is smaller and rounder, and the flowers dark purple instead of yellow, as in that species. The radical leaves are ternately or biternately divided, ovate, and glaucous; those on the stem, are in a whorl of three each with 5—9 divisions, flowers about an inch long, spur straight or curved downwards, pale rose coloured, lobes of the corolla very striking dark purple; the raceme is from 4—6 inches long, lax flowered, with a large leafy bract at the base of each flower, glaucous-green with bright purple edges. It is a good plant for situations where it can be kept perfectly dry, underneath ledges, &c. *D.*

LÆLIA ANCEPS (Lindl.) RADIAN, n. var.

An exceedingly fine variety. It stands near to *Lælia anceps leucosticta*. The deep purple sepals and petals have a white space at the base. The lip

is very retuse, darkest purple on the mid-lacinia and anterior border of the side-lacinia; the disc of the side-lacinia is of the darkest orange. The line-like markings are very scarce; there are three longitudinal ones and three on each side, all dark purple. It was kindly sent me by Mr. W. Bull. *H. G. Rehb. f.*

LYCASTE MACROPOGON, n. sp.*

This is much in the way of *Lycaste macrobulbon*, but its flowers are larger, and the chin is quite distinct, inasmuch as its apex is not rounded, but quite retrorse. The oblong acute sepals and the smaller, and shorter petals are orange-coloured. The lip is trifid, mid-lacinia cuneate oblong acute, hairy; side-lacinia shorter than the mid-lacinia, half oblong. A broad rhomboid callus extends from the base of the mid-lacinia to the disc between the side-lacinia; colour orange also. Column trigonous, whitish. Rostellum markedly beaked in front, covered with stiff, rather long hairs under the fovea. There are always numerous hairs on the inner base of the sepals. The bulb is very strong, oblong, acipitous, 4 inches high, 2½ broad, marked on one side with two, on the other with three longitudinal strong wrinkled ribs. It was kindly sent me by Mr. F. Sander, having been collected in Costa Rica by Mr. Hubsch. *H. G. Rehb. f.*

PHALÉNOPSIS STUARTIANA BELLA, n. var.

Messrs. H. Low & Co. have sent me a new variety of this lovely plant, *P. Stuartiana*, that some have amused themselves by calling a variety of *Phalænopsis Schilleriana*. The new variety is distinct in its linear red marks on the side-lacinia; the lip very large, purple even on the outer parts of the lateral sepals, and with large purple-chocolate blotches on the mid-lacinia of the lip. It is lovely. I may state at once with many thanks, that Messrs. H. Low & Co. have also forwarded me several flowers of *Phalænopsis denticulata*, quite like those of the first plant, so that my conscience is satisfied as to this novelty. *H. G. Rehb. f.* [We are informed by Messrs. H. Low & Co. that the *Phalænopsis* above described bloomed in the fine collection of George Firth, Esq., of Bradford. *Ed.*]

LÆLIA SUPERBIENS (Lindl.) DECORATA, n. var.

This is quite distinct from the genuine *Lælia superbiens* in its very narrow antennate sepals and petals, the very dark purple tinge of the lip, the plaited anterior parts of the keels being dark purple and in the sharp part of the keels being purple to their origin. There is very little yellow to be seen over the whole lip, whose side-lacinia are nearly covered by a dark purple very close network of dark purple veins. If you compare Mr. Bateman's or Sir William Hooker's representations you will have a very good impression of the plant, and see that very same plant which Herr Oberhofgärtner Wendland has grown and flowered for more than twenty years wonderfully well, having himself brought it from Guatemala. The variety *decorata* is a great beauty. I had it lately from Mr. F. Sander, who informs me it came originally from the celebrated collection of Mr. Dorman, The Firs, Laurie Park, Sydenham. *H. G. Rehb. f.*

ODONTOGLOSSUM + ELEGANTISS, n. lus vel hybr. nat.

Mr. Hugh Low tells me this appears to be a hybrid between *Odontoglossum Pescatorei* and *O. Lindleyanum*. The plant very much resembles *Odontoglossum Pescatorei* in growth, and comes from Ocaña. It may rank near to *Odontoglossum Kalbreyeri* and *stauroides*. It is a pity it is none of those. Its lip is cut quite in a distinct manner, and therefore it has to have its own name with a + as it would be a mistake to assert positively what it is, as next year

* *Lycaste macropogon*, n. sp.—Aff. *L. macrobulbo*; pedunculo elongato; mento magno antrotrorsum angulato; sepalis oblongis acutis; tepalibus brevioribus; labelli lacinia lateralibus semi-oblongis, apice liberis anguste rotundatis; lacinia mediana cuneata oblonga acuta porrecta pilosula; callo depresso rhombico in basi, lacinia medianae; columna sub fovea valde ac rigida denesque pilosa. Ex Costa Rica imp. cl. Sander. *H. G. Rehb. f.*

it may adopt a fresh disguise, though I think this quite improbable. The sepals and petals are smaller than those of a strong *Odontoglossum Lindleyanum*, lanceolate acute, sulphur coloured with brown marks, a single one on the lateral sepals. Lip trifid, side-lacinia rectangular in the middle, central lacinia cuneate oblong apiculate, with a leag callus extending from the disc between the mid-lacinia and with two diverging retuse emarginate shanks at the base of the mid-lacinia. The colour is the same as the sepals, as also is that of the column. Column angled in the centre, with two small apicular acute wings. *H. G. Rehb. f.*

PHALENOPSIS F. L. AMES, n. hybr.

This, the latest of Mr. Seden's productions, is an exceedingly beautiful hybrid, in the ancestry of which three distinct species have been concerned. It was raised from the original *P. amabilis* of Blume, better known in gardens as *P. grandiflora*, the pollen having been supplied by *P. intermedia* ×; now proved to be a hybrid between *P. rosea* and *P. Aphrodite* (the *P. amabilis* of gardens). The result of this combi-

ment; the side lobes are spotted at the base, above which the colour is in lines along the veins, being nearly suffused on the front half of each lobe. The crest is yellow, spotted with purple. It is thus remarkably intermediate between its two parents, and makes a decided stride back to the tendrilled section of the genus. The influence of *P. rosea* blood, however, is very apparent in the colour of the lip. It is dedicated, at the request of the Messrs. Veitch, to the Hon. F. L. Ames, of North Easton, Massachusetts, U.S.A., a liberal patron of horticulture, and the possessor of one of the finest collections of Orchids in North America. For the illustration we (fig. 32) are indebted to Messrs. Veitch. *R. A. Rolfe.*

PLANT PORTRAITS.

AZALEA INDICA LEON PYNARET, *Revue de l'Horticulture Belge*, February.

CATTLEYA HARRISONÆ SPLENDENS, *Orchidophile*, January.

GENISTA HISPANICA, *Revue Horticole*, January 16.—

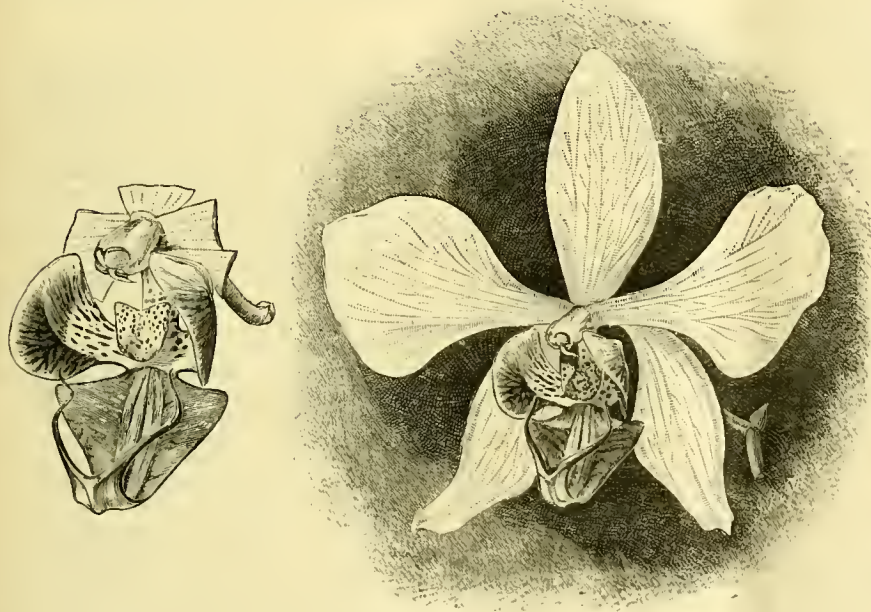


FIG. 32.—HYBRID *PHALENOPSIS* "F. L. AMES."

nation is the production of a decidedly striking novelty, of which Mr. Seden is justly proud. I have received a three-flowered peduncle from Messrs. Veitch, with the information that the seed was sown in September, 1882, and the plant has thus reached the flowering stage in a little over five years. The plant has now five leaves, of which the two oldest are strictly oval, and 3 inches long, the one last developed being oblong, and twice this length, while the remaining ones are intermediate in character. The flowers are $2\frac{3}{4}$ inches in diameter, and with the general shape of those of the mother plant, the petals being over an inch broad. Both sepals and petals are pure white, the whole of the lip being variously suffused, and marked with a peculiar reddish-purple, of a very pleasing shade. The shape of the lip is almost wholly that of the seed-parent, also the crest, while the reddish-purple tails are half an inch long; the ground colour is yellowish-white, inclining in places towards yellow—a colour also clearly derived from the mother-plant. The front lobe is striated with reddish-purple in front, and almost suffused with the same colour behind, the markings having a somewhat reticulated arrange-

ment; the side lobes are spotted at the base, above which the colour is in lines along the veins, being nearly suffused on the front half of each lobe. The crest is yellow, spotted with purple. It is thus remarkably intermediate between its two parents, and makes a decided stride back to the tendrilled section of the genus. The influence of *P. rosea* blood, however, is very apparent in the colour of the lip. It is dedicated, at the request of the Messrs. Veitch, to the Hon. F. L. Ames, of North Easton, Massachusetts, U.S.A., a liberal patron of horticulture, and the possessor of one of the finest collections of Orchids in North America. For the illustration we (fig. 32) are indebted to Messrs. Veitch. *R. A. Rolfe.*

ONCIDIUM FLEXUOSUM, *Orchidophile*, January.

OXYLEAPHUS CALIFORNICA, *Garten Flora*, t. 1266.

(?) *PIPER RUBRO-VENOSUM*, *Hort.*—A climber with stalked cordate ovate acute leaves, $2\frac{1}{2} \times 2\frac{1}{4}$ inches, green, with reddish-cream coloured venations. New Guinea. *Lindenia*, t. 33.

RANUNCULUS LYALLI, *Garden*, December 31, 1887, From the garden of C. A. Bartholomew, Esq., Reading, who contributes an interesting note on its cultivation.

ZEPHYRANTHES ATAMASCO, *Garden*, January 7.

HELIANTHUS MULTIFLORUS AND OTHER HYBRID SUNFLOWERS.

AMONGST the plants of which seeds are offered in exchange in the list sent from the Cambridge Botanic Garden I notice *Helianthus multiflorus*. This leads me to ask whether any one has ever raised *Helianthus multiflorus* from its own seed. I have often tried to do so, but though most of the genus ripen seeds

plentifully in England, and the seed germinates readily, I have always found the seed of *H. multiflorus* to be barren. Still, the variability of the plant would lead us to suppose, either that it has been reproduced from seed, or that the same hybrid (supposing it to be a hybrid, as I believe it to be) has been produced independently several times.

Without entering here into the vexed question of single-flowered plants passing into double-flowered without the intervention of seed, we have the curious fact, which many of your readers must have observed, that on the same clump of *H. multiflorus* we often see perfectly single and perfectly double flowers, though not on the same stem. In my garden this transition or reversion is from double to single, and the same reversion to single occurs in many plants of different genera; but it is generally gradual, the flower passing through intermediate stages of semi-doubleness. In the case of *H. multiflorus*, however, one stalk may produce quite single flowers, whilst the flowers on all the other stems continue double. Gardeners know that in *Helianthus* of this class each root-bud becomes a separate plant as soon as the shoot appears aboveground. It is, therefore, easy to understand that the reversion from double to single may be born in autumn with the bud. Such reversions are common, but a change from single to double is less common, though probable enough.

A Daffodil was sent me last spring, the divisions of the bulb, which bore a single and a double flower respectively, being enclosed in the same tunic, the double flower being a sport. Asa Gray was of opinion that *H. multiflorus* is a garden development of *H. decapetalus*. I have year after year compared all the parts of the two, and cannot be persuaded of their identity. No intermediate forms occur. But any one will find that on comparing the flowers and leaves of *H. multiflorus* with those of *H. annuus*, there are far more points of resemblance; and I have already expressed in these pages a belief that *H. multiflorus* is a hybrid of *H. annuus*, perhaps with *H. decapetalus*. Many of the perennial Sunflowers readily form hybrids, though amongst the thousands of seeds produced by them in gardens few are left to germinate spontaneously, as they are too much relished by birds of many kinds. The seed heads therefore require both artificial crossing and protecting in some way. I have found the annual species, *H. debilis*, readily produce hybrids with several of the perennial kinds, the crosses being partly annual and partly perennial. Hardly any, however, of the perennial forms I have yet raised have been worth perpetuating, and though some of the annual forms have been very fine, the seed of these has always proved barren. *C. Wolley Dod.*

ROSES.

STANDARD ROSES ON LAWNS.

HOWEVER unpopular the standard Rose may become among those cultivators of Roses who grow only to exhibit, it is quite certain that it is a style of growth well suited for small forecourt gardens. I was in a south-eastern suburb of London last summer, and walking along a road lined with good middle-class villa residences, I could not help being struck with the gay display made by standard Roses grown in a line on either side of the walk leading to the front door. It was just in the height of the Rose season, and the varieties, being generally vigorous growers (evidently they had been well selected for the purpose) there was set before the passer-by a feast of Roses for his eyes of no mean order. I have said there was every appearance the Roses had been well planted; but there is plenty of indifferent planting done, which means a short and unsatisfactory life for a standard Rose, and varieties are too often planted that are constitutionally unfit for the purpose. Then they are frequently planted in soils altogether too light, and, therefore, fatal to effectiveness and longevity. It should be remembered that forecourt gardens are generally in exposed positions, and except when they are wholly on a north aspect they are subject to

a great deal of hot sunshine. The artificial drainage required by a due observance of sanitary arrangements in a dwelling draws a great deal of moisture from the soil, and during summer, when the weather is hot and dry, frequent waterings are matters of urgent necessity. Standard Roses should therefore be planted in a rather stiff and good holding soil; if it is not there naturally, it should be placed there, and in the act of planting a wide hole should be made 18 inches deep, large enough to contain a good supply of turfy or clayey loam, mixed with manure; on this the fibry roots should be carefully spread out—some fine soil placed over them, filling up with the compost, and treading down firmly, and a stake placed against each stem. Not a few villa gardeners injure their Roses by piling up the soil about the stem in a little mound, much higher than is necessary, and at the same time good for the plants.

Some of the most satisfactory and enduring standard Roses I have seen had their roots pretty near the surface, the soil was nearly flat, sloping a little toward the stem, so that the roots could have the advantage of any rain that fell; and they were treated to a liberal mulching of manure every autumn. Standard Roses are sometimes injudiciously pruned by ignorant jobbing gardeners, who will remove the most vigorous wood and leave what is puny, instead of doing the reverse.

And now for a choice selection of red and crimson Roses. Take Charles Lefebvre, Abel Carrière, Madame Victor Verdier, Marie Rady, Jean Liabaud, and Ulrich Brunner. Shades of rose and pink contain some excellent varieties, such as Abel Grand, Edward Morren, John Hopper, La France, Madame Clemence Joigneaux, Magna Charta, and Paul Neron. Of blush and white Roses there are Captain Christy, Duchesse de Valombrosa, Boule de Neige, Madame Lacharme, and Princess Louise Victoria; Violette Bowyer might be added to the whites, though it is said to come small on a standard. And let water be freely administered in dry weather. What presents a more lamentable sight than thirsty standard Roses? *R. D.*

TEA-SCENTED ROSES IN PEACH-HOUSES.

Tea Roses do so well in unheated fruit-houses, whether the structure be devoted entirely to one kind of fruit or to more—and there are usually places not made use of where a Rose may be planted without interfering with the other occupants—that I think the most is not always made of the space in such houses. Having had the charge of a large unheated structure here for more than twenty years, I have had ample opportunities of proving that Vines, Peaches, and Roses do very well together; and if the matter be looked at from a commercial point of view, I have no hesitation in saying that the Roses which are grown upon pillars and up rafters and in odd corners have proved more profitable than the fruits.

When I first began to plant Roses in this house several friends warned me to be cautious about having too many Roses amongst the Peach trees, fearing that they might introduce greenfly and other insects, but I have not found any injurious effects from their presence. The Roses, it is true, have not been free from greenfly and mildew, but these have not extended to or been more troublesome on the Peach trees and the Vines than they have on other plants in houses in which no Roses are grown. As a proof of this I may mention that although the house is 70 feet long and 30 feet wide it has not cost a penny for fumigating materials for the past three years, the destruction of greenfly being effected with clear water vigorously applied by a garden engine.

I am aware that many houses devoted to Peach culture are not so large as mine; but one can grow Roses in small houses as well as in large ones, and I had evidence of this a year or two ago, when I called upon Mr. Vallance, the gardener at Redland Lodge, Bristol, where there is a long but narrow Peach-house, than which no better managed structure is to be found in the country. In this house

Mr. Vallance had planted Tea Roses at the front, and trained them up wire near the roof, the plants being sufficiently far apart to not seriously obstruct the light needed by the Peach trees beneath. This will show that it is possible for Peaches and Roses to be successfully grown in the same house.

When selecting varieties to plant, the positions they are to occupy should be considered, and it is not necessary to confine the selection to the Teas only, some of the Noisettes and hybrid Tea Roses being quite as suitable for adorning the pillars and rafters. The following varieties form my selection:—William Allan Richardson, Gloire de Dijon, Cheshunt Hybrid, Fortune's Yellow, Reine Marie Henriette, and Maréchal Niel; all these produce abundance of beautiful flowers every year six weeks before there are any Roses to be gathered in the open air, and this without artificial heat. Such of the Tea-scented varieties as Niphetos, Madame Falcot, Sanset, Marie van Houtte, President, Catherine Mermet, Etoile de Lyon, and Perle des Jardins will grow in any position if they get plenty of light and air, and the roots are planted in a fairly good soil.

Where there are dead walls and dark corners standards may be planted instead of dwarf plants, so as to bring the branches up to the light. In this house I find the Tea Roses of great value in the autumn when the cold weather brings scarcity in the open air, and often as late as the middle of November we are able to pick basketfuls of fine flowers. It is at such times that the pearly whiteness of Niphetos, and the delicate colouring of Catherine Mermet come out at their best; and yet beyond giving the roots a sufficiency of water, and the branches a yearly pruning, they receive but little other attention. *J. C. Clarke.*

THE USE OF STABLE MANURE IN MARKET GARDENING.

THE system of market gardening pursued in the environs of Paris is, we believe, absolutely unique, and leaves far behind all the ordinary cultivators of vegetables. The subject has been most extensively treated by Professor I. Dybowski* both from a scientific and practical point of view, the following being a short abstract of the more practical part of his paper.

In consequence of the great quantity of manure produced in the stables of the omnibus companies of Paris and the chief towns of France, market gardens have been established near the capital, for which it is found profitable to pay enormous rents, for the sake of securing easy transit both for the manure and for the vegetable products when grown, but more particularly for the former.

A considerable proportion of the vegetables grown are sent off to the continental towns of the North of Europe—for instance, Berlin, Moscow, and St. Petersburg, and also to England.

Many of these gardens are worked almost wholly for exportation, some cultivators confining their attention to the growth of Melons, Cucumbers, and the like, while others devote themselves specially to Asparagus, Cauliflowers, Carrots, Lettuce, salad plants, Mushrooms, and even Radishes. These products are bought up by agents, who go to the gardens, choose the vegetables they require, cut and pack them on the spot, and send off as previously arranged to the different countries for sale and consumption.

High prices are paid, but only the choicest products are taken, that they may arrive at their destination in perfect preservation after their long journey.

THE DUNG.

The stable-dung when purchased is used, not as a manure, but as a source of heat, the object being to secure vegetables and salads, &c., "out of season," for which extra prices can be readily obtained. Summer is counted the dull season, but in winter all is bustle and activity.

* "La Culture Maraîchère," *Annales Agronomiques*, June, 1887.

The products raised being "out of season," they consequently demand special conditions, it is therefore requisite to provide artificial heat by means of hotbeds, in order to mature the plants grown and bring them to quick perfection. The use of hotbeds is based on the fact that dung in heaps suitably constructed, and duly watered, will ferment; and this fermentation is accompanied by heat, whose intensity varies according to the means adopted.

The market gardeners, therefore, in their practice place the manure precisely under such conditions as enables it to ferment and act energetically. To act well the mass must be in contact with air for a certain time, accordingly in every case they let the dung get aerated by spreading it thinly on the ground; thus temporarily cooled it is collected, and stacked, when the heating again commences and with the greater intensity in proportion as the aëration has been more complete, and the dung exposed to the direct action of the air. If a bed is constructed without sufficient care having been taken to aerate the dung, it is found that second development of heat takes place but imperfectly. In order to secure the quantity of dung necessary for their work, the gardeners collect from the omnibus companies the horse-manure during the whole summer and stack it until required, when it is spread out and aerated as previously mentioned.

THE HOTBEDS.

Active work in the gardens commences about the middle of October. The operators raise the ground in the form of a shelving bed, then spread on the ground a continuous layer of the dung to be used in the construction of the hotbed. These beds are made by using in equal proportions stacked and fermented dung, with manure obtained fresh from the stables. The beds will be the hotter the more dung is used. After allowing all the mass to get suitably aerated, the cultivator mixes together, with a fork, and constructs the hotbeds of suitable size, to which they give a height of about 16 inches, covering the whole with a frame.

These hotbeds, after being covered with 6 inches of light rich earth, serve at first for planting the various vegetables which are only to occupy the soil for a short time. They comprise mostly Lettuce of a very rapid growing kind, which will be gathered about the end of December. Or they may be Radishes, sown alone or associated with other salad plants.

After the first crop is removed the frames are taken off and the hotbed demolished, as it would not give sufficient heat for a second growth. The mass is then stirred, a quantity of fresh dung is again added, and a new hotbed constructed. These are utilised by sowing alternately rows of Lettuce and Carrots. When, about February, the Lettuces are gathered for market, Cauliflower plants are set between the rows of Carrots and which remain until fit for table. The Cauliflowers are ready for market in May, and during the latter part of their growth they stand exposed, as the frames are removed in the month of April.

After the Cauliflowers and Carrots are matured and sold off, all kinds of vegetable products are grown in rapid succession without the aid of the frames. The beds are not finally demolished until the time arrives for the construction of new ones in the following October.

When the forcing operations on the beds are finally completed for the season, the dung, which is but little worse in a manurial sense—having lost scarcely anything save its heat, and about two-thirds of its bulk—is sold to the farmers to enrich their arable lands.

CONCLUSIONS.

As the various processes practised by the French market gardeners are of a high class, they certainly require a certain amount of technical skill in order to conduct them satisfactorily; in fact, the operators must be experts in the work. It is, however, somewhat remarkable that the importance of the results achieved in the production of ordinary kitchen vegetables by the market gardeners of Paris has not

induced more English growers to follow their praiseworthy example.

Further, it appears to us that, as it is the cost of the hire for the transport of the dung which represents a considerable outlay pressing most heavily on the cultivator under glass, the practice here brought under notice might be very profitably followed by our English farmers, who would have but to pass the manure from their stables and feeding-sheds to the kitchen garden, and then, when utilised and exhausted of its heat, send it back in bulk to fertilise the fields.

By this means the ordinary farmer would get, with but little expense, all the heat from the dung for forcing purposes, for which the market gardeners of Paris pay so dearly, and the manure for future use afterwards. Besides which, with the aid of an expert to control the business, abundant work would by this means be found for many of the farm labourers during what is generally the slackest period of the year.

Little fear need be entertained of a lowering of prices by an over-stocked market, provided always that really superior vegetables are raised, for everyone knows how incomplete is the supply of good vegetables, and more especially of those of the earliest productions, in almost every provincial town of Great Britain. *John J. Willis, Harpenden.*

VARIATION IN ORCHIDS.

AN interesting subject for consideration is the extraordinary difference in the various varieties of Orchids of the same species, as to form, colour of flowers, and habit, brought about by locality, or by the long distances separating varieties of the same species for many centuries. *Dendrobium Brymerianum* histrionicum is a singular illustration of this peculiarity. This Orchid, recently noticed by Professor Reichenbach (p. 104, vol. iii.), comes from a district about 600 miles south of the habitat of the original variety. It seldom develops the bearded lip which is the great beauty of the original form, and as it frequently undergoes a process of self-fertilisation before the flower opens, the flowers do not develop properly, and the whole strength of the plant is devoted to making seed-pods. It is true that some of the growths of this variety are exceedingly like those of the *Bhomo* form, but an experienced eye will detect a slight difference, the stem of the inferior variety being more stunted and bottle-shaped. It may be a useful hint to collectors to avoid all inferior varieties, by collecting to the north of Bhomo only.

Dendrobium ciliatum and *D. c. breve* afford still more remarkable illustration of the influence of locality; no more extraordinary differences between two plants bearing the same flowers could be cited than exist in the case of these two plants. The former comes from Moulmein, the latter from the neighbourhood of Thayetmyo—about 400 miles apart. *D. ciliatum* has long stems, *D. c. breve* extremely short ones; not only is this the case, but the stems (or growths) of the two plants are totally distinct in form, although the flowers are apparently identical. The mode of flowering is quite different; the long-stemmed Moulmein plant flowers from the end of the completed growth, the Thayetmyo plant flowers from the new growth before completion. Not only are there these differences, but the foliage of the two plants is entirely dissimilar. It is true that the conditions under which the plants grow are quite different, the larger plant growing in a district which has threefold the rainfall which the habitat of the smaller plant enjoys; but this scarcely accounts for such extreme differences between the two plants as those noted.

Differences in the stem of *Dendrobiums* of the same species widely separated are well known. In *D. heterocarpum* we have the Indian erect short-stemmed, the Ceylon long, and the Philippine variety drooping—all very distinct, but still with a family likeness. In *D. Bensoniae* we have the small variety from the Arracan Hills, and the robust variety

major, from the Kareen Hills, both very distinct. As regards colour, the most remarkable difference is in *Vanda Parishii*, from the Yenkontouy Hills, and the rosy-purple variety *Marriottiana*, from the Siam frontier; but none of these plants show such differences in the form of flowers as are observed in the two varieties of *D. Brymerianum*, or such an extraordinary difference in growth as noticed in the two varieties of *D. ciliatum*. *Emeric S. Berkeley.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM CENANTHUM SUPERBUM ×.

A hybrid between *C. Harrisianum* and *C. insigne* Maulei. The culture of this *Cypridium* is simple, for, like most of the hybrids, it possesses a strong constitution and is a free grower. It grows well in a temperature averaging about 60°. It likes a moist atmosphere and a rich soil, equal parts of good yellow loam and fibrous peat with sufficient sand to keep the whole porous. Like all *Cyprids* it requires an abundant supply of water at all seasons except in the depth of winter. *Reichenbachia*, t. 38.

DENDROBIUM SUPERBIENS.

A North Australian species, which requires to be grown in great heat in an unshaded house and in an atmosphere laden with moisture. After flowering a long rest is required in a temperature of 55°–60°. The flowers remain for a long time in perfection. *Reichenbachia*, t. 39.

LELIA HARPOPHYLLA.

A native of the higher mountains of Brazil, where it grows on trees, and flowers in December and January. It succeeds best in an intermediate temperature like that of a *Cattleya*-house, choosing the coolest and shadiest part. It may be grown in pots or pans in fibrous peat, sphagnum, and potsherds. During growth plenty of water should be afforded. When the flower-spikes appear the temperature should be slightly raised. The plants should be kept drier, but not absolutely dry in winter. *Reichenbachia*.

CATTELEYA LADIATA VAR. TRIANE, SUB-VAR. ERNESTI.

The apices of the petals of this variety are marked with dark purple spots. *Reichenbachia*, t. 43.

SORRALIA XANTHOLEUCA.

A yellow flowered Orchid, with flowers as large as those of a *Cattleya*, is a treasure no orchidist can afford to despise. The plant should be grown in the *Cattleya*-house, in a compost of fibry loam with broken charcoal and coarse sand. An ample supply of water should be given in the growing season. A light and airy position is requisite. The winter temperature need not exceed 55°–60°, while in summer the plants may be placed in the open air. *Reichenbachia*, t. 45.

LYCASTE SKINNERI.

Originally discovered by Mr. J. Linden, and introduced by Mr. Skinner, this plant is of simple culture. A winter temperature of 55°–60° is all that is needed, while in summer the plants may be placed in open-air frames having a northern exposure. Abundance of water should be given during the growing season till the flowers begin to show, when the quantity should be reduced. The plant should be well rested. The plants should be repotted in July, before commencing active growth. The best compost consists of rough thoroughly decayed leaf-mould mixed with about a third part of pulverised sheep or cow-manure. *Reichenbachia*, t. 41.

PHALENOPSIS STUARTIANA

succeeds best in a warm moist atmosphere of a temperature ranging from 65°–70° in winter, and from 75°–85° in summer. Basket culture is best for it; the basket should be suspended as near the roof as is convenient. Very little material is required in the basket—merely a small quantity of

broken potsherds and charcoal—but the roots should be surfaced with living sphagnum. After flowering (January) less water should be given, but during growth much should be given, and a maximum temperature of 85° be maintained. Free ventilation should be given, to avoid spot. *Reichenbachia*, t. 42.

ODONTOGLOSSUM + HEBRAICUM.

O. hebraicum is supposed to be a hybrid between *O. crispum* and *O. gloriosum*.

Professor Reichenbach considers *O. Andersonianum*, *Jenningsianum*, *baphicanthum*, *hebraicum*, *Brassia*, *deltoglossum*, *Leeanum*, *Ruckerianum*, as so many secondary formes of one primary type, *O. lanceans*, and attaches + to the name to indicate their doubtful character as possible varieties or subspecies. Readers must be careful not to confound this cross + with the sign of hybridity ×.

Professor Reichenbach, in the *Reichenbachia*, sub t. 37, gives the following arrangement of a series of forms distinguished one from the other with great difficulty:—

a Flowers typically white.

1. *O. + lanceans*, *Andersonianum*; flowers white, with fine dark maroon or purple-brown spots = *O. Andersonianum*, *Rchb. f.*

b lobatum; angles at the base of the lip well expanded = *O. Andersonianum lobatum*, *Rchb. f.*

2. *O. + lanceans Jenningsianum*; very near the preceding, with light yellow on the base of the lip and very long toothed angular wings to the column = *O. + Jenningsianum*.

b. limbosum, with yellow borders of sepals (from Mr. Charles Winn). *c. pauci-guttatum*, with very few scattered reddish spots (from Mr. Calvert).

β Flowers typically mauve and white.

3. *O. + lanceans Ruckerianum*; very fine, with numerous brown spots on mauve and white ground; it also occurs with a light ochre border = *O. + Ruckerianum*, *Rchb. f.*

c. Flowers typically yellow.

4. *O. + lanceans baphicanthum*; flowers sulphur-yellow, almost unspotted = *O. baphicanthum*, *Rchb. f.*

5. *O. + lanceans hebraicum*; flowers sulphur-coloured, or sulphur, with a white disc, with numerous polygonal or rounded dark brown spots, usually with one large spot on the lip and smaller ones. If the spots are linear it is *lineoligerum*. *b. aspersum* is tinged with light mauve = *O. hebraicum*, *Rchb. f.*; *b. lineoligerum*, *Rchb. f.*; and *c. aspersum*, *Rchb. f.*

6. *O. + lanceans Brassia*; nearly the same, with unusually long straight sepals and petals, and very few spots = *O. + Brassia*, *Rchb. f.*

7. *O. + lanceans deltoglossum*; lip very broad and toothletted; sepals and petals very narrow; sepals, petals, and lip light sulphur-coloured, with orange at base of the lip, with cinnamon spots and lines on the sepals and petals, and a spot on the disc of the lip = *O. deltoglossum*, *Rchb. f.*

8. *O. lanceans Leeanum*; near No. 7. Sepals and petals dark yellow, with numerous brown spots; lip spotted, narrower, far more acuminate; column very plump = *O. Leeanum*, *Rchb. f.*

AERIDES FIELDINGII.

This is a bold-growing evergreen species, with handsome foliage, from 10 inches to 1 foot long, about 2 inches across, and rich dark green in colour. The spikes are produced from the axils of the leaves, and vary from 1 to 3 feet in length, and the racemes are very dense. The flowers are large, white, beautifully mottled with clear, bright rose, the lips being wholly rich rose coloured. 1 blooms during May, June, and July, and continues in full beauty for three or four weeks. When in flower this plant should be placed upon a pedestal, or in some elevated position, in order to fully display the beauties of its long pendent racemes. We may, however, remark, *en passant*, that there are some varieties of this species which produce shorter racemes of bloom than the one we have here described.

This *Aërides* succeeds well with us when placed at the further end of the *Cattleya* (or intermediate) house, where it is grown upon the side tables, and experience proves to us that the majority of the species of *Aërides* do not require such a high temperature as is generally supposed necessary for their successful cultivation. We grow most of the different kinds of *Aërides* together in the same house, and they thrive admirably, forming robust growths, and flowering most profusely; they are treated to a fair amount of moisture during the summer, administered to them by syringing between their pots every day (on exceptionally hot days they will be benefited by slightly sprinkling their foliage with water from a fine-roset syringe); but their roots should always be kept moist during the summer or autumn months; in winter, however, much less is requisite, but the plants must not be allowed to suffer through lack of water, as at this time they are still growing slowly, and developing their flower-spikes. During the winter months the night temperature may range between 55° and 60°, and during the day it may be allowed to rise a few degrees higher especially with sun-heat. In summer they will be found to thrive well in the same temperature as that recommended for *Cattleyas*. The best material in which to grow *Aërides* is living sphagnum moss, but the drainage must be thorough, and always kept open and free. If pots are used in their cultivation, fill them three-parts full of broken potsherds, and upon this place the sphagnum; in this moss, with the addition of a few potsherds or nodules of charcoal intermixed, the roots should be placed; if grown in hanging baskets the system should be just the same, but for the sake of decreasing the weight, the drainage material may be nearly all charcoal. *Aërides* require to be exposed to the full light during winter; in summer, however, they must be shaded during the hottest part of the day, but when the sun is not shining no shade will be necessary. The blinds for shading purposes should be made of some thin material, as heavy shading is dangerous, and tends to produce weak foliage, whereas it should be strong and robust, for in this lies the whole secret of the good cultivation of these plants; and if our directions are followed they will make vigorous rich green leaves, and flower in perfection. Two most important items in the cultivation of *Aërides* are to keep everything surrounding their roots in a sweet and clean condition, and to see that their foliage is clean and free from insects. *B. S. Williams* in "*Orchid Album*," t. 309, December, 1887.

PHALÆNOPSIS STUARTIANA.

Although one of the most recently introduced of garden *Phalænopsis* this species has attained a popularity second to none. It is easily grown, retains its leaves well, and flowers freely every winter, the flowers lasting a long time both when left on the plant and when cut and placed in water. If one had to limit himself to three kinds of *Phalænopsis* *P. Stuartiana* should certainly be one of them. A plant of it at Kew has produced an exceptionally strong spike, bearing sixty-eight flowers, but, owing to the recent heavy fogs, almost half of the flowers fell off just before opening. This plant has five leaves, each about 10 inches long, and it is growing in a basket suspended near the roof-glass in a very moist house. The leaves and habit of this species are like those of *P. Schilleriana*, and the flowers are 2 inches across, white, tinged with yellow, and thickly spotted on the sepals with reddish-brown. *W.*

FOREIGN PRODUCTS.

OPIMUM AND TOBACCO IN TEHERAN.

In an official report on the trade of Teheran, Persia, it is stated that Opium occupies the chief place amongst articles of export. The yearly crop in and around Ispahan may be estimated now at about 40,000 shahmans, equal to about 232 tons, and the planting of Opium and its getting in gives

employment to a very great part of the population. The Poppies are not cut before the beginning of June, and the juice is then brought to the market in copper vessels. As a rule Opium changes hands twice, and even oftener before it comes into the hands of the exporter, and varies very much in quality, according to the soil in which it is grown, one of the most renowned districts being the village of Kupa, at a short distance east of Ispahan. London and Hong Kong are the chief customers, and the merchants prepare it according to the wants of those markets. Of late years the planting of Opium has more and more encroached on the grounds available for cultivation, owing to its yielding heavier profits to the cultivator than corn and other cereals. The quality of Ispahan Opium is now much appreciated in foreign markets, and more attention is being paid to its preparation than formerly. The annual exportation is now about 2500 cases of 10 to 11 shahmans each, which at an average price of 200 toman, gives the respectable total of 500,000 toman—about £170,000. Of course prices vary very much according to supply and demand.

The fluctuations in the prices are occasionally enormous. In one particular season (two or three years ago), prices rose from 17 to 25 toman for the prepared drug, which means about 9 to 13 toman in the raw or unprepared state. Persian Opium now competes successfully with other descriptions (Turkey, Asia Minor, &c.), in London and Hong Kong, and it is a source of great wealth to this part of Persia. From Ispahan Opium is also sent to Shiraz and Yezd, where it is mixed with the native drug grown in those parts and thence exported to India and China. About a quarter of the Ispahan Opium is exported by English firms.

Second in importance as an article of export is Tobacco. This article is grown extensively in and around Ispahan, and exported by English and Persian houses to Baghdad, Beyrouth, Aleppo, &c. It is reckoned that in an average year about 80,000 bales, of 7½ shahmans each bale, are grown in this district, of which about 60,000 bales are exported to the places above mentioned, and also about 20,000 bales to Tabreez. A certain quantity is also sent by way of Kermanshah to Baghdad. The quality of Ispahan Tobacco is inferior to that of Shiraz. Tobacco grows well in Guilan, but is not cultivated to a very large extent. It is used mostly for cigarette smoking, and not, like the Shiraz Tobacco, for the khalan or water-pipe. There is plenty of land well adapted for its cultivation were it carried out. The forests also might be a great source of wealth, as Walnut and Boxwood are the chief trees grown. Last year a Russian, representing a company, made a contract with the authorities for the monopoly of the cutting of the forests, paying for the privilege 25,000 toman, or £8000, for two years.

THE PRODUCTION OF SUMAC IN PALERMO.

Sumac, the powdered leaves and twigs of *Rhus coriaria*, is one of the chief commercial products of Sicily. Its growth and preparation are thus described in a recent report on the trade and commerce of Sicily. During 1886 the trade in this article showed a decided increase. It is known both in the English and American markets in the form of a more or less coarse powder packed in bags of from 50 to 60 kilos. It is prepared by grinding the dried twigs and leaves. For exportation to France, the leaves and twigs are simply dried and not ground. Sumac powder serves both as a dye and as a mordant to fix other dyes, and also for tanning leather. Good Sumac contains from 30 to 40 per cent. of the dyeing or tanning principle. The shrub flourishes best in high and dry soils, and requires but little attention after first planting. The plants, when once set out, will last for a century or two. For the first three years the plants have little value, but after that time they acquire their due proportion of their peculiar qualities. The plant is a low perennial shrub with long slender leaves. The harvest consists of cutting off the leaves annually, after which the plant throws out new shoots. Sicilian Sumac, especially that about Palermo, enjoys a high reputation, as does also the Sumac

of Spain and Portugal. The soil of Dalmatia is also peculiarly fitted for this plant and the cultivation of it is fostered by the Austrian Government. The largest and most luxuriant plants do not produce the greatest amount of tannin, and even in Sicily there is great difference in the quality of the powder. Two sorts are produced in Sicily, the best is of a rich green colour and carefully sifted, it is soft to the touch, of a rather pleasant smell and a strong astringent taste. The second has these qualities in an inferior degree while its colour degenerates and takes a reddish hue. The Sumac grown in continental Italy is much inferior to the Sicilian, and has a yellowish colour tending both to green and red. None of the inferior sorts are prepared with such care as the best Sicilian, and they are known by the prevalence of unground fibres and minute chips indicative of less pains being taken in the sifting. Various adulterations are practised in preparing Sumac for market, the most obvious, that of mixing with it mineral dust, can be discerned by steeping the suspected powder in water, when the mineral portions fall to the bottom.

CULTURAL MEMORANDA.

AMARANTHUS SALICIFOLIUS VAR.

This is a very effective plant of pyramidal habit, having narrow, brilliantly-marked leaves, from 7 to 15 inches long, which by their drooping habit give the plant a very graceful appearance. The varieties, *A. s. Henderi* and *A. s. tricolor magnificus*, are among the prettiest of furnishing plants. The seeds should be sown at once in pans or pots of sifted loam and leaf-mould in about equal parts, and a little silver-sand added. Cover the seeds slightly with the compost, place the pan in a hotbed or forcing-house, and after watering cover with a piece of glass. As soon as the seedling plants are large enough they should be pricked out in a box or pan at 2 inches apart, put back in heat near to the glass and watered, potting them singly into 3-inch pots before the plants get crowded or the roots matted, afterwards shifting them into 48 and 32-sized pots, growing them on near the glass in each case, and giving more air as the season advances, and the plants near the attainment of their proper dimensions, when a free circulation of fresh air should be admitted to the structure in which they are growing during favourable weather. Three parts of light fibry loam to one of leaf-soil and sand should be used in shifting the plants into the 4½-inch and 6-inch pots respectively; and if a small percentage of the plants are kept in the 3-inch and 4½-inch pots they will be found very serviceable for associating with other plants in rooms, &c. *H. W. W.* [In warm localities and in warm spots in almost any garden these varieties of *Amaranthus* can be made to form effective groups out-of-doors. *Ed.*]

THE ARALIAS.

As decorative foliage plants some species and varieties of *Aralia* have few equals, while they are of easy culture. They require a brisk moist heat and frequent syringing to keep down insect-pests, which they are very subject to, especially scale, which latter is best removed with a moderately stiff brush. The mixture I find them to succeed best in consists of two parts good fibrous loam and one part good brown peat, with sufficient coarse sand added to make it porous, a little old Mushroom-house manure may also be added; pot in clean well drained pots, pressing the soil moderately firm. The most useful varieties are *A. Veitchii*, *A. V. gracillima*, *A. elegantissima*, *A. gracillima monstrosa*, *A. Kerchoveana*, and *A. leptophylla*. The two first-named, to grow them successfully, require to be grafted on some stronger growing kind, as *A. reticulata* or *A. monstrosa*. When grafting the stock should be shaken out of its pot, and the scion placed as low down the stock as possible. This is important, and should not be omitted. After grafting repot in sphagnum, and

place in a propagating pit until the union has taken place, afterwards potting the plant in the compost above-mentioned, completely burying the stock at the operation. The other varieties will succeed on their own roots, and are easily propagated from cuttings and sometimes from seed. *Charles Ensoll.*

LEYSWOOD.

In our issue for September 3 last we inserted an account of the beautiful gardens of J. W. Temple, Esq.

As we have so recently described the gardens at Leyswood, we need only refer now to p. 272 of our last volume, and let our illustration tell its own tale. Among the numerous Conifers which thrive in that establishment must be mentioned the beautiful specimens of *Thuja* or *Biota Sieboldi*, of which an illustration is given at p. 213. This is a form of the common Eastern *Arbor-vitæ*, in which the young form of leaf is preserved to adult age, the ordinary form of leaf not being produced and the whole plant forming a compact barrel, or flame-shaped bush of great symmetry and beauty and rich green colour.

the foreman in charge of them, has earned the right to be regarded as the premier hybridiser and raiser of new varieties of Primulas in the Midlands, for he was foreman at the Sparkhill Nurseries, previously noticed in the *Gardeners' Chronicle*, when the late Mr. Tomkins was the proprietor, and it was he who carefully selected and crossed from the finest of the celebrated Hayes' strain of Primulas, ultimately succeeding in producing the varieties Princess Louise and Marquis of Lorne. These two varieties were a great advance at that time, as was evident to every one, and both

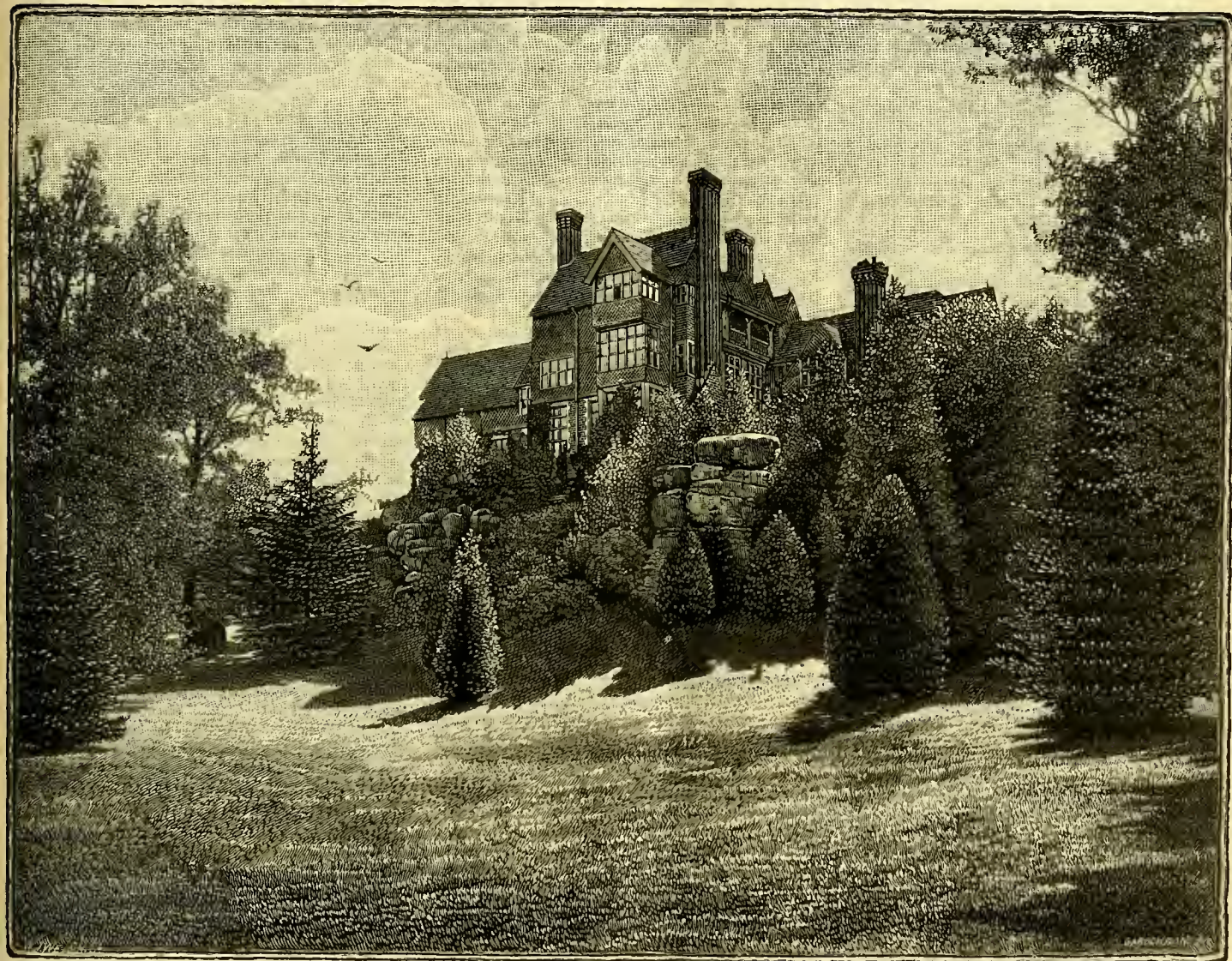


FIG. 33.—THE GARDENS AT LEYSWOOD, GROOMBRIDGE.

near Groombridge. Mr. Temple has the advantage of a soft sandstone rock, which adds great picturesqueness to the garden, and affords perennial moisture and shelter to tender subjects. In the same neighbourhood the late E. W. Cooke, R.A., had a garden, the beauty and resources of which he turned to excellent account. It was his practice to probe the surface soil so as to find the fissures between the rock masses, and then to scrape away the soil so as to expose bold bluffs of rock and secure niches and valleys for tender plants, with admirable results.

NURSERY NOTES.

THE KING'S NORTON PRIMULAS.

KING'S NORTON is a short distance from Birmingham on the Midland line to Worcester, and is a famous locality for rich loam good for potting purposes and Vine borders, and here are the nurseries of Messrs. Pope & Son, in which is to be found another home of the Chinese Primula. This plant is extensively cultivated in these nurseries, and Mr. Rose,

at Sparkhill and King's Norton, many of the new varieties show their parentage by their stout foot-stalks and thick fleshy leaves, sturdy habit and the great size and substance of the flowers. Careful hybridising is still continued by Mr. Rose and a goodly lot of strong plants, many of them with very handsome foliage of a new type, are set aside for blooming for the spring flower show, and have a most promising appearance. Crosses have been made between the varieties Princess Louise and Marquis of Lorne types, and The Queen

and the finest Fern-leaved varieties, and also the seedlings of a distinctly new type of foliage.

Several specimen plants were recently to be seen in flower with massive pyramidal heads of flower, all of the Princess Louise type, and seedlings from that variety crossed with The Queen, the last-named being in every respect a splendid variety, remarkable for the size and substance of its flowers; but in these seedlings the flowers are not only large and stout, but smooth (the flowers of the Queen are not), with large, bright yellow centres. The Queen is remarkable for the great size of its flowers, which are of great substance, but have always a curled appearance. Messrs. Pope & Son have a crimson variety of The Queen, possessing all the characteristics of that variety, only that the flower is of a deep rosy-red colour, and in reality is a dark Queen. This strain of Primulas stands out conspicuously amongst all other strains, but unfortunately it is difficult to obtain much seed from them, and the demand much exceeds the supply. D.

INDIA.

ROYAL BOTANIC GARDEN, CALCUTTA.

THE annual report of the Royal Botanic Garden, Calcutta, for the year 1886-87, reached us some time since. This being the report for the hundredth year of its existence, Dr. King has taken the opportunity of giving a sketch of the history of the institution. The following extract contains an interesting account of the garden since its formation:—

The suggestion to form a botanic garden here was first made to the Government in Calcutta in June, 1767, by Colonel Robert Kyd, then Superintendent of the Honourable Company's Dockyard at Kidderpore, practical effect being given to it during the following year by the selection, as a site, of a large piece of land immediately below Colonel Kyd's private garden at Shalimar. Colonel Kyd was himself an ardent horticulturist, and he had brought together in his private garden at Shalimar a large collection of exotic plants, chiefly from the Straits. He was therefore very appropriately appointed the first Superintendent of the Botanic Garden which had been founded at his suggestion. Colonel Kyd continued to perform the duties of Superintendent until his death in 1793. On Colonel Kyd's death Government decided to put the garden under the charge of a special officer, who should have no other duty. Dr. William Roxburgh, the Company's botanist in Madras, was therefore transferred from that Presidency, and was installed at Seepore in November, 1793. Dr. Roxburgh, for many years prior to his transfer, had been engaged in studying the then little known flora of the Northern Circars in the Madras Presidency. Dr. Roxburgh continued to be Superintendent until 1814, when he was obliged to proceed to the Cape on account of his health. From the Cape he went on to St. Helena, and from thence to England, where he died during the following year. Dr. Roxburgh was the first botanist who attempted to draw up a systematic account of the plants of India. Roxburgh's *Flora*, completed by his sons after the decease of the Doctor, is the basis of all subsequent Indian botanical works, and its authorship justly entitles Roxburgh to his title of the Father of Indian Botany. A second edition of this excellent manual was issued by Mr. C. B. Clarke in 1874, at a merely nominal price. Besides the *Flora Indica*, Roxburgh published, at the expense of the Honourable Company, in three large folio volumes, his *Plante Coromandelianae*, being descriptions with figures of 300 of the most striking plants of the Coromandel Coast. Dr. Roxburgh was immediately succeeded in the Superintendentship of the garden by Dr. Francis Buchanan (afterwards Hamilton), who at the time was on special duty in connection with an extended enquiry into the agriculture of India and in the collection of materials for a Gazetteer. Dr. Buchanan Hamilton held charge of the garden for only a short time, and he

was succeeded in 1817 by Dr. Nathaniel Wallich, lately surgeon to the Danish Settlement at Serampore. Dr. Wallich was an able and most energetic botanist, and during the earlier part of his term of office he organised collecting expeditions into the remote and then little known regions of Kumaon, Nepal, Silhet, Teasserim, Penang, and Singapore. The materials (in the shape of dried specimens of plants) thus accumulated were taken by Dr. Wallich to London, and, after being named there by himself and by other botanists, they were distributed in numbered collections to the leading botanical institutions in Europe. Besides distributing these enormous collections, Dr. Wallich was enabled, through the munificence of the Honourable Company, to publish, under the title of *Plante Asiaticae Rariores*, three superb volumes, illustrated by coloured figures of a high degree of excellence. Dr. Wallich retired in 1846, and died in 1854. During the lengthened absences of Dr. Wallich in Europe his place at the garden was filled by Dr. W. Griffith, whose premature death deprived botanical science of one of its ablest and most industrious votaries. Dr. Griffith's extensive notes and numerous drawings were, after his death, published by Government in nine volumes. Dr. Wallich was succeeded by Dr. Hugh Falconer. Dr. Falconer was a palaeontologist, well known by his researches on the Sivalik fossil mammalia. In 1855 he left the country on account of ill health, and was succeeded as Superintendent by Dr. Thomas Thomson, a traveller and botanist of much ability, the coadjutor of Sir Joseph Hooker in the collection and distribution of an extensive and well-known herbarium of East Indian plants, and the joint author of the first volume of a new *Flora Indica*. Dr. Thomson retired in 1861, and was succeeded by Dr. Thomas Anderson, whose untimely death in 1870 was caused by disease contracted during his efforts for the introduction of the quinine-yielding Cinchoonas into the Sikkim Himalaya. For the two years subsequent to Dr. Anderson's departure from India Mr. C. B. Clarke acted as Superintendent, and during his incumbency he began the series of botanical publications which has earned for him so high a scientific reputation.

It was intended that the garden should not only be a botanical but also a horticultural and agricultural garden. At first great hopes were entertained that the spices which rendered the trade of the Company with the Moluccas and other of the Malayan Islands so valuable, might be cultivated in Bengal. The earliest efforts of Colonel Kyd were therefore directed to the introduction of the trees which yield Nutmegs, Cloves, and Cinnamon, and of the Pepper vines. It was, however, speedily proved that the climate of Northern India is quite unsuited to these equatorial species. The equatorial fruits, such as Mangosteen, Langsat, Dukka, and Bread-fruit, were also tried with a similar result; and so were the temperate fruits of Europe. In fact, no small part of the benefits conferred on the country by the garden in its early days was the demonstration by practical experiment that certain natural products, many of them of a most desirable kind, cannot be grown in Bengal; much money and bootless effort being thus saved to the country. The introduction of exotic timber trees also received early attention; and in the garden there still remain a few of the original Mahogany trees introduced in these early years. The introduction of Tea was one of the items put down in Colonel Kyd's original programme; and in the final establishment of what has now become one of the most important industries in Northern India, the garden bore a most important part. Potato growing was introduced through its agency, and the cultivation of the quinine-yielding Cinchoonas of the Andes was initiated and carried to a successful issue under the direction of Superintendents of this garden. In the improvement of Indian Cotton, and in the introduction both of that and of Jute to the markets of Europe, the garden authorities worked cordially hand in hand with the Agri-Horticultural Society of India, with what success it is unnecessary to point out. By the introduction of some of the best kinds of Sugar-cane,

from the West Indies, and the dissemination of these to all parts of the country, a considerable improvement was effected both in the quality and quantity of the sugar crop of the country. Chief among the economic plants cultivated here are Flax, Hemp, Tobacco, Henbane, Vanilla, Coffee (Arabian and Liberian), Cocoa, Ipecacuanha, Aloes, Sarsaparilla, Jalap, Indiarubber, Cardamoms, Tapioca, and Coca. As regards horticulture, it may suffice to say that a large proportion of the kinds of exotic plants now found in private gardens in India has been introduced to the country through the agency of this garden, and that the improved methods of cultivation which now obtain were to a great extent initiated here.

In the year 1864 the garden was devastated by a cyclonic storm of extraordinary violence, which either uprooted or broke to pieces the majority of the trees in it, and, by blowing down all the plant-houses, hopelessly crushed their contents. The few trees which escaped on that occasion were sadly reduced in number by a second cyclone which passed over the garden in 1867; and, at the present time, almost the only trees dating from before 1867 are the great Banyan and a smaller tree of the same sort, some Peepuls, and country Almonds, about twenty Mahogany trees, and some Palms. It is almost a pity that the occasion of its destruction by these cyclones was not taken to remove the garden to a site on the Calcutta side of the Hooghly. For, although there are certain advantages in the garden being so remote from the town, there can be little doubt that the balance is in favour of a site more easily accessible to the residents of Calcutta. The destruction of all shade, which resulted from the removal of the trees, allowed the inveterate weed known popularly as Ooloo grass, and botanically as *Imperata cylindrica*, to take possession of the whole of the ground not occupied by roads or flower borders. The liberality of the local Government, under whose control it soon thereafter passed, has made it possible for Dr. King to lay out the garden entirely anew. The whole of its area has since that date been treated for landscape effects, sheets of ornamental water having been formed, and, with the earth so obtained, undulations have been thrown up. New roads and footpaths have been made; a building for the herbarium, and three handsome conservatories for the more delicate kinds of living plants have been erected; nursery buildings have been put up, and the garden staff have been furnished with comfortable houses.

The transformation which has taken place in the aspect of the garden has been the work of Dr. King himself, whose skill, taste, and assiduity were fully recognised by Sir Ashley Eden, and supported by him with liberal grants of money. The garden is now in its scientific capacity admittedly the first of all botanical institutions in Asia, and has been designated by high authority the Kew of the East.

THE HARDY FRUIT GARDEN.

FIG TREES.—Where these are grown outdoors in the mildest localities, they should be pruned and nailed at once. In pruning, cut out as much of the old wood as can be spared, leaving a sufficient number of young shoots, so that the trees will be properly furnished with bearing wood. Do not shorten back the young shoots, for it is on the extremities of these that the fruit is borne. Should the trees have an unlimited root-run, the pruning-knife should be used very sparingly, and with great judgment, otherwise the trees will produce nothing but gross succulent wood, which will not bear fruit. When protection is given to Fig trees by covering them during the winter with mats or straw, they had better be left undisturbed for several weeks longer.

Late-Planted Fruit Trees.—All fruit trees planted against walls last autumn may now be properly nailed, as the soil about the roots will by this time have settled down. Secure the stems to the wall with tar twine and be cautious when nailing the

branches, to see that the shreds are not fastened too tightly.

Gooseberry and Currant Cuttings.—These, if not made in October, should now be made and planted. In making the cuttings select shoots in which the wood is well ripened, and with the point of the knife pick out all the buds with the exception of five at the top. When made, choose a piece of ground where the soil is rich; plant in lines, in trenches cut out with a spade, or they may be dibbled in, the rows in either case being 18 inches apart, and 9 inches between each cutting in the rows.

The Orchard.—All newly planted trees should be looked over to ascertain whether the stakes and ties are secure. Those trees that were planted in the autumn, may now be finally staked, and tied with tar twine or stout Willow twigs, placing hay or straw bands round the stems, to prevent them from being injured by the ties. The final staking of trees planted recently, had better be postponed for a few weeks. Where rabbits and hares are troublesome, the stems should be protected with bunches of Furze tied round them, or place pieces of wire-netting a few inches distant from the stem, and secure it there with stakes, or, failing these, paint them with a mixture of soot and linsed oil, 2 feet upwards from the ground. Rabbits and hares do not like this, but, as it gets worn off in a few weeks, repeated applications will be necessary. *A. Ward, Stoke Edith Gardens, Hereford.*

FLORISTS' FLOWERS.

PELARGONIUMS.

THE foundation of successful culture of these plants being laid in the winter or early spring, and they should be placed where light and air can play freely around them. The next point is to tie out the growths, and also thin them out when that appears necessary. Small plants are tied best by twisting a wire round the pot under the rim, and tying down the shoots to it; when large they require sticks laid over the pots, with the ends projecting; these are tied down to the wire, and a ring of wire fastened to them, to which the shoots may be fastened; only in this way can a plant be made uniform in shape, so as to display a good head of bloom, as nearly alike as possible in every part. I am now alluding to exhibition specimens from 4 to 6 feet across. The late flowering specimens of the show and fancy groups should be repotted into their flowering-pots by the middle of February at latest. An over-rich compost will produce too many leaves in proportion to the flowers; use therefore good loam five parts, one part cow-manure, one leaf-mould and some sharp sand, with the addition of an 8-inch potful of bone-dust to each barrowload of the loam. In all cases potting soil should be mixed up a month or two before using it, and it ought to be moderately moist, and as warm at least as the soil of the plants potted. The plants intended to flower in May should have been in their flowering-pots in October; and as they are well established by this time, they will require considerable supplies of water. Seedlings that are to flower in 5 or 6-inch pots should also be well established; the object is merely to test the quality of the flowers, but to do this satisfactorily the plants must be kept clean, not too much crowded; weak liquid manure should be afforded twice a week. The specimens of large-flowered varieties, when well-rooted, will also be benefited by the same kind of stimulants. The experienced exhibitor and cultivator needs not to be told that it is necessary to place sticks to the flower-stems of the large flowered section, and that the small flowering and fancy varieties do not need such support—just a few to steady the main branches being all these require.

FUCHSIAS.

These graceful and charming plants are easily grown, but it is not every one who knows the best way to produce a fine display of bloom in July, August, and September, when the greenhouse or conservatory is mostly required to be well furnished. I do not care much for very large specimens, and only

keep about one plant of each variety to furnish cuttings.

My practice is to start the plants in a vinery or Peach-house after they have been shaken out of the pots and repotted into smaller ones. When the shoots are about 2 inches long as many as are required are taken off and put in as cuttings, which at this early season form roots readily either in a hotbed or forcing-house. When the cuttings are taken off the remaining shoots are stopped so as to form bushy specimens. I like to have one main stem with well-flowered branches from the base to the summit. To obtain this result the young shoots must be stopped three times, and this will produce a well furnished plant. Many growers will have observed that the points of the young shoots of these specimen plants will sometimes show diseased tissues, becoming black, and the small leaves in course of formation die off. This is usually caused by over-watering at the roots or too much manure in the potting soil. If it is by over-watering the plants will in time grow out of it; pinch the decayed points off, and let them start afresh. The cuttings put in now will produce flowering plants in July, August, and September, or later if necessary; I have some in flower up to the time the Chrysanthemums are placed in the houses in October. *J. Douglas,*

GOLD-LACED POLYANTHUS LORD BEAONSFIELD.

This comparatively new dark ground variety is evidently a good grower, and it is likely to be useful for exhibition purposes, as it opens out in good form and with a highly refined lacing. It is in the Cheshire Favourite style. But it is not without its faults; indeed, who can name a gold-laced Polyanthus that is faultless? Lord Beaonsfield must be caught just when the pips are newly expanded and the lacing correct. It soon goes off, becomes coarse, and the pips "quarter" or divide, which is a serious fault in the eyes of the florist. There is ample room for some good new dark-ground laced Polyanthus, and raisers will find a wide field open in which to labour. We have Lancashire Hero, Lord Beaonsfield, Exile, Prince Regent, and Cheshire Favourite, among the black grounds; George IV., Lancer, William IV., and President, among the red grounds; but additions are made very slowly indeed. Excepting the two former no new variety has come to the fore, and these only in a partial manner. If my own plants can be taken as indicating what is at all general among growers, then I am inclined to think the gold-laced Polyanthus will bloom early. My plants are in a cold frame on a north aspect, but they are certainly much forwarder than I care to see them at this season of the year. *A. D.*

THE ORCHID HOUSES.

ANGRECEM LEONIS are showing their flower-spikes; these continue to grow well in one of the warm moist divisions. When the flowers of *Zygopetalum Mackayi* and *Z. crinitum* are out, any plants which have reached the outside of the pot and produce only weak growths in the centre can be broken up and put into better form, cutting away some of the now no longer useful back pseudobulbs. *Zygopetalum* are not easily shaken free of the old compost without damage being done to their roots; they do not require repotting and dividing oftener than two or three years, when they are set in order. The species will grow very well in a compost consisting of equal parts of fibrous loam, lumps of peat, and chopped-up sphagnum moss, mixed with a quantity of new or clean crocks.

Some of the *Cælogynes* that require additional space at the root (if not flowering) can now be potted. For such as *C. barbata*, *C. Massangeana*, and *C. asperata* (Lowii), a suitable compost may be made of two parts fibrous peat and one of sphagnum moss. The latter species enjoys plenty of heat with a moist atmosphere when making growth, but due care must be taken that no water lodges in the growth when it is in a tender state.

We have found *Oncidium splendidum* to grow best when the plant was suspended at the warm end

of the Cattleya-house; it sent up its spiket here, but the buds made but little progress until the plant was transferred to the East Indian-house for a week, where the flowers soon expanded. I think there is nothing in the appearance of the pseudobulbs and leaves of this *Oncidium* that reminds one of *O. tigrinum*, although at a certain distance the flowers do resemble that species, but on close inspection they appear more beautiful, and do not possess the strong odour of that species. *C. Woodford, Downside, Leatherhead.*

THE BULB GARDEN.

NARCISSUS BROUSSONETII.

This is one of the most interesting of Narcissi, and is a charming plant in its way. From evidence in the Cambridge Botanic Garden it does not appear to flower at all freely, and if that its be true habit it is the only circumstance against its being considered a good garden plant. The individual flowers are pure white, of delicious perfume, and not unlike a *Freesia* in form. It is of great interest, from being practically without a corona. Gay proposed that it should constitute a genus apart from *Narcissus*, but though so distinct, it certainly should not do so. It has been suggested that this plant is a hybrid, but from its appearance there seems to be no sufficient reason for the supposition, nor is it perhaps likely. It scarcely requires this hypothesis to account for the excessively reduced corona, which is very variable in the genus, or the well developed filaments. It has been described as having a two-flowered scape, which it has produced at Cambridge, and also as having a four to eight-flowered scape. Is it possible that there is more than one form? It is a native of Mogador. *R. Irwin Lynch.*

THE KITCHEN GARDEN.

ASPARAGUS BEDS.—During the dry weather the manure on the Asparagus beds should be raked over several times with a wooden rake until it is broken down fine; the beds may then be lightly forked over, deep enough to bury the manure without injuring the roots, and whenever this vegetable is grown under the old system of raised beds the edges of the beds may be banked up and made firm with the back of a spade, the alleys to be afterwards manured and dug.

Onion Quarter.—The plot of ground intended for sowing with Onions should be well worked over with forks when in a fit state to stand on, in order to get the soil well pulverised before sowing the seed. Autumn sown Onions may now be transplanted during mild weather to a piece of ground that has been heavily manured and deeply dug, and lays well to the sun; this should be trodden firm and raked before planting the Onions. One foot between the rows and 9 inches from plant to plant will be suitable distances. Shallots and Garlic may also be planted.

Jerusalem Artichokes should now be planted in drills, 6 inches deep and 3 feet between, placing the sets 2 feet apart in the drills. This vegetable is better without any manure if the ground be in fair condition, as the tubers grow very unevenly in shape when it is rich. Fresh plantations of *Seakale* and *Rhubarb* should be made if deemed advisable; *Salt's Crimson*, *Hawke's Champagne*, *Prince Albert*, and *Victoria* are some of the best varieties. *Salt's Crimson* has the finest colour of any variety when cooked, but is difficult to obtain true to name; *Hawke's Champagne* is one of the best for early forcing, and *Victoria* is a very fine late variety. The ground for *Rhubarb* and *Seakale* should be well manured and deeply trenched previously. It will be advisable after planting to cover the crowns with some rough leaf-mould or similar material in cold and exposed situations.

Hotbeds.—Seeds of Brussels Sprouts, Early Cauliflowers, and Radishes should be sown, and Capsicums or Chilies in a temperature of 65°; also Parsley and Chervil on the herb border, as soon as possible. All digging and trenching which can be undertaken should be completed before the bulk of the cropping commences. *W. H. Divers, Ketton Hall.*

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APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

TUESDAY,	FEB. 21	Roses and other Plants, at the City Auction Rooms, by Messrs. Protheroe & Morris.
WEDNESDAY,	FEB. 22	Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms. Lilies, at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 23	Imported Orchids from Mr. Sander, and 10,000 Liliun auratum from Japan, at Stevens' Rooms.
FRIDAY,	FEB. 24	Imported and Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	FEB. 25	Lilies, Roses, &c., at Protheroe & Morris' Rooms.

The Royal Horticultural Society. THE annual meeting, a report of which is given in another column, passed off on the whole very satisfactorily. The chief points to be noted are the final separation from South Kensington, and the hopeful feeling arising from the spirit of peace, harmony, and co-operation which prevailed. A new habitation has been found at a moderate rental for the Society, in a convenient and easily accessible situation. This may serve very well for the present till things get a little into shape. A complete horticultural policy was once more sanctioned, and the Council empowered to carry it out as far as possible. In so doing the Council will have the aid of the outside Committee, which has been re-appointed. We need not repeat here the endless proposals which have been made in our columns and elsewhere as to what should, and what should not be done; it must suffice to say that all the Fellows seem to be now of one mind as regards general principles, and we may safely trust Council and Committee to carry out details so far as circumstances allow.

The new Council, as reconstituted on Tuesday, comprises an infusion of new members to the extent of one-half of its number, the new

"half" consisting exclusively of members of the Special Committee, so that there can be no reason to say that horticulturists' interests are not considered; indeed, what we must now call the old Council have manifested throughout great magnanimity and self-abnegation in the interests of the Society.

Hitherto the Society has taken far too limited a view of its duties and responsibilities to the public and to the State. Exhibitions, small or large, and the awards of Certificates, have all but monopolised its attention. An opportunity is now offered for the Society to rise to the level of its duties, and make itself felt as the representative of a great national interest, not of mere pleasure-seekers, nor of a relatively small number of exhibitors with their own commercial interests to serve.

These matters are legitimate enough—we have not one word to say against them; but we repeat that they ought to be only details of the Society's work, details of minor importance as compared with others. The Society has always had a fine body of friends and supporters—it has still; but the plan of campaign has been utterly inadequate, the army ill organised, ill officered, and ill led. There is now a promise of better things. Want of funds is the great obstacle, and strict financial control is an urgent necessity, but we do not doubt that funds will be forthcoming when once the Society regains the confidence of the public.

Fertilisation of Cattleya.

A REMARKABLE paper was lately read before the Linnean Society by Mr. HARRY VEITCH, who detailed to the Society the results of his experiments and observations, made by himself and his assistant, illustrating his remarks by excellent drawings. As the paper will probably be published hereafter, we need not now enter into the details of Mr. VEITCH's extensive series of observations. Suffice it to say, that he fertilised the flowers of a large number of *Cattleya labiata* var. *Mossie*, some with their own pollen, others with pollen from other plants of the same variety, and others again with pollen from a species of *Lælia*. By the microscopic examination of sections of the column, made at various dates after fertilisation Mr. VEITCH was enabled to trace the course of the pollen-tubes to the ovary and thence to the ovules. All this has, of course, been done before, if not in this plant, at least in other allied plants, as by MARTIN DUNCAN, SPENCER CONNOLD, and others. What has not been worked out so well before is the progressive series of changes which occur after and in consequence of fertilisation in the ovary and in the ovules. These are most interesting, and constitute a series of facts for which botanists will be thankful. One point which will surprise many people is the length of time that elapses before the pollen-tubes reach the ovule and impregnate its contents, and the variety of the changes that occur in the style and ovary and even in the ovules prior to this event.

If Mr. VEITCH can find time to prosecute this line of research we may hope that, with the materials at his disposal, and the means he has of cultivating the plants under various conditions of heat, light, and moisture, he may be able greatly to augment our knowledge of the conditions and phenomena of fertilisation. It may also be expected that some light may be cast upon the now obscure phenomena of hybridisation. We may hope to ascertain why some species refuse to hybridise, while in others the intermixture is easy. To return to the *Cattleya*,

it appears from Mr. VEITCH's paper that the impregnation of the ovules of *Cattleya labiata* var. *Mossie* under glass in the climate of London takes place from sixty to seventy-five days after the pollination of the flower, the length of time being doubtless influenced by the state of the weather during the interval, and especially by the amount of direct sunlight the plants receive—the more direct sunlight the shorter the interval, and *vice versa*.

A proportion of the ovules only are fertilised, but how great that proportion is it is not possible to determine with certainty—it is never, probably, much less than one-half; it is certain also that of the seeds which are apparently mature and good, a greater or less proportion fail to germinate.

It takes about twelve months under the same conditions to effect the maturation of the capsules, it being highly probable that during the winter months—when the temperature in which the plants are kept is comparatively low, and the amount of direct sunlight and sun-heat is at the minimum—there is a cessation of growth, which is renewed as the summer months are approached.

Now that Mr. VEITCH, certainly not the least occupied of horticulturists, has set so good an example, we may hope that others will take up this subject.

A much easier matter, and one of equal or greater importance to cultivators, is the investigation of the leaf structure. We have already indicated how varied this is in this family (see *Gardeners' Chronicle*, May 9, 1885, p. 608), and how the structure is adapted to varying conditions of light and moisture. We know of few subjects more likely to lead to interesting results than the investigation of the leaf-structure of Orchids. The chief difficulty lies in the preparation of the drawings, but after an inspection of the beautiful series prepared for Mr. VEITCH it is clear that that difficulty is by no means insuperable.

THE GARDENERS' ORPHAN FUND.—Mr. A. F. BARRON writes:—"I should feel obliged if you would kindly notice in your next issue, for the information of the Hon. Local Secretaries who may be pleased to attend, that the meetings of the Executive Committees have been fixed to be held on the last Fridays in each month (excepting March 30, which, being Good Friday, the meeting will be on the 23rd), at the "Caledonian Hotel," Adelphi, at 6 o'clock p.m. Nomination forms for the first election of six children to the benefits of the fund on July 13, are now ready, and may be obtained on application to me at the Royal Horticultural Society's Garden, Chiswick."

VEITCH'S MEMORIAL PRIZES FOR 1888.—We learn that the trustees have made the following grants of Medals and prizes for the present year:—Shropshire Horticultural Society, one Medal with £5 in money, for a collection of vegetables; Glasgow and West of Scotland, one Medal, with £5, for Roses, and one Medal with £5, for Grapes; Crystal Palace, one Medal with £5, for a collection of fruit; Hull and East Riding Chrysanthemum Society, one Medal with £5; Bath Floral, one Medal with £5.

"FLORA OF BRITISH INDIA."—The fourteenth part of this invaluable publication has just been published. It contains the greater portion of the Euphorbiaceæ, monographed by Sir JOSEPH HOOKER.

COVENT GARDEN CLUB.—A Club has been inaugurated at the Covent Garden Hotel, Southampton Street, for the benefit of the salesmen and residents in the neighbourhood. Mr. W. ARTHUR BOARD is the Hon. Secretary.



FIG. 34.—*OXERA PULCHELLA*: FLOWERS WHITE. (SEE P. 210.)

FOOD REFORM.—Dr. B. W. RICHARDSON, who has been lately giving a lecture on food reform to upwards of 2000 persons at the Manchester Free Trade Hall, has arranged to give a series of six lectures on "Ideal Foods," in the Memorial Hall, Farringdon Street. These meetings will take place on Friday evenings during March and April, commencing on March 2, and are likely to be of especial interest to all temperance workers and philanthropists generally, as Dr. Richardson, although not a vegetarian, takes a position of entire sympathy with the non-flesh system of diet, which has lately been receiving a good deal of public attention.

READING CHRYSANTHEMUM SHOW.—This exhibition, announced for November 9 next, is unavoidably postponed until November 16, the Town Hall being required for municipal purposes on the former date.

NATIONAL CHRYSANTHEMUM SOCIETY.—A numerously attended and important meeting of the general committee of this Society took place at Anderton's Hotel, Fleet Street, E.C., on the 13th inst., Mr. R. BALLANTINE, Vice-President, in the chair. The sub-committee appointed to arrange for a provincial show and also for the revision of the Society's catalogue of Chrysanthemums, brought up valuable reports, particulars of which will be given next week; suffice it to say, that the National Society will hold an exhibition at Sheffield during the third week in November next. A floral committee of fifteen members was elected, and the dates of its meeting fixed upon. The dates of the three exhibitions at the Royal Aquarium were fixed as follows: the September show on the 12th and 13th; the November show on the 7th and 8th; and the January show in 1889, on the 9th and 10th.

HELLIWELL'S PATENT GLAZING.—The patentee of this system has been awarded the Gold Medal from the Jubilee of Railways Exhibition at Paris, 1887, for his patent system of glazing.

THE LINNEAN SOCIETY.—Mr. J. E. HARTING, who has been for some years fulfilling the duties of the zoological librarian at the Natural History Museum, South Kensington, has been appointed Librarian and Assistant-Secretary of the Linnean Society in the place of Dr. MURIE, resigned.

ROSE DAY AT TORQUAY.—Messrs. CURTIS SANFORD & Co. send us a further communication on this subject (see p. 183, February 11.) They now wish it to be known that, instead of what they stated in the former communication, that Dr. RAMSAY will give medical aid free in all cases; and that where the gardener is unable to pay the low charges made for board and lodging at the Sanatorium and the fare down, they could perhaps, with the aid of the man's employer, defray those costs. They continue:—"Practically the Gardeners' Royal Benevolent Society, to which we subscribe, is of no use to us locally. No gardener from this district has been placed on the funds of that excellent institution. Emigration is the remedy for the poverty from which the gardening profession suffers. If we could only persuade a few of our surplus gardeners to go out with their families it would pay us who remain to pay the costs of their emigration."

WILTS HORTICULTURAL SOCIETY.—The annual meeting of the Wilts Horticultural Society was held in the Council Chamber, Salisbury, on the 8th inst., the ex-Mayor presiding, when the report of the Society for the past year was read by the Hon. Secretary (Mr. W. H. Williams), and, making due allowance for the Jubilee subscriptions detracting somewhat from the financial position of the Society, it was considered satisfactory. The Earl of Radnor was re-elected President; Lord Heytesbury, Sir Michael Hicks-Beach, Bart., W. H. Gramshaw, Esq., H. Stevens, Esq., and — Alexander, Esq., being elected as Vice-Presidents. Mr. Williams was re-elected Hon. Secretary. In the evening over a hundred gentlemen and gardeners sat down to dinner under the presidency and vice-presidency of the Mayor (E.

Waters, Esq.) and the ex-Mayor (Fred. Griffio, Esq.) of Salisbury.

OXERA PULCHELLA.

Much interest was excited at the meeting of the Royal Horticultural Society on January 10 last by the exhibit of this beautiful semi-scandent shrub. The plant is nearly allied to *Clerodendron*, and produces dense clusters of pure white curved, funnel-shaped flowers, better to be appreciated by our illustration than by words, see fig. p. 209. The plant is a native of New Caledonia, and was shown from the gardens of Sir George McLeay by Mr. Ross, who says that it succeeds well under ordinary treatment in a warm greenhouse.

PLANT NOTES.

BROWNEA GRANDICEPS.

This requires much head-room for the display of its grandeur, a tree 20 feet high with long arching branches being more than can be accommodated in an ordinary stove. In such structures as the Palm-house at Kew, however, it can be seen at its best, and as it flowers annually when healthy it deserves all the room it gets. A large plant of it is now flowering at Kew, the heads being as massive as those of *Rhododendron*, and quite as handsome as the best of these. There are, however, a great many more flowers in a head of *Brownea* than in any *Rhododendron*, the colour being a soft rosy-red. A specimen was exhibited at the Royal Horticultural Society's Floral Committee on February 14. W.

VICTORIA REGIA.

The following account of the fine plant which was grown here last year may be of some interest to your readers. It was presented to us by A. Dixon, Esq., Cherkley Court, who told me that a friend of his living in the neighbourhood of the Amazon River sent him some seeds of the finest plant he could find among 1000 acres of them, and from which he grew a plant in 1886, and from which the seed of our plant came. It was planted on March 25, and soon we were able to perceive that it was a distinct variety, differing from what we had grown before, and remarkable in many ways. The turned-up margins of the leaves in some cases measured over 7 inches; the flat portion of the largest leaf was 6 feet 9½ inches in diameter inside this outer rim. The flowers were raised on a stalk 6 or 8 inches from the water—not laid on the surface as is usual, and on the second day of opening were of a particular shade of deep purple colour, although quite white at first as usual with the plants; the leaves were more numerous, and produced with greater rapidity. There were thirty-eight flowers—the first on June 15, the last on November 26. On cleaning out the tank last week we counted 2300 seeds, a few of which had germinated; and there must have been many more in the mud which we were not able to find. *William Coomber, Royal Botanic Gardens, Regent's Park.*

PLANTS AND THEIR CULTURE.

CAMELLIA BORDENS, &c.—Where there are Camellias or other large plants planted out, see that the beds do not become too dry, particularly where the hot-water pipes are contiguous to them. Camellias are very sensitive to drought, dryness, and heat, dropping their buds when allowed to suffer from these; encourage growth with liquid manure. *Woodsiæ*, *Cytisus racemosus* and *C. filipes*, are all beautiful, the last is a white-flowered weeping species.

Cool Frames.—*Primulas obconica*, *capitata*, *cortusoides*, *verticillata*, *sinensis*, and the *Auriculas*, will soon be showing signs of moving, and they should be seen to in the way of potting on the first favourable opportunity. The soil best suited for them is about two-thirds of good friable loam, the other third leaf-mould, and well pulverised, with dry cow-dung and sharp sand in equal proportions. In potting remove all decayed leaves, and thoroughly clean the root-stock, bringing the soil quite up to the base of the

leaves which are left. It is better not to water them, unless it be that they have a chance to become very dry. A good plan is to plunge the pots in the frame in coal-ashes; this prevents them from becoming dry, and saves the pots from being broken by frost. Moreover, it is more congenially cool to the roots of the plants than is staging. Give air in abundance when the weather outside is clear and dry, but do not remove the sashes altogether without previously preparing the plants, as much injury might be done thereby. A foot is the proper distance to have the heads of the plants clear of the glass.

East Lothian Stocks, which were potted up in the autumn, will soon be in good form, and ought to have every attention given them in the way of airing and removing decaying leaves, &c., giving occasional waterings with liquid manure. Pot on succession plants which were sown late and have been growing in pots. These grand varieties of Stocks are much liked either as cut flowers or as pot plants in the houses, the long Hyacinth-like spikes of flowers being very pretty. The cool frames are much better by being covered up at night, and, all things considered, *Frigo Domo* will be found quite as convenient and effective a material for the purpose as could be desired. If a strip the width of the frame be fixed on a round piece of wood it can quickly be put on when required. It is better where there are fastenings, such as rings or hooks at the sides, to secure it to the frames. When not in use it should be rolled up under a board or two at the end of the frame after being dried, as it is more efficient as a warmth preserver when dry.

Miscellaneous.—Prune hard back any plants yet remaining of *Ruellia Herbertii*, *Meyenias*, *Lagerströmias*, *Cæcias*, *Erythrinæ*, and *Antigonon*, also any winter-flowering *Begonias* of the insignis type may be cut down, putting in the best of the cuttings to strike, and throwing the old plants away. Carefully attend to the wants of *B. socotrana* until the leaves have finished their work and prepared the tuber for next season. This charming *Begonia*, when well done, amply repays any little trouble in attending to its wants. *F. Ross, Pendell Court.*

FRUITS UNDER GLASS.

PEACHES AND NECTARINES.—The trees in the early house will now be swelling their fruit rapidly; let the temperature be 55° on cold nights, and 60° on mild ones, if the fruit is required at as early a period as possible. Admit a little front air during the night when the weather will permit, but do not open the top ventilators to cause a cold current of air to pass over the tender foliage. Syringe the trees in the morning with water 10° warmer than the temperature of the house, and again at shutting-up time on bright sunny days, but during dull sunless weather this may be dispensed with, and resort may be had to the watering-can and rose. Avoid deluging the borders with water, which is certain to cause a stagnation of the atmosphere during dull weather. Plenty of humidity when the weather is bright will lead to success, but an excess, when there is a deficiency of sunlight will result in thin foliage, and the conditions will be favourable for the production of mildew. Any shoots which are growing gross should have their points pinched out, and where there is the probability of the shoots becoming crowded it is better to remove some of them at once, and allow full play of light and air. It is better not to thin the crop to the desired distances until the stoning period is over, but if the trees are in good heart, there is little danger of fruit-dropping to fear. Good healthy trees will carry a crop of fruit at 9 inches apart all over the tree.

Trees which are inclined to be gross in growth may be allowed to carry more than this, while trees in a weakly state, or in advanced age, should not be allowed to carry so many, else the fruit will be deficient in size and flavour. The inside border may now require a watering. A good dressing of Vine manure should be pricked into the surface, and a watering at a temperature of 80° to 85°: shut off the heat and avoid throwing water on the hot pipes filling the house with steam. Should greenfly appear fumigate at once, and do not allow them to obtain a lodgment. See that the temperature is not too high and that the foliage is dry prior to fumigating.

The Succession House.—The trees here will now be coming into bloom, and it will be found a good plan to remove all the worst placed and the weakest flower-buds; this will throw more strength into the others which are left. Keep the trees dry while they are in

blossom, and in the middle of each day go over them with a Pampas-grass plume; damp the border and paths every afternoon at shutting-up time if the day has been sunny.

Late Houses should now all be dressed and ready to start naturally; see that the borders are in a sufficiently moist state, and the temperature is not allowed to rise too high. The principal cause of bud-dropping is dryness at the root during winter.

Figs.—As the days lengthen—and we can reckon on more sunlight than hitherto—more moisture in the atmosphere in the shape of syringings and sprinkling the paths may be afforded. Trees which are in limited root space may receive weak manure water each time they are watered; in the case of trees which were potted in autumn none will be necessary, but a little dusting with Vine manure occasionally will be found of great benefit, as this does not cause gross growth, but is conducive to fruit production.

To prevent fruit dropping, see that the trees are never allowed to feel the pinch of dryness at the root, and any small or ill-placed fruits should be removed at once. The trees should also be disbudded, and no more shoots allowed to grow than are required for the furnishing of the trees. When four leaves are formed the points of the shoots should be removed, to induce the trees to set a second crop of fruit. A second batch of trees should now be started in a moist temperature of 50° to 55°, and they should be frequently syringed; the latest batch should be kept quiet for another month.

Cherries, Plums, &c.—These must not be over-excited until such time as they have set their fruit. Let the night temperature be 45° to 50°. When the fruit is set an advance of 5° may be given, with free use of the syringe. A sharp look out must be kept, as these subjects are very liable to attacks from green and black fly. The trees should receive a good fumigation just before the blossoms open, as a preventive, and again after the fruit is set. Admit air on all favourable opportunities, but avoid draughts.

Strawberries.—Such as are showing colour should be removed to a lower temperature, and watering with manure should be discontinued. Air on all favourable occasions should be given liberally. Successions which are swelling their fruit may be kept in a temperature of 60° to 65°; those in bloom should, however, be kept as near 55° as possible. Go over plants with a fine brush in the middle of each day, to fertilise the blooms. Remove all superfluous blooms from the trusses, also the unnecessary flower-spikes. Thin the fruits to nine or twelve to each plant. Avoid fumigating while the plants are in bloom. Introduce fresh batches of plants in houses where they can be kept near the glass, where the temperature does not exceed 50°. *W. M. Baillie, Luton Hoo Gardens.*

THE FLOWER GARDEN.

TREES AND SHRUBS.—The pruning and thinning out of deciduous trees and shrubs where necessary should be completed without delay. The recent heavy falls of snow will in many instances have caused damage to coniferous and other subjects. As soon as practicable attend to the requirements of such damaged specimens, by cutting out all splintered boughs and branches, and where necessary, stake and tie into shape again. Much damage of this nature may be prevented by prompt attention in relieving the branches of snow during heavy storms that occur, by daylight.

Indoor Work.—Advantage may be taken of bad weather to prepare the required number of labels, stakes, and pegs for various purposes. Prepare compost for potting bedding-out plants, and propagating purposes, get boxes in readiness, repairing such as require it, and see that an ample supply of clean pots are at command when wanted.

Gladioli for flowering early in the open borders may now be potted into 5-inch pots, to be planted out at a later period. Place them in a cool house, or plunge to the rims in cocoa-fibre refuse in cold frames. This plan is to be preferred to planting the bulbs at once in the open—a practice not at all to be recommended for midland and northern counties.

Zonal Pelargoniums from store pots and boxes may also be transplanted thinly into other boxes or potted off singly into 3-inch pots, preference being given for the latter if the necessary amount of space can be afforded.

Seeds.—The following seeds may be sown in heat, using a compost of finely sifted loam, peat, leaf-mould, and silver-sand, viz., *Chamaepeuce Cassabonae*, *C. diacantha*, *Ricinus* in variety, *Cannabis gigantea*, *Petunias*, and single *Dahlias*. A second sowing of plants named in a previous Calendar may also be made if doubts are entertained regarding the quantity of plants likely to be obtained, and an opinion on this point ought now to be formed, as the majority of them have germinated ere this. *J. Horsfield, Heytesbury.*

VEGETABLES.

STACHYS TUBERIFERA.

I HAVE grown this new vegetable (which you figured and described on January 7 last) for several years, and find it is well worth extensive cultivation. It is much esteemed here as a second course vegetable, and is also a useful ingredient in the salad dish, looks well, and is very palatable as a pickle, and is a fitting companion to the breakfast Radishes. Now is an excellent time for planting, putting the sets in drills 14 inches apart, and 5 or 6 inches between the sets, in free soil, not over-manured. The yield is quite a bushel to about 16 square yards. It has much the same habit of growth as Wood Sage, and is as hardy as Knot-grass (the roots of which it much resembles). Frost seems to have no effect on the roots, and I think it will grow anywhere in these islands, and will form a welcome change to the usual vegetables in November, December, and January. It requires no coddling, and in a loose soil might be allowed to occupy the ground for years, as is sometimes done with Jerusalem Artichokes. *P. Middleton, Wynnstay Gardens.*

TRADE MEMORANDUM.

ST. MICHAELS PINE-APPLES.—Recently there has been a new departure in the public sales of this article; formerly they were all sold at the Padding Lane auction sales, but Mr. J. B. Thomas has brought about a change that, it is hoped, will benefit both growers and dealers. Before commencing his last sale of Pine-apples in the Floral Hall, Covent Garden, on Tuesday last, Mr. Thomas made the following remarks:—

"The Pine sales as held in this hall are exciting attention amongst the City merchants, and some alarm amongst the City brokers. To attack and break down a monopoly of such strength as is represented at Padding Lane requires a great deal of pluck, energy, and perseverance, more especially when attacked single-handed; but what I did in the years of 1879 and 1880 touching American Apples and Malta Potatoes I felt I could do in the years 1887 and 1888 as to Pines. My first success was a direct saving to the growers of 1½d. per Pine in securing lower charges; the second success was to abolish the tax of 1d. per Pine hitherto levied by the monopolists at Padding Lane upon the buyers; and, third, to secure you all your identical purchases; and, further, I may say, by offering you goods less damaged in transit, which you have repeatedly shown the appreciation of by giving me your best support.

"Now, what were the answers of the City brokers to my efforts? They abolished the tax of one penny levied upon you with a growl. One broker said 'We got it out of you as long as we could,' so that is a concession you have not to thank them for; but they are evidently hard set against the poor growers. The Dock Companies had agreed with me for a 'through rate,' which was carried out on several occasions; but at last the pressure brought to bear upon the directorates has caused the Docks to cancel this rate, because the City brokers do not object to paying the higher rates. The Dock Companies had therefore to withdraw the more favourable terms granted to me, but I need scarcely say that a change will be brought about, and their interests will suffer thereby. As they will not move to save for the

growers themselves, they ought at least not to insist on preventing those who have the will to do so.

"I am very pleased to thank all my supporters, especially those who attended my first few sales, and you must all be glad to hear of the message that has come to you from the island of St. Michaels, not in direct words, but, to my mind, in much more than words, and that is, in the form of distinct orders to the several merchants here to forward their consignments of Pine-apples to the Floral Hall for sale. The result of those orders you may all see in the gallery behind you. The Padding Lane interest represented here is not for studying your own, the growers', or His Grace's interest. It is simply here because their monopoly is aged and tottering, and their hold is becoming too feeble to take substantial root anywhere."

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

PSIADIA ROTUNDIFOLIA.—This interesting plant, which you figured and described (pp. 180, 181) under the title of "The Last of its Race," is, I regret to say, not represented at Kew. It is true, as you mention, that I brought seed from St. Helena in 1883, but none of it germinated. The same result attended seed taken to Jamaica, and also some sent to Ceylon and Southern India. It is very probable, as suggested by Professor Oliver, that some of these "Cabbage trees" are sub-dioecious, and if this is true as regards the plant under notice there is little hope of perpetuating it by seminal reproduction. This view is in some measure confirmed by the fact that no plants have been raised from seed sown in the island, and also by an experiment which the late Governor Janisch carried out on the spot. The ground near and under the tree was enclosed by hurdles, and the soil broken up and carefully prepared in the hope that some few well ripened seed would fall upon it and germinate. Not a single plant was thus raised. I have only to add to your excellent description of this plant, that the flowers, which are plentifully produced in May or June, are small (½ inch diameter) and white, with a yellow centre. While on the subject of St. Helena plants I would mention that I was fortunate enough during my visit to secure good seed of *Melbania Erythroxylon* (N. O. Sterculiaceae), locally called Redwood. Strong plants, about four years old, of this are established at Kew, and also in the West Indies and Ceylon. This handsome tree is fast-disappearing in St. Helena, and probably will follow the allied species (*M. melanoxylon*) the native Ebony, which has become extinct during the last forty years. The flowers of the Redwood are large, tubular (about 3 inches long), and very striking; when they first appear they are pure white, the next day they change to pink, and finally to a brownish-red as they begin to fade. Flowers in all three stages are seen on the tree at the same time. Another interesting St. Helena plant established at Kew is *Sium helenianum*, an unbelliferous plant, growing to the height of 6 to 8 feet amongst the Cabbage trees and Ferns on Diana's Peak. The stems of this plant are eaten raw by the native people, and are sometimes sold in the market at Jamestown under the name of *Jelico*. *D. Morris, Assistant-Director, Royal Gardens, Kew.*

GARDENERS' ORPHAN FUND.—I am extremely pleased to see that the committee have taken up the question of money boxes, and sincerely hope great good will result therefrom. There is not the least doubt but that local secretaries will do all they possibly can to forward the movement by selecting suitable places for the boxes and collecting their contents twice a year, and if holders of boxes receive a little friendly notice of his intended visit, I guess few will be the places where he will not be required to give a receipt for at least shillings and pence, and these multiplied by hundreds (as I sincerely hope they will be) will be the means of feeding and educating many a poor orphan who otherwise would be neglected and consequently would be heavily handicapped in the struggles of life in after years. *J. H.*

STRAWBERRIES.—Mr. Lovel (p. 135) raises two very interesting questions in relation to earlier and later varieties of Strawberries. His first point—and it is an invincible one—is that earlier blooms than Black Prince or other early kinds throw would assuredly (almost) be destroyed by late frosts, hence earlier fruits would be impossible. But is there no room for improvement in the direction of more rapid maturation of the fruit after the blooms are set? That seems to be the only direction in which it is possible to hope for earlier fruits from new varieties, and it is one worthy the attention of raisers. Of course it is easy to admit that small fruits ripen earlier than large ones, but we need sorts which shall mature fine fruits more rapidly. Any good kind which shall lengthen the Strawberry season by ripening a few days earlier than our present earliest would prove a great boon to growers. How does Pauline act outdoors? Is it relatively so early as under glass? With reference to late ripeners we have here again room for considerable improvement. Mr. Lovel's experience is perhaps limited to northern districts, but in the South there is not much reason, except during colder summers, to complain that late Strawberries are exceptionally acid, indeed some of the sweetest fruits to be found, as a rule, are the very late small fruits not thought otherwise good enough for ordinary gatherings. I find that there is a growing need for such late and esteemed acid kinds as Eleanor and Elton Pine, and any good later variety would be acceptable. Even really good sweet fruits have been gathered from spring planted plants so late as September, as many gardeners can testify. We want the Strawberry season lengthened at the end as well as at the beginning. The chief difficulty here in the South is found in an exceedingly dry summer, but that is not a constant contingency. *A. D.*

VINES DURING THE PAST SEASON.—I do not know that I ever remember a year in which Vines both old and young have done so well as during the past year. Vines that have been planted eight and nine years have ripened their wood better, being much firmer, and having less pith than for some time past; especially is this the case with Duke of Buccleuch. It is an important point in the successful management of this variety to have the wood well ripened. Young Vines struck from eyes last spring are also remarkable. In the month of January about 180 Vine eyes were put into 3-inch pots, in a gentle bottom-heat of from 75°–80°, where they remained until their roots touched the sides of the pots, when they were removed to a vinery having a temperature of 65°–70° by day, with a fall of 5° by night. In a few days they were potted into 6-inch pots, and remained in the same house until they had filled their pots with roots, when they were potted into 10-inch pots. About the first week in June, having previously made a new border in one of the vineries, I planted out a dozen Vines, and without receiving the slightest check they at once grew away to the top of the house, which they reached about the beginning of August, plenty of air being given at both top and front on all favourable occasions. By the beginning of September they began to show signs of ripening their wood at the bottom of the house; abundance of air was then given both night and day, and also a little fire-heat at night. This practice was continued until the end of October, when the house was thrown open day and night, except when the weather was very cold. About the second week in January I cut the Vines down to the bottom of the rafters. With this I send for your inspection a few of the pieces of the shoots. *S. A. Woods, Osberton Gardens, Worksop, February 14.* [The shoots sent are of extraordinary strength, having a circumference of 2½ inches in some cases; buds being developed at intervals of 5–6 inches. *En.*]

YELLOW GREENHOUSE RHODODENDRONS.—The development of these at the Royal Exotic Nurseries, Chelsea, marks a very interesting epoch in the important work of improvement in this useful class of plants, which has been carried on here for some time past. Two distinctly yellow types have recently flowered, and they show yellow flowers and yellow stamens both—they are wholly yellow: and they are the first of what promises to be a valuable race of self yellow greenhouse Rhododendrons. The species to which the development is, to a large extent, due, is *R. Teymanni* from Sumatra. It occurred to Mr. Heale to cross this on to some other form, and he selected Maiden's Blush, one of the best shaped flowers of the Java section, in order to get the yellow colour and good form at the same time, the latter being the seed parent. From this cross came

several seedlings, the first to bloom being Primrose, which was certificated at the last meeting of the Royal Horticultural Society; represented by large, stout, well formed flowers wholly of a decided primrose colour, borne on bold trusses. Since this was exhibited, another very fine self yellow form has blossomed, and has received the name of *Boule d'Or*. In this case Teymanni was the pollen, and Lord Wolsley the seed parent, the latter being a very strong-growing variety of the Java type, one of the strongest-habited, Teymanni being also a sturdy and robust grower. The foliage of *Boule d'Or* is remarkably large and bold for a greenhouse Rhododendron; the leaves measure 8 inches long by 3½ in width; there is nothing like it, and it has shown the large-leaved character from a seedling. The flowers are large, finely-formed, and of a deeper hue of colour than Primrose, and it promises to make an excellent plant for conservatory purposes. I have often thought these Rhododendrons are placed at some disadvantage by being shown in the form of seedling plants. A large number of seedlings are raised every year, and one great object is to get them into bloom as soon as possible, in order that some idea may be formed of their characters, whether they are good enough to be preserved or not; hence it is they are run up in the form of a straight stem—they become tall, and produce a truss or two of blossoms on the top. It is erroneously supposed this



FIG. 35.—DIOTA SIEBOLDI FOLIAGE. (See p. 205.)

represents the true habit of the plant. There can be no greater mistake in reference to this class of plants. When a variety is propagated it is by means of being grafted on a suitable stock, and then charming dwarf bushes result, as unlike the seedling plants as can well be. The greenhouse Rhododendrons, though in large demand, are not so fully appreciated as they deserve to be. I think there is a great future before them, and that they will in course of time become a most useful class of decorative plants for the warm greenhouse and conservatory. *R. D.*

JUNCTIONS OF PATHS AND ROADS.—Glancing at the article under this heading in the *Gardeners' Chronicle* of January 28 (p. 116), I soon perceived a strange familiarity with the illustrations there given, and observe that they have been shamefully pilfered from my work on *How to Lay Out a Garden*. I conclude from the text that they have been pirated by some French author, but not at all well copied; the idea of their having originated in "sunnier France" being a peculiarly amusing one. I think I may fairly ask the writer of the communication whence he obtained them, and where and by whom the book containing them was written and published. We frequently read in the newspapers of the wholesale way in which our American consins appropriate the literature of this country, but I am yet unaware that they lay violent hands on our illustrations as well; and it is obvious that, in a general way, this would be too expensive an experiment. Of course I must assume that the author of your contribution accepted them in good faith,

and fairly thought he was presenting his English readers with samples of French ideas on landscape gardening. I must, however, most strenuously demur to his dictum as to what is correct or otherwise in respect to the junctions of walks. To affirm that rectangular junctions in walks are necessarily (or at all) in bad taste is, in my judgment, a purely rash and reckless assertion, and subversive of the very highest rules of art. I am bold enough to pronounce on the contrary, that there are numberless instances in which rectangular lines denote the only possible treatment, and that these, in connection with a high-class building, are as truly natural and consistent as curved lines would be in the freest and least artificial styles of gardening. As in architecture, the advocates of Classic or Gothic types are often so wedded to their own individual preferences that they hardly admit those brethren who entertain opposite convictions to be the true exponents of art; so, in gardening, it is much to be deprecated that small and confined views, born of littleness, and nursed in a groove, should be allowed to obtain, to the exclusion of those more catholic considerations which lift art out of the region of prejudice, and take in all its wide ramifications. There is such a very important principle involved in all this that I feel more than justified in endeavouring to maintain it. If your contributor repudiates altogether the employment of straight lines in garden walks, then, I imagine, he will stand quite alone, and the question is not worth arguing about. If he asserts that curved lines should merge into straight ones, without anything to break the connection or mark the point of divergence, I distinctly join issue with him, and hold as an absolute law that straight lines, unless brought to a thorough termination, admit of no branches that do not at least start from them at right angles. *Edward Kemp, The Park, Birkenhead, January 28.* [The illustrations in question have been used in various books published by M. Rothschild of Paris, and the *clichés* were purchased by us from him, without any knowledge on our part, that they had originally been used in Mr. Kemp's "How to Lay Out a Garden." *En.*]

HYBRIDISATION.—Just one line to point out to my friend, Mr. Burbidge, that if cutting off a flower is conducive to the production of such a bud as I described, it is singular that the result should not have occurred in other cases, "not a few," where I have in like manner cut off a flower from an Iris, and that the plant in which it did occur should have been a hybrid. That was all I said. That "high cultivation" may tend to monstrosities has no bearing on what I said, viz., that a hybrid seemed to me, on the whole, more liable to malformation than a plant not a hybrid; this does not mean that hybridisation is more potent in producing monsters than is cultivation; but it can, if desired, be put in the form that "cultivation is more likely to produce monsters among hybrids than among plants not hybrids." Lastly, "converted" or "altered" is not the same as "diminished" restricted vegetative energy. *M. Foster.*

FIELD MICE IN GARDENS (see p. 184).—Of the three kinds of field mice common in country gardens, the field vole, or short-tailed field mouse, is by far the worst: 1st, because it is migratory, or rather gregarious in its habits; and, 2ndly, because it feeds almost exclusively on green herbage, or the tender bark of shrubs, and is, therefore difficult to trap. The long-tailed field mouse is in no case compared with it, being very easily trapped with the same baits and traps as are set for house mice. The bank vole, distinguished from the field vole by being rather smaller, and being of a bright chestnut-colour on the back, may also be trapped; but a piece of Apple, or a Brazil-nut is more attractive to it than toasted cheese. The proportion of field voles, however, which can be caught by the most diligent trapping is nothing compared with what are left. I, too, live in West Cheshire, with a garden open on all sides to grass-land, and have a most unpleasant experience of these pests. They invade rockeries in winter, where they feed on the choicest evergreen alpenes, such as *Rumex* and mountain Pinks, and are especially fond of the young growth and flowers of *Hellebores*. They make runs through the tufted Saxifrages, biting through the stems for the purpose. They generally live in warrens in some neglected breadth of grass, where everything should be done to dislodge them, putting paraffin and rough grit into the holes; but one's best friends when overrun with them are weasels. I encourage these in the garden in every way, and they become almost tame. They ferret the mice out of their holes, hunt them down by

scent, and finally make them change their quarters. I remember watching a weasel hunting a field-vole by scent when the ground was covered with snow. The mouse crossed a path close to me, running straight, and disappeared in a stone wall beyond. The weasel was then about a hundred yards behind, running in advancing rings of about ten yards diameter. There seemed to be no scent on the frozen snow, but the weasel ran from stalk to stalk of dry grass, projecting from the snow, putting his

Doubtless many of these are equal to the descriptions given of them, but not so here, and consequently I have had to stick to my old and trusted friend, *Ne Plus Ultra*, and if confined to one variety only it would be the above-named, as we have it in good bearing until destroyed by frost in November. William I. is our general early variety; some others are earlier, but not so prolific. With these two varieties a very long season of Peas of the best quality may be obtained. *W. O., Fota, Cork.*

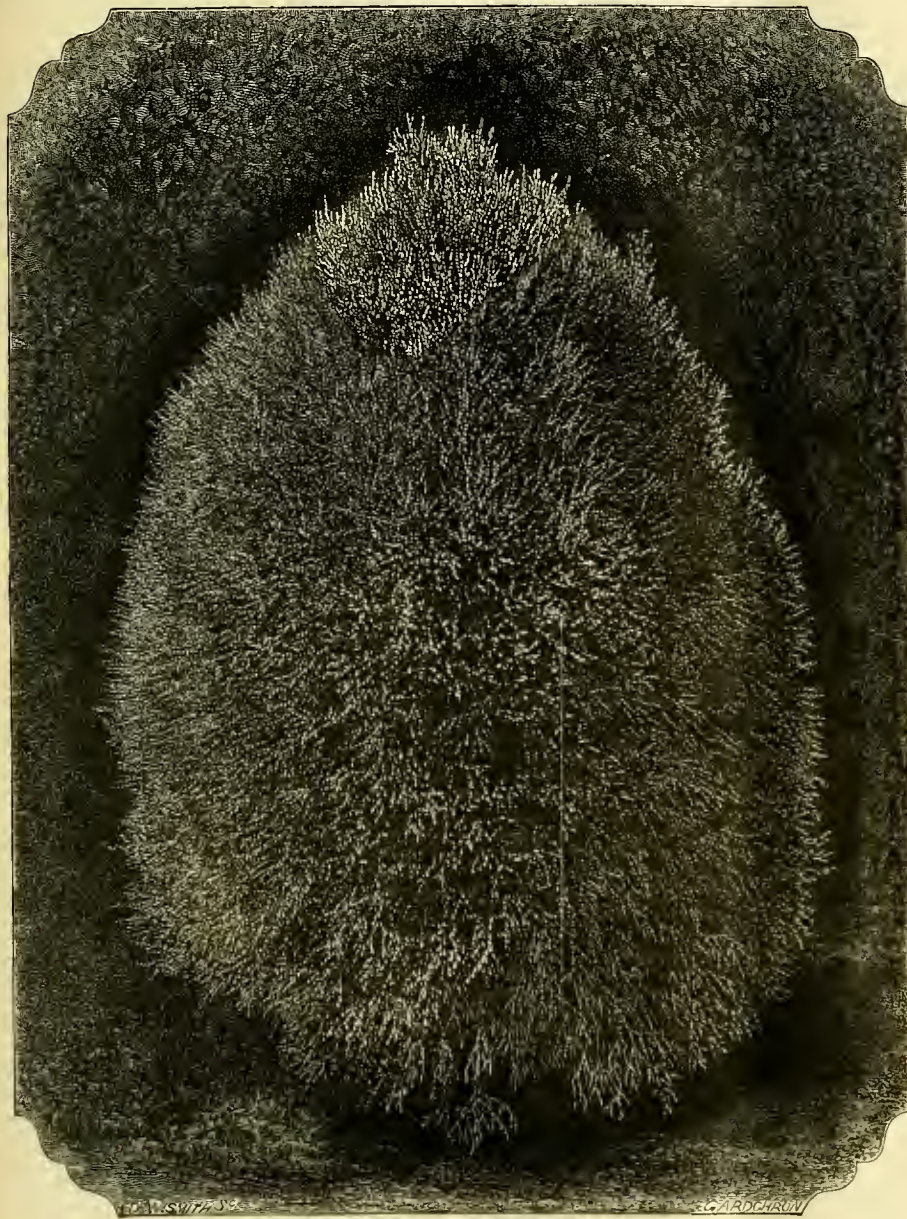


FIG. 36.—BIOTA SIEBOLDI. (SEE P. 205.)

nose against them, and evidently guided by the scent which they caught and retained. He finally disappeared in the wall in the same spot as the mouse. *C. W. Dod, Edge Hall*

GARDEN PEAS.—Had it not been for the following remarks of the Editor I should hardly have troubled your readers (p. 151):—"Peas, like other plants, vary with locality, so that what will suit one place will not grow satisfactorily in another." This has been my experience, and especially with Peas. For many years I have bought and tried most of the giant-podded and other new Peas that have been offered, and in most cases to be disappointed.

SOCIETIES.

ROYAL HORTICULTURAL.

Annual Meeting.—The annual meeting of the members of this Society took place in the East Crush-room of the Royal Albert Hall, on Tuesday afternoon, February 14. Sir Trevor Lawrence, Bart., M.P., presided, and there was a large attendance of Fellows. The Secretary read the notice convening the meeting, and the minutes of the last annual general meeting, which were duly signed.

New Members.—The Chairman read the following list of candidates for election as Fellows of the So-

ciety:—E. Ellis, Esq., Manor House, Wallington; J. E. Bonny, Esq., Marlborough, Swanley, Kent; G. A. Candler, Esq., Newlands, New Park Road, Clapham Park; James Gibson Dees, Esq., Flora Villa, Whitehaven; the Right Hon. Polydore De Keyser (Lord Mayor of London), Mansion House; Alfred Eastly, Esq., Upper Addiscombe Road, Croydon; Walter Furze, Esq., Roselands, Broom Road, Teddington; John P. C. Graves, Esq., Cane Cottage, 140, Upper Tulse Hill, and Mrs. John P. Graves; A. Hilden, Esq., Corkickle, Whitehaven; Frederick J. S. Horsman, Colchester; R. W. Ker, Basnet Street, Liverpool; W. P. Norbury, Esq., Brentford; Charles H. Page, Esq., Cardiff; John Peed, Esq., Mitcham Road, Streatham; John Raddenberry, Esq., Botanic Gardens, Geelong; Mrs. Courtenay F. Terry, Shrublands, Hersham, Walton-on-Thames; and John Woodbridge, Esq., Syon House, Brentford. The Chairman said that several of these had formerly been members of the Society, and were desirous of again joining them. The candidates were elected unanimously.

The Council.—The Rev. Mr. Wilks then rose and said it was well known to everybody that a certain amount of blame had been passed upon the Council for the action they had taken in resigning in a body, and then, as it were, with the same hand proposing the re-election of the greater number of themselves. It appeared to him that instead of any blame attaching to them for that action they should receive the most cordial thanks, for by their resignation they had enabled the Society if they liked to elect a new Council, or to infuse as much new blood into it as they chose; and by many of them offering themselves for re-election, they showed plainly that there was ample life in the Society to enable it to continue for many years to come. They had, in fact, utterly declined to act like the proverbial rats, deserting a sinking ship. He thought, therefore, that it would only be a graceful act if they refused to allow the Council to resign, but re-elected those members of the Council who were willing to continue their services. He therefore moved, "That this meeting begs to thank the Council for the opportunity which, by their proffered resignation, they had given to the Fellows of electing an entirely new Council, but respectfully declines to accept the resignation of the following members:—Sir Trevor Lawrence, Dr. Robert Hogg, Professor M. Foster, Mr. W. T. Dyer, Mr. Wm. Lee, Colonel Beddome, Mr. Sydney Courtald, Mr. E. G. Loder, Baron Henry Schröder, and Mr. Geo. F. Wilson."

Mr. Harry Veitch, in seconding the motion (which was carried unanimously) said they had the utmost confidence in the names which had been proposed.

The Officers.—The Chairman announced that the election of the officers and Council would next be proceeded with. He remarked that with regard to the nomination of Baron Schröder for the post of Treasurer, the Council were very anxious that the Baron should act in that capacity, and did their best to induce him to accept the post. Baron Schröder, however, was unfortunately obliged, out of paramount considerations of health and work, to decline, and he might inform them that he had received a letter from the Baron in which he expressed his extreme regret at being unable to attend the meeting that day, inasmuch as he was confined to his bed with an attack of bronchitis. He also regretted to say that Professor Foster was prevented from being present in consequence of indisposition. Colonel Beddome, who was one of the nominees for the post of Treasurer, and who would have made an excellent officer, had also declined to serve, and the Council had unanimously nominated Mr. Morris for the position. A good many of the Fellows did not know, perhaps, who Mr. Morris was. For their information, he might state that Mr. Morris, after a distinguished course at the University, had been engaged in horticultural matters in the colonies for many years, and had occupied many important positions in connection with them. He (Sir Trevor) was informed that the gardens at Jamaica, under Mr. Morris' control, had always been well managed, not only from a horticultural but also from a business point of view, and the Council would be fortunate if they succeeded in obtaining the services of that gentleman.

Mr. Wynne and Major Lendy then formally withdrew their opposition respectively to the nomination of Mr. Dyer and Mr. Morris as members of Council.

The Last Special Meeting.—The Secretary, acting on an intimation from the chair, then read the minutes of the special meeting held on January 10, and the same were ratified.

The Report of the Council.—The report of the Council of the Royal Horticultural Society for 1887 with the financial statement, was taken as read, having been previously freely distributed among the Fellows.

The President's Statement.—The Chairman, who was heartily cheered, next rose to move the adoption of the report. He said it now became his duty to make a few remarks with regard to the present position of the Society, and he must say that the Society occupied a more hopeful position now than it did a year ago. That arose mainly in his opinion from the fact that they were now no longer trammelled by a connection with South Kensington. In saying that he had no desire to recall disagreeable memories, but he might here say, with reference to the gentlemen who thought it their duty to send in their resignations as members of the Council—Colonel R. Trevor Clarke, Major F. Mason, and Mr. W. Haughton—that he thought the thanks of the Council and of the Society were due to them for the services they had rendered during many years. They did not altogether agree as to what was wisest to do for the future of the Society, but these gentlemen loyally accepted the position when they found they were in a minority, and, with a view to rendering the future consultations of the Council more satisfactory, they withdrew when they found that the views they had put forward no longer commanded the general acceptance of the Council. Colonel Trevor Clarke was very well known in the botanical and horticultural world, and apart from other considerations, his resignation in this respect was a loss to the Society. The absence of the other two gentlemen would also be felt; and he might especially say with regard to Mr. Haughton, that the Society would have liked to have ensured the continuance of his services if possible. He (Sir Trevor) had not the least doubt, now that the vast majority of the Council were at all events of one opinion, that the majority were agreed that the connection of the Society with South Kensington had been prejudicial to the interests of the Society. There had, amidst the gloom, been transient gleams of sunshine, but he was sorry to say that they had not taken advantage of those transient gleams of sunshine in a financial sense to put money by for a rainy day. On the contrary these glimpses of sunshine had done rather more harm than good, as they had had the effect of leading the Society into rather extravagant courses. If it had not been for the death of the Prince Consort, the circumstances of the Society probably would have been totally different. They would have had the enormous advantage to be derived from his prudent and wise advice and great influence; and had he lived, the story of their connection with South Kensington would doubtless have been a far different one. As they knew, about this time last year negotiations were going on with the Albert Hall Corporation. Those negotiations never came to anything, and he was never sanguine that they would do so. He must confess that he never believed it was likely that their negotiations with the Royal Commissioners of the 1881 Exhibition would lead to a result satisfactory to the Society. Reference was made in the report at the previous annual general meeting to the desirability of getting a site for the Society on property of the Royal Commissioners. A site was offered to them by the Royal Commissioners, not in a good position, it was true, though if it had been adequate in size, it might perhaps have been adopted by the Society. But the offer was encumbered with this perfectly impossible condition—that it was not to confer on the Society any right, either moral or legal, to the use of the gardens and conservatory. They would thus have found themselves hampered with the incubus of a building of considerable costliness; and the use of which would have been annihilated if they had not had at the same time the use of the gardens and the conservatory. Then there was an offer to let the gardens to them at a rental of £1000 a year. That in the present financial position of the Society was impossible. To have paid the rates and taxes as well as to have incurred the cost of the maintenance of the gardens would have been an enormous additional burden, and whatever the financial position of the Society might be now, it would have been infinitely worse if they had entered into any such agreement as that suggested by the Royal Commissioners. Thus it was that the negotiations that had been going on year after year and the offers made by the Royal Commissioners had fallen on somewhat stony ground, and it had long been obvious that the cessation of the connection with South Kensington was only a matter of time. The time had now arrived for a complete and definite

severance. In thus going away they would leave a great deal behind them. He was sorry to say that the Society had spent on the grounds in which they were now located £78,557 18s. 4d., or, in round figures, £80,000, and on leaving they would receive not one halfpenny of consideration. Whether or not the Society was acting wisely in bringing its connection with South Kensington and the Royal Commissioners to an end, there remained this fact, that it left this enormous sum of money behind, and he was afraid he might also say it left behind also some small portion of its credit and renown. It was now their business to look the state of affairs in the face, and see if they could not, by settling the Society on a new basis, and finding it a proper home, re-establish its character and position. They had received very great assistance from horticulturists in all parts of the country, and he believed that when the proposals that to-day would be laid before the Society became known that assistance would be largely increased. The circular issued to the Fellows on December 9 stated the proposals of the Society, among these being the maintenance of Chiswick gardens, the conduct of fruit and vegetable trials, and the establishment there of a school of gardening. It was a remarkable circumstance that this country, which was the greatest gardening country in the world, was the only country which had not got a school of gardening [while Germany has no fewer than thirty-three]. As to the Charter, they had consulted their solicitors, who advised them that once possessed of a Charter it was exceedingly difficult for a society to get rid of it, and a costly and troublesome proceeding to get it amended, and that consequently if possible it was desirable to go on with the present Charter. No doubt a great deal of the Charter was absolutely obsolete, and when they departed from South Kensington would refer to a state of things that had entirely ceased to exist. But he thought, in face of the advice they had received, they had better rub on with the present Charter as long as possible. With regard to the bye-laws, a considerable portion of them was also obsolete.

With reference to the Council, he should like to mention that they had placed their resignations in the hands of the Fellows with the view of leaving the Society at perfect liberty to make whatever selection they thought proper of a new Council. It had been suggested in one quarter that as they had proceeded to re-nominate a certain number of their body, their resignations were scarcely sincere; but a little reflection and study of the bye-laws would show that this was not so. There was not one of them who would not most willingly resign his place to make way for anybody else if it could be shown to be of the slightest advantage to the Society. He would like to refer to some comments that had been made on the fact that they had on the Council two gentlemen connected with the national establishment at Kew. It was feared that the rest of the Council would not be able to hold their own against them. Now if thirteen members of the Council were unable to hold their own against two, whether they came from Kew or anywhere else, they were unfit for their position. But the fact was that they had acted in the most perfect harmony with them, and the fact of the Council having amongst them the head of the greatest botanical and horticultural establishment in the world was of the greatest advantage.

With regard to the outside Committee, the Council had met with the greatest possible assistance from them. Out of the seven gentlemen proposed on the Committee for election to the Council, the Council had adopted four. Two of the gentlemen whose resignation the Fellows had declined to accept would find it necessary, they said, to retire, and would make way for two others of the seven proposed by the outside Committee. The result would be that out of the fifteen members of the new Council, eight would be old members and seven would be new. Downstairs in the Conservatory they had convincing evidence that persons interested in horticulture had no intention of deserting the Society. He did not believe they would. His experience was that the Royal Horticultural Society maintained its great reputation as a horticultural society as high as ever it did. It had unfortunately been in difficulties in regard to financial matters, and the real difficulty now was the financial difficulty. It would be absolutely necessary that the Council should be provided with sufficient funds to carry on the work of the Society, as they should not incur liabilities if they saw no prospect of being able to deal with them. But when matters were placed on a new footing, he

believed that the amount of support required, which was not very large, would be forthcoming. He was very glad that there were now no serious matters in dispute existing. The Council were entirely unanimous as to the policy which was to be pursued and were in entire unanimity with the out-side Committee.

Mr. G. Deal then read the—

REPORT OF THE SPECIAL COMMITTEE OF THE FELLOWS PRESENTED TO THE ANNUAL MEETING ON FEBRUARY 14, 1888.

The committee appointed in pursuance of a resolution passed at a special general meeting held on December 13, 1887, and confirmed at the subsequent meeting on January 10, 1888, deems it expedient, on the occasion of the annual meeting (albeit the committee has been only a short time in existence), to lay before you a report of its work and deliberations up to the present time.

The members originally nominated were Sir Trevor Lawrence, Bart., M.P., the President of the Society, Baron Schröder, Professor Michael Foster, and G. E. Wilson; members of Council, Messrs. A. H. Smee, H. J. Pearson, H. J. Veitch, Shirley Hibberd, George Paul, and Dr. Masters.

At the first meeting of the Committee, in accordance with the powers conferred upon it, Dr. Masters was elected Chairman, and there were added to our number the following gentlemen—Messrs. J. Woodbridge, J. Douglas, R. Ker, T. B. Haywood, H. Turner, Rev. W. Wilks, and G. Deal, the last-named gentleman being afterwards requested to act as Secretary. Messrs. Herbst and Marshall were at a subsequent meeting added to the Committee. Some gentlemen whom the committee would most gladly have added to its number were, for various reasons, unable to respond to the invitation sent to them. The selection of the members of the committee has been made with a view to secure as complete a representation of all sections and interests of the horticultural community, including representatives of the special societies, as circumstances permit.

NOMINATIONS TO COUNCIL.

The next step taken was to suggest to the Council the names of Messrs. A. H. Smee, H. J. Veitch, George Paul, T. B. Haywood, C. R. Scrase Dickens, J. Woodbridge, and Rev. W. Wilks, to fill certain of the anticipated vacancies in the Council at the annual meeting. The Council at once adopted some of these names, and it is believed that arrangements may be made at the annual meeting whereby some others may be selected in conformity with the recommendations of the committee. Your committee regrets exceedingly that Baron Schröder, whom it had suggested to fill the position of Treasurer, finds himself unable to undertake the duties of the office.

EXTRAORDINARY VACANCIES IN THE COUNCIL.

The Committee begs to recommend that as two extraordinary vacancies in the Council are anticipated after the election this day, such vacancies should be filled by the election of Messrs. T. B. Haywood and J. Woodbridge.

NEW PREMISES FOR THE SOCIETY.

After careful consideration of the requirements of the Society, and after an inspection of numerous premises by means of a sub-committee, your committee submit that the undermentioned premises seem to meet the present requirements of the case better than any other, and therefore strongly recommend that they should be forthwith secured.

Offices.—The committee is of opinion that the first floor of No. 111, Victoria Street, is well suited for the London headquarters and Offices of the Society, and for the housing of the Lindley Library, in case the trustees consent to its being placed there.*

The premises occupy a good position, almost midway between the Victoria Stations and St. James' Park Station on the District (Underground) Railway, and within a few minutes' walk of either. The ground-floor of the house is occupied by the "Metropolitan Drinking Fountain Association," and the upper floors are let out in sets of chambers. The first floor consists of two rooms and the usual conveniences. The smaller of the rooms is 16 feet 3 inches long by 8 feet 6 inches wide, and could be used as a clerk's room. The larger of the rooms is a spacious and convenient apartment, 42 feet 6 inches long by 22 feet 9 inches wide. It has a coved ceiling and is very lofty, being 18 feet high, so that it is well adapted for the purposes of library, reading, and Council room, and for business purposes generally.

A plan of the premises and a sketch of the larger room have been prepared, which will explain the extent of the accommodation much better than mere words can do. These premises are offered at a rental of £120 per annum, free from rates and taxes.

Arrangements for Shows and Meetings.—Your committee having in view, at this particular time, only the Metropolitan requirements of the Society, further submits that the Drill Hall of the London Scottish Rifle Volunteers is well suited for holding large exhibitions, smaller meetings, and for the assembling of the several committees. It is situated in James Street, Victoria Street, within two minutes' walk of St. James' Park Station on the District (Underground) Railway. It is close to the Army and Navy Stores, and within two or three minutes' walk of No. 111, Victoria Street, the premises already recommended for the offices of the Society. The hall is 135 feet long by 72 feet wide, is lofty, has a fairly good light, and is generally suitable for the purposes indicated. It has a back entrance which can be made use of for carrying in and removing exhibits, and a good carriage entrance adapted for the arrival and departure of visitors. There is room available in the basement for the storage of the necessary tables and tressels. Your committee has instituted inquiries and opened negotiations with the Committee of the London Scottish Rifle Volunteers, and now begs to recommend that the Society should confirm the offer made by the committee to pay a rental of £100 per annum, from March 25 next, in order to secure the use of the hall for twenty meetings during the year; the rent to include the cost of storage room in the basement for the Society's tables and tressels, and, if possible, to secure the use, on show days, of the luncheon-room and probably of the committee-room for a few hours in the morning occasionally.

* The trustees of the library are not absolutely bound by their deed to place the library on the Society's premises, after its removal from South Kensington, though there is little doubt that they would do so. *M. T. M.*

Propositions to hold exhibitions, &c., at Chiswick and in other localities in London and in the provinces, will form the subjects of future deliberation.

NEW BYE-LAWS AND GENERAL POLICY.

The committee has under consideration the construction of new bye-laws intended to facilitate the carrying out of as complete a horticultural policy as possible—one in which all aspects and departments shall be considered, to the undue preponderance of none, but to the general advantage of all. A more adequate representation of horticultural representatives and of diverse interests to the Council is aimed at, as well as the creation of an enlarged constituency, especially in the provinces, by means of reduced rates of subscription, adequate privileges and representation on the governing body being secured to the subscribers of whatever grade.

It is hoped that by the institution of such a policy the Society may become the central Horticultural Society of the Empire, with branches and representatives in every district of the country, and with committees and sub-committees to meet the wants of specialists and those interested in particular departments.

SECRETARY AND MANAGER.

The committee urges the paramount importance of appointing a well-qualified paid Secretary at as early a date as possible, the services of such an officer being, in its opinion, indispensable for the adequate discharge of the work involved in the reorganisation of the Society.

Lastly, as these and other schemes for the future development of the Society must of necessity occupy some considerable time before they can be put into working order, your committee suggests that it should this day be reappointed with full powers, and that it should continue to operate, in the same satisfactory spirit as heretofore, with the Council in all matters relating to the welfare of the Society.

Signed on behalf of the committee,
MAXWELL T. MASTERS, Chairman.
GEO. DEAL, Secretary.

February 14, 1888,

Dr. Masters, the Chairman of the Committee which presented the above report, expressed satisfaction at the harmony and co-operation which had existed between it and the Council. It might have been thought that there would have been a little jealousy between the two bodies, but there had been none. The new policy which was indicated was substantially the same as that initiated in the Council by Professor Foster and Mr. Dyer, and already approved at two successive meetings by the Fellows. Having dwelt upon the necessity of attending to the requirements of the Society outside the metropolis he referred to the fact that the Lord Mayor of London, that day elected a Fellow, being a Belgian, must of necessity be a horticulturist. He believed it would fall in with the Lord Mayor's views if they were to organise some meeting, say a Rose meeting, at the Mansion House, or some other part of the City, on the occasion of the visit of some Belgian friends to the Lord Mayor. Dr. Masters threw this out merely as a suggestion, not being in any way authorised to make any such statement definitely. As to the policy of the Society, one great fault of their Society hitherto had been that they had looked upon horticulture as a plaything of the rich, or as a mere money-grubbing machine for the few pecuniarily interested in horticulture. But horticulture had far higher aims than this. It had involved in it the interests of the country at large. The agriculture of the future would be to a large extent horticulture, and the Society had got to teach agriculturists how to earn a living. It seemed to him that the Society had not sufficiently considered the interests of the practical gardeners of the kingdom, many of whom perhaps could not afford to pay the subscription, and whom it might be well to admit at a lower subscription, and so endeavour to promote their education and welfare, and raise them in the social scale. It might be said this was a very large scheme but they did not expect to carry it out all at once. He believed in evolution and in that gradual slow growth according to circumstances, which would ultimately land them where they hoped to be, while revolution would only land them in confusion and anarchy. Personally, he did not think they would get on long without a new charter, but much might in the meantime be done by altering the bye-laws. These bye-laws should secure a reduced rate of subscription, and should facilitate the formation of branches in every county of the kingdom, with local secretaries and other representatives who should have a voice in the general council of the Society. Hitherto the Society had taken a very inadequate and one-sided view of its duties and responsibilities. It had had a splendid army, but one ill-organised and ill-led. The occasion was now offered for raising the Society to the level of its opportunities and national responsibilities. If the Fellows thought so some one of their number should propose the re-election of the Committee—if not the members of the Committee should be dismissed to those duties from which they could ill be spared, and which were so much more congenial to them than constitution mongering.

Mr. Cannell asked whether they were free from the obligation of the £80,000?

The President: We shall be free from this money—if that is what you mean. I am afraid there is no chance of getting it back. It has now fallen into the hands of the Royal Commissioners of the 1851 Exhibition.

The reports of the Council and of the Outside Committee were then adopted.

Re-election of the Outside Committee.—Mr. Roupell moved, and Mr. Wynne seconded: "That the Outside Committee be requested to continue to act."

Mr. Cheale, in supporting the motion, said he hoped the Committee would continue to do the good work which it had performed during the past month.

The resolution was carried unanimously.

Some scrutineers having been previously appointed, and a ballot taken, it was reported that the old members of the Council already named by the Rev. Mr. Wilks, and also Mr. D. Morris, Mr. A. H. Smea, Mr. George Paul, Mr. Harry Veitch, and the Rev. W. Wilks himself had been elected by forty-four votes against six.

The Chairman asked that the recommendations of the Outside Committee as to the acquisition of the new premises and drill-hall on the terms mentioned should be sanctioned, in order to strengthen the hands of the committee. A motion to this effect was accordingly passed.

On the motion of Mr. Veitch, seconded by Mr. Pearson, a vote of thanks was accorded to Mr. Laing, builder, for assistance rendered by him to the committee in finding and securing these premises.

A hearty vote of thanks was then passed to Mr. Houghton, Captain Bax, Major Mason, and Colonel Trevor Clarke; Dr. Masters taking the opportunity of calling attention to the prolonged services and great horticultural attainments of Colonel Clarke.

Colonel Trevor Clarke in acknowledging the vote of thanks in which he had been included, said he had joined the Society when he was young; he had grown old amongst them; he loved and honoured the Society, and he hoped to die in its service.

A New Bye-law.—The President said he wished to propose the following bye-law, the absence of which had been found a source of great inconvenience:—"The President may call a special general meeting of the Society if he consider it necessary, any bye-law to the contrary notwithstanding, subject to not less than a week's notice being given." Formerly it was necessary to receive the sanction of the Council before a special meeting could be called, and the proposed bye-law would prove a matter of great convenience. The bye-law was adopted unanimously.

A vote of thanks to the President concluded the proceedings.

THE FORTNIGHTLY MEETING.

The conservatory was made attractive by the display of flowers in season. Cinerarias, Narcissi, Primulas, house Rhododendrons, alpine plants, and an interesting miscellaneous collection, chiefly Orchids, from the gardens of the President, Baron Schroder, Mr. Smea, Messrs. James Veitch & Sons, F. Sander & Co., and others. The Royal Gardens, Kew, furnished a few plants in flower, inclusive of the gorgeous *Brownea grandiceps*. Fruit was shown in large quantities by several growers of note, that of Messrs. Rivers consisting of, many dishes of Apples, together with some capital examples of Oranges, Lemons, and Citrons; while Mr. C. Ross and Mr. Ford showed Apples.

Floral Committee.

Present: G. F. Wilson, Esq., F.R.S., in the chair; and Messrs. W. Goldring, J. Laing, H. Bennett, J. Fraser, H. Herbst, W. Bates, Dr. Lowe, G. Paul, G. Duffield, C. T. Drury, R. Dean, W. Holmes, B. Wynne, C. Pilcher, J. Dominy, H. M. Pollett, J. O'Brien, E. Hill, A. J. Lendy, T. Baines, and J. Walker.

Orchids.—These flowers and plants were shown in considerable numbers by Baron Schroder (gr., Mr. H. Ballantine), The Dell, Egham. Of these *Odontoglossum crispum* Stevens was remarked for the great size of the spike shown—the flower, prettily fringed, has white petals spotted with brown, and sepals creamy-white with bars of a brown colour. *O. c. xanthotes* is a very beautiful pure white form, with a yellow blotch extending the whole length of the lips. Several cut spikes of the fine varieties of *Lælia nauceps* grown at The Dell were likewise shown. Mr. H. M. Pollett, Fernside, Bickley, exhibited the fine *Dendrobium nobile* Cooksoni, its petals are white with a deep purple base, the reverse of the whole limb being a light shade of that colour; the sepals are white, suffused with pink, the lip is also white with purple blotch.

The collection from Sir Trevor Lawrence's garden was of great variety and number, and was strong in *Dendrobia*. *D. chrysodiscus*, a flower mostly of a white colour, with petals and sepals tipped with rose, and with yellow and brown bars on the throat, was deemed worthy of a Certificate. The flower has a width when fully open of 2½ inches, and is showy; a pretty light form of *D. nobile*, named *intermedium*, is striking, owing to the great contrast of the lip in colour to that of the other parts of the flower; *D. n. Cooksoni*, a fine form, but less so than the plant of Mr. Pollett's, which obtained a Certificate; another *Dendroba* was *D. amethystoglossa*. *Cattleya Percivalliana*, a plant with eight blooms, was a welcome piece of bright colour; *Odontoglossum crispum punctatissimum* is a showy white form, with rosy-purple suffusion, and darker minute spotting. *O. crispum pardalinum* was shown in a very fine piece, also *O. nebulosum pardinum*; it is of dwarf habit, the flowers white, with dull brown spots on the lower half of the segments closely packed together; the white *O. Oerstedii* major, *Lælia anceps vestalis*, and *L. harpophylla*, two beautifully contrasting species, were observed, as likewise *Masdevallia Gargantua*, a singularly marked and formed species—interiorly it is purple-brown, the upper portion, margins, and the three tails are greenish-yellow, and being poised with the mouth of the flower turned uppermost, the singular colouring is easily observed. Another plant of much rarity was *Evelyna kermesiana*, bearing a short spike of small purple flowers.

A number of Orchids came from the gardens of A. H. Smea, Esq., The Grange, Wallington (gr., Mr. G. W. Cummins), consisting chiefly of species that are rare, of recent introduction, and possessing small flowers. These were *Oncidium Russelianum*, a small brown flower, with a white and yellow lip; a species of *Maxillaria*, yellow in form, near *M. picta*; *Angraecum hyaloides*, with small white flowers, the habit of plant very dwarf; *Dendrobium Kingianum* album, *Odontoglossum Oerstedii* and *O. O. major*; the minute and curious *Masdevallia culex*; *Vanda cristata stricta*, with creamy white flowers with green tips and purple stripes. *Sophranitis violacea* is a little gem in rosy-purple, and habit exceedingly dwarf. *Ophrys lutea* was shown in flower, the tall spike carrying three blooms like yellow discs, with a purple patch in the centre of each.

A number of *Dendrobiums*, consisting of several forms, were shown of *D. eusomum*, *D. splendidissimum*, *D. endocharis*, &c., came from Messrs. Veitch & Son's nursery, Chelsea. *D. eusomum* and *D. e. leucopteron* were obtained by crossing *D. endocharis* and *D. nobile*. In the second-named hybrid we have a purer white flower than that of the first-named, but the blotch of purple on the lip is smaller. The other hybrid *Dendrobium* is *splendidissimum*, *D. aureum* × *D. nobile*. Three plants of different forms of *Odontoglossum* triumphans were shown; one is bright yellow, with a few widely-separated light brown spots; lip and throat white, tipped with brown. Another is very dark brown and tipped with yellow, the lip yellow as to the base and brown along all the margins. The third seemed to be in all points intermediate between these, and the brown and yellow shades paler.

A few plants of great merit came from the nursery of Messrs. Sander & Co., St. Albans, the finest being a plant of *Lycaste Skinneri* Imperator, a magnificent form, large, with petals of brilliant crimson; sepals rose-red, vanishing into white at the points; and lip of crimson, mottled with white. *L. S. alba* was exhibited in two examples. This is still one of the best, and by no means common. *Odontoglossum maculatum* anceps, has flowers with brown sepals and yellow petals, spotted at the base with brown the lip yellow crimson spotted.

Mr. Wright, gr. to C. N. Major, Esq., Cromwell lentiginosa, a brilliant golden-yellow flower set on House, Croydon, showed a specimen of *Dendrobium Hilli*.

From Kew we noted *Bletia vercenuda*, *Cœlogyne* a short erect stalk. The lip, the most conspicuous feature, is 2 inches wide, and is edged and spotted with brown.

The little *Holothrix secunda* mentioned in our issue for Feb. 4; *Corydalis Ledebouriana*, and a flower of the magnificent *Brownea grandiceps*, noticed on another page, completed the list of Kew plants.

An interesting exhibit, made to show the origin of the warm house Rhododendrons was made by Messrs. J. H. Veitch & Sons, to which we must allude next week.

The new *Ardisia mamillata*, figured in our pages recently, was shown in berry. It looked likely to prove a "gardener's plant," and is quite as decorative as the old *A. crenulata*.

A pretty group of Alpines and other plants came from Messrs. Paul & Son's Old Nursery, Cheshunt. There were *Saxifragas*, *Feonias*, *Helleborus*, *Cyclamen*, *Coum Megasea Stracheyi*, *Rosa viridiflora* in leaf and bud; flowering bulbs of *Iris Histris* from the Lebanon, and *I. reticulata Krelagei*. A handsome Lilac named *Hyacinthiflora* was observed, it is a compact purple variety, and apparently a good flowerer.

Mr. C. Turner, Royal Nurseries, Slough, showed two new winter flowering Carnations, excellent for cutting purposes, one is a red edged Picotee-like flower, with white ground; the other a crimson and alaty flake.

Messrs. Barr & Son, King Street, Covent Garden-W. C., sent a collection of bulbous plants, both in pots and cut. *Crocus chrysanthus splendens*, is a very noticeable *Crocus*, the orange-red of the stigmas shining out with great brilliancy against the butter yellow of the perianth segments. *Narcissus minor* was largely shown. There were also the Tenby Daffodil, *Narcissus Poeticus ornatus*, the White Hoop Petticoat *Narcisse*, &c. with *Crocus Imperatii Galanthus Elemesii* (a fine form of Snowdrop), and *Chionodoxa Lucilie*, Bronze Banksian Medal.

A group of *Narcissi* came from Mr. T. S. Ware, Hale Farm, Tottenham, for which a Silver Banksian Medal was awarded. These were set up in a novel way with wire, so that the bunches formed a kind of diamond fan. *Chionodoxa Sardensis*, *Scilla Sibirica* and other flowers were interspersed.

Beautiful *Cinerarias* of refined yet bright colours, were contributed by Mr. J. James, Woodside, Slough. A collection of Chinese *Primulas* came from the same grower. A silver Banksian Medal was awarded.

Messrs. H. Cannell & Sons, Swanley, showed many plants of their fine strains of *Primula sinensis*, viz., White Perfection, Swanley Giant, Crimson Perfection, and others. The smallness of the pots in which the plants were growing was noted by most persons. A few fine *Cinerarias* came from the same growers.

From that treasury of rare things, Pendell Court, Mr. F. Ross, gr. to Sir G. Macleay, exhibited *Donibeya Wallichii*, having a corymb of rosy-red flowers possessing yellow anthers. The diameter of the head was about four inches, so that it fell far short of that of the *Brownea grandiceps*, which it somewhat resembles at a distance. The other flowers from these gardens were *Acacia verticillata*, a free blooming variety, with yellow flowers and spiny shoots, and *Franciscia calycina*.

From the Society's Gardens at Chiswick there came four baskets of seedling *Helleborus* in flower, the colours of the sepals being in all cases dark.

Fruit Committee.

Present: T. F. Rivers, Esq., in the chair; and Messrs. W. Paul, J. Wright, H. Wier, J. Smith, J. Burnett, T. J. Saltmarsh, S. Ford, J. Woodbridge, Chas. Ross, J. Roberts, J. Cheal, Ch. Howe, G. W. Cummins, Wm. Denning, W. Marshall, H. J. Veitch, J. Lee, P. Crowley, and J. Willard.

We must defer our report of this meeting till next week.

Obituary.

JOHN SMITH.—We have to record the death on the 14th inst. of John Smith, the veteran ex-curator of the Royal Gardens, Kew. John Smith was born so long ago as October 5, 1798, at Aberdour, in Fifeshire. What we said of him in 1876 when we published an autobiographical notice and a portrait remains true.

His extraordinary knowledge of plants and of every circumstance connected with the history of the Royal Gardens, no less than his contributions to Botanical Science, have given him a claim to the respect of horticulturists which none will wish to gainsay, while the sympathies of all will be specially felt for one to whom the loss of sight is a more than usually sad deprivation.

In the autobiographical notice above referred to Mr. Smith narrates how he received his early education in the parish school of Pittenweem; he early commenced the cultivation of Scottish wild plants, his botanical knowledge being fostered by the aid of Lee's *Introduction to Botany*. In 1815 he worked as

a journeyman at Raith, near Kircaldy, doing the drudgery common in Scotch gardens in those days, and living in a miserable back-shed bothy. In 1816 he entered the gardens of the Earl of Moray at Donniebriestle, from whence, in the following year, he walked in the course of three days to Caley House, Kircendbrightshire; here he increased his botanical knowledge, and in the following year proceeded to the Royal Botanic Garden, Edinburgh, where the collections of plants were considerable. Here he met with congenial spirits, and although he and three others lived in a back shed one-roomed bothy, his wages being only 9s. per week, personal discomforts were forgotten, and botanical studies were eagerly pursued. He managed to purchase books and specimens, and to gain a considerable knowledge of plants, as well as of land surveying. In 1820 he came to London, and was appointed to fill a vacancy in the Royal forcing gardens at Kensington. In 1822 he entered the Royal Gardens, Kew, then consisting of only 9 acres; the hothouses then were, with one exception, all lean-to, and heated by small flues, having in all thirty-one furnaces, attended to by the young gardeners in rotation, and who had to perform the drudgery work in clearing away the ashes. His wages at that time were 12s. per week, out of which he still managed to buy books. As an illustration of the eagerness felt by some young gardeners at that time we may mention that Smith had observed in a book shop a second-hand copy of the *Epitome Horti Kewensis*, but the price being more than he could afford, he waited for several weeks till he had acquired the sum required when he started off to purchase the book, which he had just done, when one of his comrades entered the shop on the same errand.

From this time forward he advanced gradually under Mr. Aiton, but the condition of the gardens was such that great dissatisfaction was expressed at their management, and on February 12, 1840, the then Secretary of the Royal Horticultural Society (the late Mr. Bentham), and Dr. Lindley (assistant Secretary), received a note from the Secretary to the Treasury, offering the whole of the Kew collections upon certain conditions to the Horticultural Society. The Society unanimously declined to accept the offer, feeling that it would be a disgrace to the nation to break up the Kew collections.

The late Mr. Heward also protested against the change, the consequence of which was that the garden was transferred on April 1, 1840 to the Commissioners of Her Majesty's Woods and Forests, and on March 31, 1841, on the resignation of Mr. Aiton, Sir William Hooker became director, and with him, as we know, commenced a new era in the history of the garden.

Smith powerfully aided Sir William Hooker in his plans for the reform and improvement of the garden.

During all this time Smith continued his botanical studies and achieved a great reputation for his knowledge of Ferns.

In 1861 his sight failed, so that in 1864 he retired from his post, after 44 years' service in the gardens, carrying with him the respect of all who knew the vast extent of his services to Botany and Horticulture. Blindness, however, by no means put a stop to his labours, book after book followed from his pen, and his vast knowledge of plants and his intimate acquaintance with all the details of the history of the Royal Gardens, Kew, and on horticultural matters generally, furnished materials not only for books, but also for numerous letters and communications to the horticultural press; while, as a referee, his great stores of knowledge were always at the disposal of those who sought them.

DIED.—On the 10th inst. at Broomhill Gardens, Tunbridge Wells, Mr. JAMES NEVE, in his thirty-ninth year. Mr. NEVE had been head gardener to Sir D. Salomons, Bart., for the last ten years.

NOTICE.—Owing to want of space much matter is unavoidably postponed to our next issue.

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

ADDRESS.—Will G. B., who wrote about Peas, kindly send his name and address, not necessarily for publication?

APPLES: *A. C. G.* Owing to the time of year the distinctive marks of the several fruits sent for names have disappeared, and we cannot undertake to name them. Send earlier next autumn.

BOOK, GARDEN ARCHITECTURE: *Lady Amateur*. It is in the German language, and so far as we know there is no translation.

BULBS: *G. May*. Your *Lilium* bulbs are badly infected with the bulb-mite to which we have so often referred. Destroy your stock of infected bulbs.

LEMON-SCENTED VERBENA: *T. H.* These strike best from half-ripened young growth put in during the spring, and afforded a bottom heat of 80°. Autumn is not the best time; and your attempt lately to strike the cuttings was due to want of the proper degree of warmth, and probably to the state of the wood chosen.

MARQUERITE (CHRYSANTHEMUM) SEEDS: *T. H.* Any of the species will germinate in about 3 weeks—in less time, if afforded warmth in a hot bed, but from which they must be removed in 3 or 4 days after germination.

MARQUERITE CUTTINGS DYING: *T. H.* Without any data how can we assist you? Send some of them, and the soil they were put into, with full particulars of treatment given.

NAMES OF PLANTS: *G. P.* *Juniperus drupacea*.—*H. E. F.* *Lælia albidia*.—*J. B.* *Odontoglossum Rossi majus* var. *pallens*.—*L'Allegro*. *Rivinia humilis*.—*W. J. A.* It is a very pretty variety of *Dendrobium nobile*, but it has no varietal name. Recent importations show that this species varies considerably. —*A. Parrott*, 1, *Epidendrum atropurpureum* (*E. macrochilum*); 2, *Oncidium Cavendishianum*.—*W. A.* 1, *Lycaste cruenta*; 2, *Lavendula Stœchas*; 3, *Acacia armata*.—*A. Moulton*, 1, *Hedera elegantissima marginata rubra*; 2, *H. e. m. major*; 3 and 5, *H. sub-marginata*; 4, 6, and 7, *H. e. m. grandis*; *T. H.* *Dendrobium speciosum*.

ODONTOGLOSSUM VEXILLARIUM: *Young Inquirer*. It is impossible to say for certain why your bulbs make a second growth, but we imagine it must be from some check during growth, as a consequence of which the proper development was not made.

ORCHID CULTURE: *J. W.* *The Orchid Manual*, by B. S. Williams, Victoria Nurseries, Upper Holloway, N.

PAINTING OF AURICULA. *T. E. H.* It is scarcely suitable for our columns, so that we must decline it with thanks.

ROSEA GRATISSIMA: *Peto*. Does best in a warm greenhouse.

SIX CONSERVATORY CLIMBERS TO BE ORNAMENTAL FROM JANUARY TO MAY: *J. H. C.* *Tecoma Jasminoides*, *Senecio macroglossus*, *Lapageria rosea* and alba, *Acacia Riceana* and *pulchella*, *Polygala Dalmaisiana*, *Habrothamnus Newellii*.

VINE: *W. A.* By blight you probably mean the Vine mildew. This is often found to attack the Vine out of doors in this country, and it is one of the chief reasons the Grape Vine is not more grown for its fruits. The fungus had doubtless passed from the outdoors Vine to the other part of the Vine in the greenhouse. There is nothing for it but to treat the Vine as a warm-house plant.

VINE LEAVES: *J. M.* The appearance is probably caused by the paint. There are no traces of either fungus or insect.

COMMUNICATIONS RECEIVED.—Ancient Order York Florists' Report (next week).—M. Bergman.—J. H.—T. K. & Co.—G. F. W.—North Easter.—W. S. M.—W. B.—J. K.—G. W. G.—C. W.—W. D.—F. S. & Co.—J. G. H.—A. D.—Hogg & Wood.—D. Crombie.—T. R.—M. D.—Andrew Taylor.—H. M. K.—St. Brigid.—J. Hams.—U. D.—H. W. W.—J. D.—D. T. F.—H. E.—J. K. J.—Journal of Horticulture.—W. S.—A. S.—C. L.—J. A. De M., Boston, anticipated.—E. C. Highbury (many thanks).—H. J. R., Florence (with thanks).—W. L.—E. K.—G. A. B.—Udo Dammer, Berlin (thanks).—H. Corveon, Geneva (block sent).—G. B. W.—W. W., Kew (we will examine).—J. V. & Sons.

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Perry, F., Peopole Point, Stevehampton	0 10 0	
Parker & Sons, St. Michael's Hill Nursery, Bristol		0 10 0
Rye, W., Sneyd Park, Bristol		0 5 0
Shore, R., Berkeley Castle, Gloucester		0 5 0
Mr. H. W. WARD, Longford Castle, Salisbury		
Bathurst, Lady, Clarendon Park, Salisbury	0 10 0	
Blake, R., Winterbourne, Salisbury	0 10 0	
Bissett, J., Conholt Park, Andover	0 5 0	
Buckley, Miss, Minton House, Salisbury	1 0 0	
Fry, A., Longford Castle, Salisbury		0 5 0
Griffith, F., Salisbury	1 1 0	
Kelk, Sir J. W., Bart., Tedworth, Marlborough		1 1 0
L. B.,		
Pratt, W., Langlitt, Warminster	0 10 0	
Williams, W. H., Castle Street Nursery, Salisbury	0 10 0	
Small sums	0 2 6	

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A. F. BARRON, Honorary Secretary,
ROYAL HORTICULTURAL SOCIETY'S GARDENS,
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THOMAS GREEN & SON, LIMITED,

SMITHFIELD IRONWORKS, LEEDS, AND SURREY WORKS, BLACKFRIARS ROAD, LONDON, S.E.,

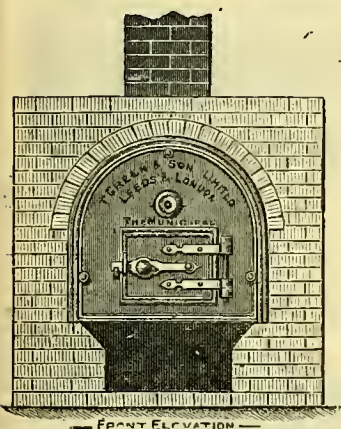
HORTICULTURAL ENGINEERS to HER MAJESTY THE QUEEN, call Special Attention to their

PATENT WROUGHT-IRON MUNICIPAL OR ANGULAR CHAMBERED AND TUBULAR HOT-WATER BOILERS,

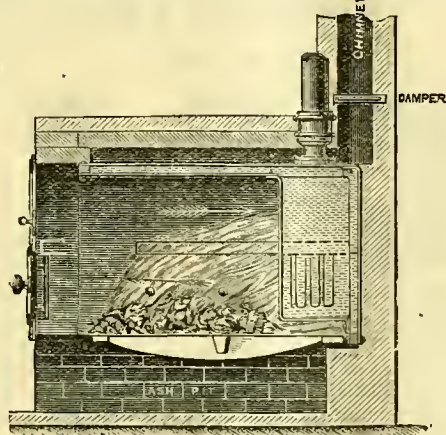
And others with SHELVES, and Hollow or Ordinary Cast-iron GRATE BARS.

SADDLE BOILERS. With WATERWAY BACKS and WELDED BOILERS, any of which are specially adapted for Heating Greenhouses, Conservatories, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c. They are the neatest, cheapest, most effective, and durable of any extant. The MUNICIPAL and TUBULAR ones are remarkable for their great heating power, slow combustion, and the length of time the fire will burn without requiring attention.

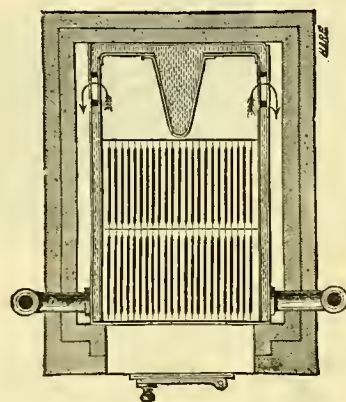
These Patterns secured the FIRST and HIGHEST PRIZE a SILVER MEDAL, at the Royal Horticultural Society's Exhibition, South Kensington, London, June 1, 1881.



— FRONT ELEVATION —



— LONGITUDINAL SECTION —



SECTIONAL PLAN.

The longitudinal section gives a view of the fire-box, water space, flues, &c.

The cross section gives a view of the fire-box, water space and V-shaped back.

The front elevation shows it set in brickwork, which is necessary for this class of boiler.

SIZES AND PRICES.

	3 ft. 2 in. long	by 2 ft. 0 in. wide	by 2 ft. 0 in. deep		1000 ft.	Price
M B 1	3 ft. 2 in.	by 2	0	Calculated to	1280	£15 0 0
M B 2	4 0	by 2	0	heat 4-in. piping	2200	32 0 0
M B 3	5 0	by 2	3	as follows:—	4000	60 0 0
M B 4	6 6	by 3	0		7000	85 0 0
M B 5	8 6	by 4	0			

TESTIMONIALS.

MESSRS. THOS. GREEN AND SON, LTD., NORTH STREET, LEEDS.

Re HEATING APPARATUS.

GENTLEMEN,—I have great pleasure in bearing testimony to the efficiency and satisfactory working of the Hot-water Heating Apparatus you erected in these public buildings. The buildings are four storeys high, and we have a total length of about 28,000 feet of piping in them, varying in size from 1½ in. to 6 in. diameter, with their connections, &c. The several offices and rooms can all be in operation at one time or separately, and the heat regulated by means of the valves to the temperature required, even in the coldest weather. Two of your Patent Municipal Pattern Boilers, No. 4, work the whole of this piping easily, although we have three of them fixed. They are very powerful and economical in the consumption of fuel, and I am pleased to be able to report of them and the apparatus so favourably.

I am, Gentlemen, yours truly, THOS. HEWSON, Borough Engineer.

GENTLEMEN.—The large Municipal Boiler which you sent me last year is doing its work satisfactorily; it is heating 5,000 feet of 4-inch pipe in one of my vineries, and I am quite sure that it has power to work a much greater length, while in cost of fuel it compares favourably with my other Boilers.

I have now five of your Boilers in use, and I cannot speak too well of their heating powers, or their comparatively small consumption of fuel.

Yours faithfully,

(Signed) G. W. BASHFORD.

AND HUNDREDS OF OTHER REFERENCES CAN BE GIVEN IF REQUIRED.

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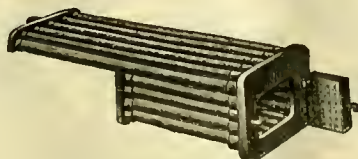
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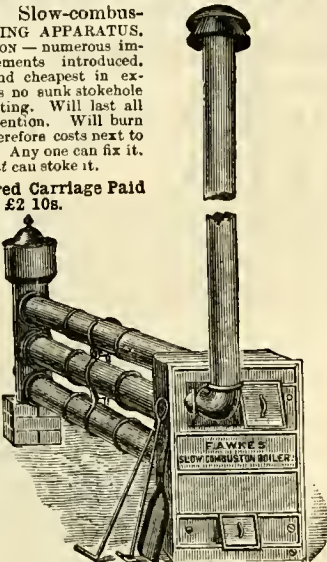
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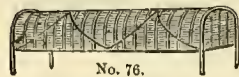
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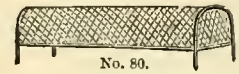
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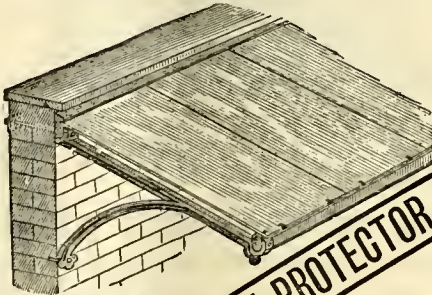
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Two end pieces included with each dozen.

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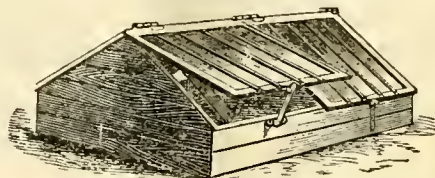
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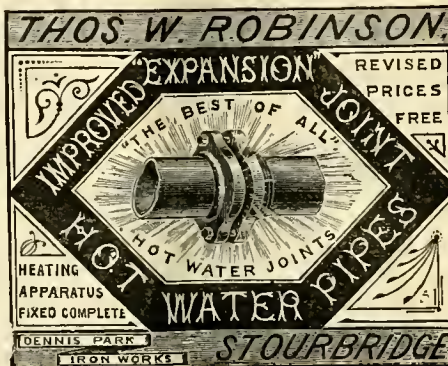
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6 feet long, 5 feet wide, " " "	3 15 0
12 feet long, 5 feet wide, " " "	6 10 0

The glass is nailed and puttied in.

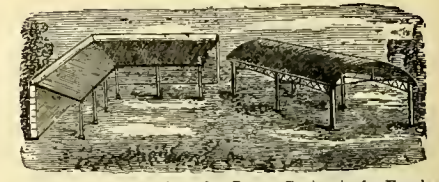
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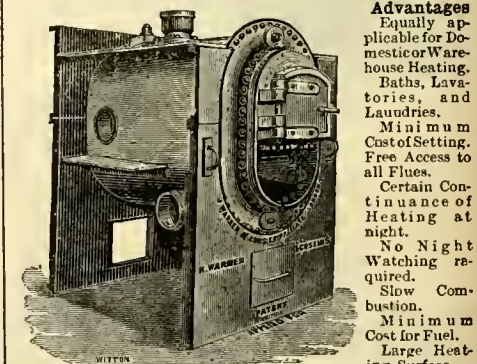
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For Greenhouses, Vineries, Conservatories, Forcing Houses, &c.



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100 squares of Glass, quality guaranteed.

15 oz.	21 oz.
13½ by 8½ for 10/- for 14/-	or 300 squares 15 ounce, 8 by 6.
12 " 6 " 10/- " 15/6	or 250 squares 6½ by 6½, or 220
14 " 10 " 13/- " 19/-	squares, ½ by 6½, or 170 squares,
14 " 12 " 17/6 " 24/-	9 by 7½, or 150 squares, 10 by 8,
12 " 12 " 13/- " 20/-	for 10s. Carriage paid for all orders
18 " 12 " 21/- " 31/-	over £3.
20 " 12 " 24/- " 35/-	

Glass cut to any size at the above proportionate prices.
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A large quantity of all descriptions and sizes in stock, at the lowest possible prices.

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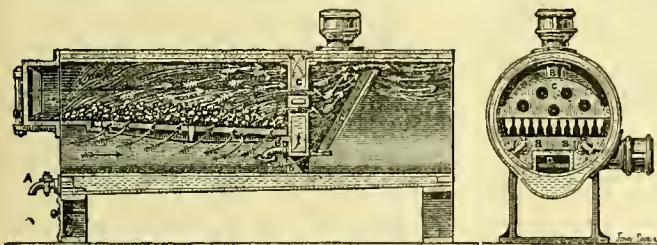
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WANTED, a good practical GARDENER. Age not over 40. Married, no children. Must thoroughly understand his business. One helper under him. Little glass. Wages £1 a week and cottage (unfurnished). Wife must be a good Laundress and take Family's Washing.—Colonel T., Eddington House, Hungerford.

WANTED, a steady, energetic, and experienced GARDENER—good Propagator—to take charge of Forcing Houses, Frames, &c., to Grow Plants, Cut Flowers, Cucumbers, Tomatoes, and Vegetables, in quantity for Market.—Apply, stating age, wages, references, &c., to **B. J. TAPPENDEN**, Little Sutton, Chiswick, W.

WANTED, experienced successful GROWER and **PROPAGATOR** of Soft-wooded Stuff, chiefly Pelargoniums (Zonal and Show), Lobelias and Chrysanthemums for market. Must be able to Grow Ferns, double Primulas, Cinerarias, and Bulbs; force Cucumbers, &c., and be well up in General Nursery work. Wages to commence about £1. Churchman and non-abstainer. With this might be combined office of Verger (duties light) in a church. Additional remuneration for whole time, good cottage (£10 10s.) rent-free, water laid on; two tons of coal per annum, and other advantages. Member of C. E. W. M. S. welcomed. Good character indispensable.—State experience, qualifications, and give reference to **E. C. U., Gardeners' Chronicle Office**, 41, Wellington Street, Strand, W.C. Only those accustomed to Grow for Market need apply.

WANTED IMMEDIATELY, as PROPAGATOR, a young Man experienced in the Propagation of Hardy and Half-hardy Florists' Flowers, and to have charge of Hothouses.—State wages expected to **M. CUTHBERTSON**, Florist and Seedsman, Rothsay, N.B.

WANTED, a young MAN, to Assist in the Houses, and at Market Stall. A knowledge of Seeds preferred.—**C. WHITING**, Seedsman and Florist, Hereford.

WANTED, FLORAL APPRENTICES to the General Market Nursery Business on the 3, 5, or 7 years' system.—Terms and particulars to **FLETCHER, SON AND CO.**, Nurserymen, Seedsmen, and Florists, Chesterfield.

VACANCY for Garden BOY of 16, in a good establishment. Only to those who can be well recommended, and who intend to follow up Gardening. Lodgings in Bothy.—**E. BAYMAN**, Holmbury, Dorking.

Propagator Wanted (Indoor).

WANTED, a steady and industrious Man as PROPAGATOR in the Houses, and occasionally to act as Salesman. Must be a successful Grower of Clematis, Pot Roses, and Soft-wooded Stuff.—Apply, stating age, where last employed, wages expected, &c., to **JNO. JEFFERIES** and **SONS**, Cirencester.

WANTED, as FLORIST, a Man who must be well up in Wreaths, Crosses, Sprays, Bouquets, &c.—Only men of experience and taste need apply, stating full particulars to **POPE AND SON**, King's Norton Nursery, Birmingham.

WANTED, a JOURNEYMAN, in a Nursery, with a good knowledge of Fruit Growing, Plants, &c., under Glass. State particulars, with wages.—**W. WATSON**, Polegate Gardens, Sussex.

WANTED, a quick active MAN to Graft, Grow Roses and Cut Flowers in a small Nursery for Market. State experience, wages expected, &c., to **MR. MORLE**, 1 and 2, Fenchurch Street, E.C.

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—**JOHN DOWNIE** (of the late firm of Downie & Laird), Seedsman, 144, Princes Street, Edinburgh, has at present on his List a number of **SCOTCH GARDENERS**, waiting re-engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

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JOHN LAING and **SONS**, having filled many important places, can **RECOMMEND** with very confidence, energetic and practical MEN of tested ability, and first-rate character. Ladies and Gentlemen in want of Gardeners and Bailiffs, or Gardeners for first-rate Establishments, or Single-handed situations, can be aided, and have full particulars by applying to us. No fees charged.—**JOHN LAING** and **SONS**, The Nurseries, Forest Hill, S.E.

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GARDENER (HEAD); age 35, Scotch.—**J. McPHEAL**, for the last ten years Head Gardener to Colonel Cooper, at Markree Castle, Calloney, will shortly be disengaged. Highest testimonials, and Col. Cooper kindly allows reference.

GARDENER (HEAD), where two or three are kept; age 29, single.—**J. AMYS**, Gardener to the Hon. Mrs. Elobt Yorke, Hamble Cliff, Southampton, can with confidence recommend his Foreman (**G. DOVEY**) as above. Disengaged by the end of March.

GARDENER (HEAD).—Married, no family; thoroughly practical man. Used to Management of Large Gardens, extensive Houses, and Large Staff of Men. Can be highly recommended.—**W. T.**, Failand Hill, near Clifton, Bristol.

GARDENER (HEAD); no incumbence.—**MR. W. BISHOP**, late Gardener to the late Sir E. Jodrell, Bart., and many years at Bylugh Park, will be pleased to treat with any Lady or Gentleman requiring the services of a first-class all-round Gardener.—**HEAD GARDENER**, The Grove, Teddington; or, **Head Gardener**, Wesley Hall, Bury St. Edmunds.

GARDENER (HEAD), to any Lady, Nobleman, or Gentleman requiring the services of a thoroughly practical man.—Age 50, married, no incumbence; first-class character and testimonials. Disengaged March 15. Leaving entirely owing to an alteration in the establishment. Distance no object.—Please address **Park Wern**, Sketty, Swansea, S. Wales.

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GARDENER (HEAD); age 28, married.—**MR. THOMAS**, Head Gardener to **T. T. Drake, Esq.**, Shardeoles, Amersham, would be pleased to recommend his late Foreman to any Lady or Gentleman requiring a good all-round gardener; four years in last place; with good reference.—**H. BLIZZARD**, Gomer Cottage, Prewitt, Gosport.

GARDENER (HEAD); age 36, abstainer.—General **NEWDEGATE**, of Arbury Hall, Nuneaton, Warwickshire, will be pleased to recommend his Head Gardener, **C. MARSHALL**, to any Lady, Nobleman, or Gentleman requiring the services of a thoroughly practical man. Four years in present situation; six and a half years previous as Head. Leaving entirely owing to an alteration in the establishment.—Please address as above.

GARDENER (HEAD); age 35, married, no family.—A **GENTLEMAN** wishes to recommend his Gardener, who has been with him eleven years. Thoroughly experienced in the profession. Good cause for leaving.—**J. D.**, 51, Priory Street, Tonbridge.

GARDENER (HEAD); age 35.—A **Gentleman** desires to recommend his late Head Gardener to any one requiring a thorough practical, energetic, and trustworthy man. Capable of managing a first-class establishment. Experience in all branches. Married. Teetotaler.—**JOHN RAGGETT**, 14, Randell Road, Paddington, W.

GARDENER (HEAD).—**G. INGLEFIELD**, Gardener to **Sir J. W. Kelk, Bart.**, Tedworth Gardens, Marlborough, wishes to recommend a man as above. Well up in all his duties. A persevering and energetic man. Highly recommended by late employer, where he lived seven years.—Address above.

GARDENER (HEAD WORKING).—Age 47; married, no family; thirty years' practical experience in all branches of Gardening. Three years' excellent character from present place. Lodge or cottage preferred.—**W. B.**, Riverside, Palace Road, East Molesey, Surrey.

GARDENER (HEAD WORKING).—Age 47; married, no family; thirty years' practical experience. Head Gardener twenty-two years. Three years' good character from present place. Lodge or cottage preferred.—**W. B.**, Riverside, Palace Road, East Molesey.

GARDENER (HEAD WORKING).—Age 31, married.—**MR. MITCHELL**, Head Gardener to the Right Hon. Lord Wenlock, Eskrick Park, York, wishes to recommend his General Foreman, **George Taylor**, as above, to any Lady or Gentleman requiring the services of a thoroughly practical Gardener.

GARDENER (HEAD WORKING or good SINGLE-HANDED).—Single; twelve years' experience in Flower and Kitchen Garden and Pleasure Ground. Abstainer. Good character.—**H. TOMS**, Albert Cottage, Farningham Road, Tottenham, London.

GARDENER (HEAD WORKING).—Age 35, married; nineteen years' practical experience with Vines, Pines, Peaches, Melons, Cucumbers, Orchids, Stove and Greenhouse Plants, Flower and Kitchen Garden.—**G. I. ROBERT'S** Cottages, Lordship Lane, East Dulwich, S.E.

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GARDENER (HEAD WORKING).—Married. one daughter; twenty years' experience as a first-class Grower of Grapes, Melons, Peaches, Orchids, Chrysanthemums; also Forcing Roses, and the general routine of a Kitchen Garden. Wife Lodge Keeper or Poultry. First-class testimonials and certificates from various shows. No single-handed place.—**L. W. P.**, 53, Alys Road, Peckham, S.E.

GARDENER (HEAD WORKING); Age 28.—**MR. LINDSEY** will be glad to recommend his Foreman, **Frederick Kerr**, as above; well experienced in Fruit Growing and Forcing, Plant Growing, Cut Flower Decoration, and the General Routine of good Outdoor Gardening; four years' good character.—**The Gardens**, Huntingdon Park, Burnley, Lancs.

GARDENER (HEAD WORKING); age 34.—**The Rev. J. A. EWING**, Westmill Rectory, Buntingford, wishes to strongly recommend his late Gardener to any Lady or Gentleman in want of a thoroughly practical man. Married, no family.—Address, **J. K.**, Westmill, Buntingford.

GARDENER (HEAD, or SINGLE-HANDED).—Twenty years in last situation. Thoroughly experienced in Stove and Greenhouse Plants, Vines, Melons, Cucumbers, Ferns, Flower and Kitchen Garden. Exceptional references. Abstainer. Preferably in neighbourhood.—**S. H.**, Providence Cottage, High Cross Lane, Tottenham, London.

GARDENER (SINGLE-HANDED, or where help is given).—Age 27, married, no family; twelve years' experience in Stove and Greenhouse Plants, Vines, Melons, Cucumbers, Flower and Kitchen Garden. Three years' good character.—**W. BOWLES**, 23, Drysdale Road, Lewisham, S.E.

GARDENER (SINGLE-HANDED); age 28.—A **GENTLEMAN** who is giving up wishes to find a situation for his Gardener, who is steady and trustworthy. Excellent character. Wife useful, if required.—**W. HUNT**, 228, Queen's Road, Dalston, E.

GARDENER (SINGLE-HANDED, or otherwise).—Age 25; single. Eleven years' experience in all branches. Excellent character.—**FRANCIS**, 85, St. George's Square Mews, London, S.W.

GARDENER, where two or three are kept.—Age 30, married; understands Vines, Melons, Cucumbers, Stove and Greenhouse Plants.—**G., Gardeners' Chronicle Office**, 41, Wellington Street, Strand, W.C.

GARDENER age 26, married.—A GENTLEMAN wishes to recommend his Gardener's son as above. Thorough in all branches of Gardening, and fully understands Hothouse. Good Arranger of Flowers for Table. Most trustworthy, and excellent character.—Address, R. F., Hill Top, Midhurst, Sussex.

GARDENER; married.—Lady SITWELL, Woodend, Scarborough, wishes to recommend a Scotch Gardener, who has lived with her for six years, previously eight years at Floors Castle, N.B. Thoroughly reliable.

GARDENER.—Middle-aged, married, four children; thoroughly understands his business; used to Vines and Greenhouse. Many years' experience. Excellent references.—J. B., 4, Senate Street, Nunhead, S.E.

GARDENER (good SECOND) or otherwise).—Age 25; experienced in all branches. Good references. E. N., Clare Cottage, Page Street, Mill Hill, N.W.

GARDENER (SECOND).—Age 22; has had seven years' experience both inside and out, in good establishments. Can be well recommended.—W. BLUNT, Normanfield, Hampton Wick, Middlesex.

GARDENER (SECOND, with two or three in Bothy), or FIRST JOURNEYMAN, in good place. Age 25.—J. MALBY, The Gardens, Denton Manor, Grantham, can with every confidence recommend a young man as above.

GARDENER (SECOND or UNDER).—Age 22; seven and a half years' experience inside and out. Three years' good character.—E. RIXON, 42, Parfitt Road, New Road, Rotherhithe, S.E.

GARDENER (UNDER).—Age 21; seven years' experience. Three years in present place. Good reference.—J. LEONARD, Moorallerton, Leeds.

GARDENER (UNDER).—Age 23; two years' good character from present place. Strong, active, and willing.—H. RUSS, 9, Mill Street, Aylesbury, Bucks.

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MANAGER, or NURSERY FOREMAN.—Age 38; thoroughly experienced. First-class references, and having a good connection, could take journeys.—S. A., 41, Wellington Street, Strand, W.C.

FOREMAN.—Age 26; twelve years' experience in Forcing, Plant and Fruit Growing. Two years' good character in present situation.—E. RUSSELL, 189, Wellfield Road, Streatham, S.W.

FOREMAN, in the Houses, in a good establishment.—Age 24; well up in all branches of the profession; good characters. Two and a half years in present situation.—J. DEAN, Buckland Gardens, Bwlich, near Brecon.

FOREMAN; age 27.—Mr. SANDHAM, Cloughton-on-Brook, Garstang, can with confidence recommend a young man to any Gardener requiring a trustworthy man. Ten years' experience in large establishments.

FOREMAN; age 25.—Mr. HATHAWAY, Gardener to the Right Hon. Earl Lathom, can confidently recommend a young man to anyone requiring a thoroughly trustworthy man as above. Four and a half years in present situation.—Lathom House, Ormskirk.

FOREMAN.—Age 27; understands Vines, Pines, Peaches, Melons, Stove and Greenhouse Plants, &c. Has been Foreman in present place two years and nine months. Satisfactory references.—T. PICKERING, The Gardens, Cannon Hall, Near Barnsley.

FOREMAN PROPAGATOR and GROWER, in small Nursery.—Used to Palms, Ferns, and Stove and Greenhouse Plants. Can produce in quantities. Eleven years' experience in one of the large London Nurseries. Near London preferred.—W. W., Floral Hall, Bruce Grove, Tottenham, N.

FOREMAN PROPAGATOR and GROWER.—Age 38, married; a good all-round Man. Cut Flowers, Wreaths, Bouquets, &c. Highest references from past and present employers.—PROPAGATOR, Barbourne Nurseries, Worcester.

FOREMAN, or FIRST JOURNEYMAN; age 24.—J. HEARSEY would be pleased to meet with a Gardener requiring the above. Nine years' experience in large establishments. Good references.—Hand Cross, Crawley, Sussex.

FOREMAN, or SECOND, in a good establishment.—Age 25; eight years' experience. Good recommendation from present and previous employers.—G. H., The Gardens, Lockerley Hall, Romsey, Hants.

To Nurserymen.

GENERAL INDOOR FOREMAN or MANAGER.—Had the entire Management of a Nursery during the last seven years. Good Plant Grower. The highest references for seventeen years. T. B., 59, Branksome Road, Brixton, S.W.

To Head Gardeners.

FOREMAN, in the Houses; age 25.—Mr. GEO. MOUNT, The Rose Nurseries, Canterbury, can with confidence recommend a young man as above. Has a good knowledge of his profession, and is thoroughly trustworthy.

FOREMAN, or SECOND, in a Gentleman's establishment.—Age 24; an energetic steady man. Can be highly recommended.—J. G., 3a, Uporne Road, Chelsea, S.W.

FOREMAN, in the Houses.—Age 25; ten years' experience in the Cultivation of Stove and Greenhouse Plants, Vines, Peaches, Melons. Good references.—C. LINK, Everingham, Yorks.

FOREMAN; age 25.—W. SUTTON, Gardener, Ashley Park, Walton-on-Thames, can highly recommend his Foreman, E. L. Jones, who has been with him two years, to any Gardener requiring the services of a steady, willing, and obliging young man.

ORCHID GROWER and GARDENER (WORKING).—J. EARL will be pleased to recommend a man as above. Good experience and excellent character.—Nellestone, Ryde, Isle of Wight.

GROWER, or under a Foreman.—Age 24; ten years' experience. Fruit, Ferns, and general Market Stuff.—G., 24, Turner Road, Lee, S.E.

GROWER of Stove and Greenhouse Plants, in Nursery.—Age 23; good character and experience.—A., Boston Grove, Boston Spa, Yorkshire.

PROPAGATOR and GROWER in a Market Nursery.—Age 23; state wages, &c.—W. BARNES, Little Po-brooke, Litchfield, Hants.

PROPAGATOR.—Nearly five years' experience in Rhododendrons, Conifers, Clematis, Roses, and Soft-wooded Plants.—Apply, with terms, to BRIGGS, Messrs. Cripps & Sons Nurseries, Tunbridge Wells.

PROPAGATOR, of Soft and Hard-wooded Plants, Ferns, &c. Age 26; wanted a permanent situation. Thoroughly experienced. Large establishment preferred.—L. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

JOURNEYMAN (FIRST), in the Houses; age 22.—Mr. GEO. HUMPHREY, Nash Court, Faversham, can highly recommend a steady, respectable, trustworthy young man as above.

JOURNEYMAN (FIRST).—Age 23; eight years' experience inside and out. Twelve months' good reference in present situation, principally in Fruit Houses. Three years previous in Orchids, Stove, and Greenhouse Plants.—W. T., The Bothy, Jackwood, Shooter's Hill, Kent.

JOURNEYMAN (FIRST), in the Houses, in a good establishment.—Age 22; two and half years in present place. Good character.—W. HAMMOND, Bearwood Gardens, Wokingham, Berks.

JOURNEYMAN (FIRST).—Age 22; has a good knowledge of Fruit, Orchids, and Stove and Greenhouse Plants. Good references.—G. CHILCOTT, Elsington Gardens, Fuddletown, Dorchester.

JOURNEYMAN, in the Houses.—Age 20; two and a half years in last situation, good references.—F. FORTESCUE, Prospect Place, Caversham, Reading.

JOURNEYMAN, in the Houses.—Age 22; seven years' experience. Good references.—W. JONES, The Street Gardens, Chorley, Lancashire.

JOURNEYMAN, in the Houses.—Age 21; six years' good character from present situation.—O. WATTS, The Gardens, Aynho Park, Banbury.

JOURNEYMAN, inside, in a good establishment.—Age 20; three years' good character from present employer. Bothy preferred.—J. MYERS, The Gardens, Hawswick, St. Albans, Herts.

JOURNEYMAN, in a good establishment.—Age 20; four and a half years with present employer; good character.—Mr. HENDERSON, Mabledon Park Gardens, Tonbridge, Kent.

JOURNEYMAN, in the Houses, in a good establishment.—Age 24; first-class reference as to character and ability from last situation.—W. QUARRY, Glenthorne, Stanmore, Middlesex.

JOURNEYMAN; age 19.—Mr. WHITEMAN, Gardener, Ewell Castle, Surrey, wishes to recommend a young man as Journeyman. Good experience inside and out.—W. HUNT, North Acres, Streot, Sussex.

JOURNEYMAN, in the Houses.—Age 21; six years' experience in Fruit and Plant-houses and Outside. Excellent character from last and previous employer.—A. MILLARD, Myrtle Cottage, Groombridge, near Tunbridge Wells.

JOURNEYMAN, in the Houses.—Age 20; six years' experience, last two years in Orchids. Well recommended.—M. DYER, Gatton Lodge, North Cray, Kent, would be pleased to hear of a situation as above. Bothy preferred.

JOURNEYMAN.—Age 21; inside preferred, six years' experience, can be recommended by WM. ELLIS, The Gardens, Pepper Arden, Northallerton, Yorkshire.

JOURNEYMAN (FIRST in the Houses).—Age 23; nine years' experience. Good testimonials from present and previous employers. Country preferred.—J. B., 8, Cochrane Street, St. John's Wood, N.W.

JOURNEYMAN, in the Houses.—Age 21; seven years' experience in good establishments. Excellent character from last and previous employer.—EDWARD BEAN, Lawn Cottage, Mount Street, Diss, Norfolk.

JOURNEYMAN, in the Houses.—Age 21; five years' experience, inside and out. Good character.—R. COOPER, The Gardens, Temple, near Great Marlow Bucks.

JOURNEYMAN, in the Houses.—Age 23; three years in present place. Good character.—D. J. H., The Gardens, Bentley Priory, Great Stanmore, Middlesex.

JOURNEYMAN, in the Houses or otherwise.—Age 22; six years' experience. Four years' good character from present situation.—GARDENER, Moreton House, Bideford, Devon.

JOURNEYMAN, in the Houses, or Inside and Out.—Age 27; ten years' good character. Leaving through break-up of establishment.—R. S., Carshalton House, Carshalton, Surrey.

JOURNEYMAN, in the Houses or otherwise.—Five years' excellent character from last situation. Satisfactory cause for leaving. Abstainer.—T. HOOKER, 24, Crampton Road, Penge, S.E.

JOURNEYMAN; age 23.—W. SUTTON, Gardener, Ashley Park, Walton-on-Thames, will be pleased to recommend a young man, as above, to any Gardener requiring a steady, willing, and obliging young man.

JOURNEYMAN, in the Houses.—Age 20; three years in present situation. Bothy preferred.—For particulars, apply to Mr. CAKEBREAD, Rayner's Glenn, Bucks.

IMPROVER, in the Houses, or otherwise.—Age 21; can be well recommended from last employer.—WM. ABBOTT, Tanfield, Bedale, Yorkshire.

IMPROVER, in a Gentleman's establishment.—Age 18; two years' good character from present situation. Please apply, T. KEMBLE, Ewell Castle, Ewell, Surrey.

IMPROVER, in a Gentleman's Garden.—Age 18; good reference.—P. W., 51a, Upper Berkeley Street, Portman Square, W.

IMPROVER in Gentleman's Garden, or Market Nursery.—Age 18; well educated. Used to Palms and Ferns.—B., 57, Lyndhurst Grove, Peckham, S.E.

IMPROVER; Houses preferred.—W. WAINWRIGHT, Kimberley Park, Wymondham, Norfolk, can highly recommend a young man as above. Five years in present situation.—Apply, ERNEST ALLEN, Kimberley Gardens, Wymondham, Norfolk.

TO MARKET GARDENERS, &c.—Wanted, re-engagement in Market Nursery.—Age 22; well up in Plant Growing and Making-up Cut Flowers. Can Serve Customers.—G. D., 3, Rose Terrace, Stourbridge Road, Halesowen.

TO NURSERYMEN.—Situation wanted to Grow Plants for Market, under a Foreman. Age 21. Good references.—T. R., 57, Lenham Road, Lee, S.E.

TO GARDENERS.—A young man seeks a situation (age 19). Five years' experience. Good character. Bothy preferred. Abstainer.—J. DAVIES, The Gardens, Cruckton Hall, Shrewsbury.

TO GENTLEMEN'S GARDENERS ONLY.—Wanted, by a Gardener's Son, a situation under a good Gardener, indoors and out. Age 20; strong, active, and willing; four years in present situation. Premium given.—G., Mr. Goddard, 43, Newland Road, Worthing, Sussex.

TO NURSERYMEN, &c.—Wanted, by a young man (age 24), situation in a London or Provincial Nursery. Had eleven years' experience in the Houses. Good Propagator. Grower of Plants for Market. Eighteen months' good character.—W. W., Staines Villa, Staines Road, Sunbury, Middlesex.

TO FLORISTS and OTHERS.—Wanted, a situation by a young man (age 23); nine years' experience. Four years in present situation. Amongst Eucharis, Roses, Bouvardias, &c., for Cut Blooms. Highest references.—Please address, LILLUM, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO FLORISTS and OTHERS.—Wanted, a situation, by a youth (age 17); two years' experience; quick at Potting, Watering, &c. Highly recommended.—W. GORMAN, Glysonen, St. Clears, Carmarthenshire.

NURSERY CLERK.—Well experienced in Nursery and Seed Business, good general Correspondent, Cashier, or Book-keeper. Capable of taking entire Charge of a Business when Principal away.—Z. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

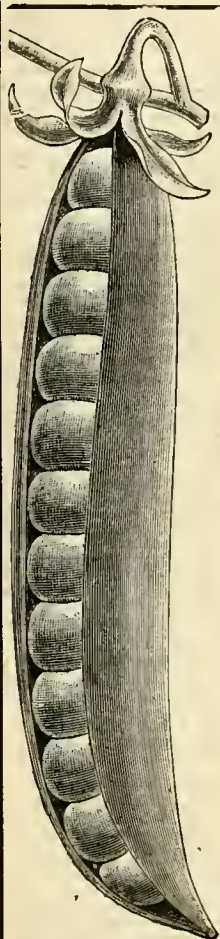
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SHOPMAN, CLERK, or TRAVELLER.—Eighteen years' experience; thorough knowledge of Garden and Agricultural Departments. Excellent references.—W., Postmaster, Stewarton, Ayrshire.

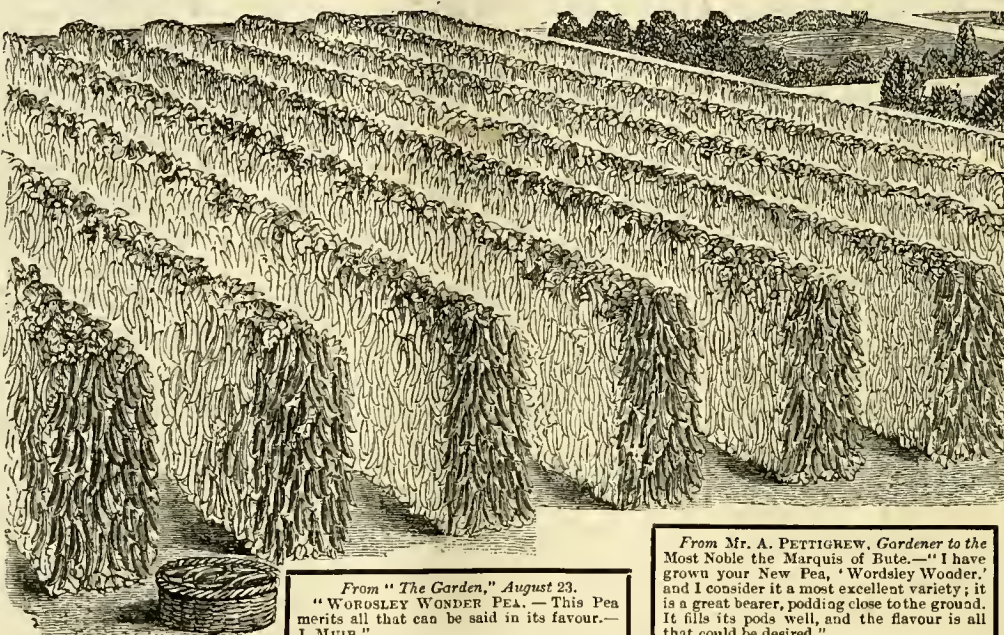
CLERK, in the NURSERY and SEED TRADE.—Good Correspondent and Book-keeper; would assist in Seed Shop, if required.—T. K., Mr. Hamlin, Florist, &c., Bletchley, &c.

HOLLOWAY'S PILLS.—Wrong made Right.—Every day that any bodily suffering is permitted to continue renders it more certain to become chronic or dangerous. Holloway's purifying, cooling, and strengthening Pills are well adapted for any irregularity of the human body, and should be taken when the stomach is disordered, the liver deranged, the kidneys inactive, the bowels torpid, or the brain muddled. With this medicine every invalid can cure himself, and those who are weak and infirm through imperfect digestion may make themselves strong and stout by Holloway's excellent Pills. A few doses of them usually mitigate the most painful symptoms caused by undigested food, from which they thoroughly free the alimentary canal and completely restore its natural power and action.

THE BEST PEA IN THE WORLD: WEBBS' WORDSLEY WONDER.



A Blue Wrinkled Marrow, growing 2½ feet high, of strong and vigorous habit, and is the earliest Pea of the kind in cultivation, as it comes into use but a few days after Sangster's No. 1 and Kentish Invicta. The pods—produced in pairs at every joint—are of medium size, slightly curved, and each pod is literally packed with from ten to twelve large Peas, which are exceedingly sweet, of beautiful colour, and the finest flavour—3S. PER QUART, Post-free.



From "The Garden," August 23.
"WORDSLEY WONDER PEA. — This Pea merits all that can be said in its favour.—
J. MUIR."

From Mr. A. PETTIGREW, Gardener to the Most Noble the Marquis of Bute.—"I have grown your New Pea, 'Wordsley Wonder,' and I consider it a most excellent variety; it is a great bearer, podding close to the ground. It fills its pods well, and the flavour is all that could be desired."

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"Your New Pea, the 'Wordsley Wonder' is of extra good quality, with large and well-filled pods, and a most abundant bearer. I have recommended it to all my friends, as I think no one should be without such a Pea."

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"I found the 'Wordsley Wonder' Pea a very excellent variety of robust habit, with fairly long well-filled pods, produced in abundance, and I think perhaps the best Pea I ever tasted for quality and flavour."

WEBBS' CHANCELLOR PEA.

This New Blue Wrinkled Marrow Pea is one of the finest main crop varieties in existence. It is a continuous bearer, of robust habit of growth, and commences podding close to the ground.—2S. 6D. PER QUART, Post-free.

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The following varieties should be grown by all who wish to excell in the production of Vegetables either for Exhibition or Profit:—



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Lord DERRY's Gardener says:—"Webbs' Emperor was grown with four other sorts, and was considered the best of the lot." 6d. and 1s. per Packet, post-free.

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Mr. J. MUIR says:—"Your Criterion Lettuce is a beauty—the best of all." 1s. per Packet, post-free.

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Mr. J. WILKES says:—"It sets its fruit very freely, which are very handsome averaging 5 lb. in weight." 2s. 6d. per Packet, post-free.

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Mr. J. MUIR says:—"Webbs' Banbury is the best for the main crop, and none can equal it for exhibition." 6d. per Packet, 1s. per Ounce, post-free.

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H. T. HICKMAN, Esq., says:—"It turned out a most productive crop." 1s. 6d. per Ounce, post-free.

WEBBS' MAY QUEEN BROCCOLI.

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WEBB & SONS, Seedsmen by Royal Warrants, WORDSLEY, STOURBRIDGE.

The GARDENERS' CHRONICLE

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Back Numbers of the "Gardeners' Chronicle."

NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

NOTICE TO SUBSCRIBERS.—All Numbers of the "Gardeners' Chronicle" from January 1, 1887, are still to be had.

Now ready, in cloth, 11s. 6d.

THE GARDENERS' CHRONICLE,
Vol. II., Third Series, JULY to DEC., 1887.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE LIVERPOOL HORTICULTURAL ASSOCIATION.

EXHIBITIONS FOR 1888.
The SPRING SHOW of HYACINTHS, TULIPS, AZALEAS, &c., will be held in St. George's Hall, on WEDNESDAY, March 21.

GRAND EXHIBITION, in Sefton Park, on SATURDAY, August 4, and BANK HOLIDAY, August 5.
THE GREAT CHRYSANTHEMUM and FRUIT SHOW, on TUESDAY and WEDNESDAY, November 20 and 21.
Schedules on application to the Secretary.

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VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
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A. F. BARRON, Royal Horticultural Society, Chiswick.

CARTERS' LAST CONSIGNMENTS of the **GOLDEN-RAYED LILY** of JAPAN, **LILIUM AURATUM**, have just arrived.—Selected Bulbs of this charming hardy Lily are obtainable at the following low prices, direct from the Importers, plump and sound as English-grown Roots. Prices, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen, carriage free.

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J. J. CLARK, Goldstone Farm, West Brighton.

OLD CRIMSON CLOVE, TRUE.—Fine strong healthy young plants, well rooted, 12s. per 100.
H. REED, The Gardens, Belmont, Wimbledon.

CHRYSANTHEMUM, "W. G. DROVER."
Jap.—Certificated National, Birmingham, Southampton. Plants in March, 5s. each. See *Gardeners' Magazine*, Feb. II, on Notes by Mr. G. Gordon, Nurseries, Fareham.
W. AND G. DROVER, Nurserymen, &c., West Street, Fareham.

Now.

See Special Article, *Gardeners' Chronicle*, p. 199.
NOW IS THE TIME TO PLANT CHRISTMAS ROSES with success. Strong Crowns, 13s. per doz.
F. & A. DICKSON & SONS, The Queen's Nurserymen, Chester.

Surplus Cut Flowers.

HOOPER AND CO. (Limited) Receive and Dispose of any quantity of above at best Market Prices. Boxes, &c., supplied.—Address, Commission Department, **HOOPER AND CO. (Limited), Covent Garden, London, W.C.**

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W. G. T. GOULD, FLOWER COMMISSION AGENT, Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity, and to buy, cash to be sent with order. Highest Market Prices obtained. Remittances forwarded daily or weekly as desired.
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MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 186, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

WANTED, large or small Plants of ASPIDISTRA VARIEGATA in EXCHANGE for SHOW PELARGONIUMS, or very fine CAMELLIA FLEMINGIANA, 9 feet high, and 5 feet through, in tub; or for cash.
TURNER BROS., Nurserymen, Greenhill Nursery, Allerton, Liverpool.

WANTED, Rough or Shabby ASPIDISTRA LURIDA VARIEGATA, for stock plants, in large or small quantities.—State lowest price to
S. W. SILVER, Streatham and No-bury Nurseries, S.W.

TREES and SHRUBS for the SEA COAST.

CATALOGUE Free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOR SALE, a SPECIMEN ORCHID, "LYCASTE MAXILLARIA HARRISONIÆ." Has over 100 pedunculo-bulbs. Is in a tub. What offer.—**AMOS GROOM-BRIDGE, Nurseryman and Florist, Tothill Nursery, Plymouth.**

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PALMS, 3 to 5 feet high, for immediate disposal—*Latania borbonica*, *Seaforthia elegans*, *Chamaerops excelsa*, and *Phoenix reclinata*—from 10s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

Immense Stock of Palms of all Sizes—60,000.

W. ICETON has still the most extensive Stock of all the leading kinds of PALMS for Decoration, which he offers very reasonably. An inspection invited.
Putney Park Lane, Putney; and 129 and 130, Stands, Covent Garden Market, W.C.

ROSES!! ROSES!! ROSES!!!—The best and cheapest in the world; 40 choice Perpetuals for 21s., purchaser's selection from 400 best varieties. Catalogues free on application. Ten acres of Roses, 100,000 grand plants to select from. Plant now.—**J. WALTERS, Rose Grower, Exeter.**

BEGONIA SEED.—Sixpenny Packets, post-free 7d.; all colours, mixed or separate. Finest giant single varieties. Crimson, scarlet, pink, rose, white, yellow, orange, salmon. Larger packets, 1s. The best and cheapest procurable. Sow now.—**JOHN R. BOX** (for 10 years sole partner with J. LAING), Seedsman and Begonia Grower, Croydon.

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R. GILBERT, High Park Gardens, Stamford.

CARNATION SEED, Home-saved, from my splendid collection of named sorts, packet of 50 seeds, 1s.; collection of 12 varieties, 3s., post-free.

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THOS. BUTCHER, Nurseryman and Seed Merchant, Croydon.

TREES and SHRUBS for Game Cover and Underwood. Intending Planters should send for CATALOGUE, Free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PRIMULA OBCONICA.
Splendid new Seed, 1s. 6d. per packet.
JAMES DICKSON & SONS, 108, Eastgate Street, Chester.

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WHITE ENGLISH LILAC, Forced and Sold by K. DROST, Kew Nursery, Richmond, S.W.
and 30, Covent Garden Flower Market, W.C.
Any quantity to be had at a minute's notice.
TELEGRAPHIC ADDRESS—"DROST, RICHMOND, SURREY."

SURPLUS STOCK of STRAWBERRY PLANTS.—V. H. de Thury and Keen's Seedling, 2s. per 100, 7s. 6d. per 500, 10s. per 1000. Price LIST of other select kinds on application. Sample of plants, post-free, 3d.
W. LOVEL AND SON, Strawberry Growers, Driffield.

1000 SEAKALE Roots, for forcing. A capital lot. Specially grown for extra fine produce. 10s. 100, cash with order.—**G. H. Copp, Gardens, Holnest Park, Sherborne**

SUTTON'S AMATEUR'S GUIDE.
For the best Vegetables, Potatoes, and Flowers, are the new edition of this popular work; beautifully illustrated, and containing exhaustive articles, entitled—"A Year's Work in the Vegetable Garden," "The Culture of Mushrooms in the Open Air," 1s., post free, or gratis to customers ordering goods value 20s. and upwards.
SUTTON AND SONS, The Queen's Seed-men, Reading.

W. H. LASCELLES AND CO., HORTICULTURAL BUILDERS, 121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement, next week.

SALES BY AUCTION.

Wednesday Next.—(Sale No. 7628.)

Pyramid and Dwarf-trained APPLES, PEARS, PLUMS, PEACHES, NECTARINES, and other FRUIT TREES, Hardy Ornamental SHRUBS and CONIFERS, choice named Dwarf ROSES, a fine lot of CARNATIONS, PICOTÉES, PINKS, HOLLYHOCKS, and other Border PLANTS; LILIUMS of sorts, GLADIOLI, LILY of the VALLEY Clumps, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 29, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7629.)

10,000 Grand Bulbs of LILIUM AURATUM, &c., from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 1, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7629.)

VALUABLE ESTABLISHED AND IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 1, at half-past 12 o'clock precisely, a fine lot of ESTABLISHED ORCHIDS, including several hundred Odontoglossum Alexandrine, mostly strong unfowered plants; a fine piece of Lycaste Skinneri alba in bloom; Aërides, Cattleya Sanderiana, C. Warreni, C. Dowiana; fine hybrid Odontoglossum; Laelia elegans, and other good things, many in flower and bud. Also a fine importation of Odontoglossum crispum of the best type; Oncidiums, Angulou Ruckeri, &c., from Messrs. Shuttleworth, Carder & Co.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest, the whole in the finest possible condition.

Dates and further particulars will be duly announced in future Advertisements.

Manchester.

IMPORTANT SALE of a large and grand collection of splendid EXHIBITION SPECIMEN PLANTS, which have taken prizes at the leading shows around Manchester for a number of years, comprising over 700 Rare and Valuable Orchids, remarkably fine varieties of the respective sorts, purchased principally when in flower by the late Mr. Schloss, or collected by him on his travels, and includes one importation of 300 Peristeria elata, the lovely "Dove Plant;" eighty fine plants of Sarracenia purpurea and Drummondii; grand specimens of Palms, Cycads, and Anthuriums, from 3 to 12 feet each way. The Tree Ferns comprise some of the finest in the kingdom, beautiful symmetrical examples of Dicksonia antarctica, D. filipes, D. squarrosa; Alsophila capensis, A. australis Williamsii; Cibotium princeps, C. regale, with fine trunks, 2 to 6 feet, and well-furnished heads; Gleichenia rupestris, G. r. glaucescens, G. Mendelii, G. splenens, G. Habellata, G. dichotoma, &c.; grand well-grown specimens, chiefly 5 to 9 feet across. Specimens for exhibition of Ornamental Foliaged and Flowering Plants, Indian Azaleas, 4 to 6 feet each way; Greenhouse Rhododendrons, Ericas, Anthuriums, Eucharis, Bougainvilleas, &c.; also one Conservatory filled with Camellias, large double white and fimbriata, 6 to 9 feet specimens, with bushes of leading sorts, 3 to 6 feet; a number of good Official and Medicinal Plants, with the usual Bedding Plants, Garden Frames, Garden Tools and Pots, Large Glazed Pipes for sewerage purposes, which form plant pedestals, &c.

MESSRS. ARINGSTALL AND HIND respectfully announce the receipt of instructions from the Executors of Sigmund Schloss, Esq., deceased, to SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, March 7, 8, and 9, 1888, commencing each morning at 12 o'clock prompt, at Osborne Villa, St. Margaret's Road, Bowdon, Cheshire (14 minutes' walk from Altrincham Station, and 8 miles from Manchester; trains leave Oxford Road Station at 10.15 and 11.15, and Central Station at 10.20 and 11.35 A.M.), the entire COLLECTION of SPECIMEN and other VALUABLE PLANTS.

May be viewed from 10 to 4 o'clock on the Friday, Saturday, Monday, and Tuesday prior to Sale, when Catalogues may then be had from the GARDENER; or now, together with further particulars, from the AUCTIONEERS, 45, Princess Street, Manchester.

Tuesday Next.

IMPORTANT SALE of FLOWERING CATTLEYA TRIANE. 150 Plants in bloom, many of them flowering for the first time in this country. Among them are several exquisite varieties, including some of very high colour and excellent form.

MESSRS. PROTHEROE AND MORRIS will include the above in their SPECIAL SALE of FLOWERING ORCHIDS on TUESDAY NEXT, February 28. On view morning of Sale, and Catalogues had.

Tuesday Next.

CAMELLIAS, AZALEAS, Standard and Dwarf ROSES, FRUIT TREES, Hardy EVERGREENS, PALMS, FERNS, LILIES, &c., in choice assortments.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 28, at half-past 12 o'clock precisely. Catalogues had at the Rooms, or of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

Tuesday Next.

SPECIAL SALE of ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 28, at half-past 12 o'clock precisely, a large assortment of ORCHIDS in FLOWER, from various collections, including the following:—

Cattleya Triane, 150 plants in bloom, many flowering for the first time in this country, and including several exquisite varieties	Dendrobium splendidissimum grandiflorum, one of the finest Dendrobium ever offered
Cologyne cristata alba	" Ainsworthii
Zygopetalum cicutum roseum	" rooseum
Phalaenopsis Sanderiana, and many others	" Domianum
	Cologyne cristata, several specimen plants

Cypripedium concolor, thirty growths. On view morning of Sale, and Catalogues had.

Wednesday Next.

6000 LILIUM AURATUM, splendid Bulbs, from Japan. 35,000 SEEDS of COCOS WEDDELLIANA, from Brazil, in the best possible condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, at their Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 29. On view morning of Sale, and Catalogues had.

Wednesday Next.

IMPORTANT to the TRADE and other WHOLESALE BUYERS of NURSERY STOCK. SALE of NURSERY STOCK, GREENHOUSE and STOVE PLANTS from Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 29, at 12 for half-past 12 o'clock precisely, many thousands of CONIFERÆ and EVERGREEN SHRUBS, FRUIT TREES, STOVE and GREENHOUSE PLANTS, PALMS, &c., consisting of:—

1,200,000 Scotch Firs, all sizes.	1,000 Double White Primulas.
50,000 Thorn Quick.	3,000 Roses on the Manetti.
20,000 Evergreen Privet.	500 Clematis.
5,000 Gooseberries and Currants.	500 Golden Hollies, very fine.
10,000 Scotch Elms.	35 specimen Bronze Hollies.
300 Cedrus Deodara, 7 ft.	200 Aucuba japonica, large.
1,000 Laburnums, 6 to 10 ft.	2,000 Aquilegia.
150,000 Norway Spruce, 2 to 2½ ft.	1,000 Laurels, 3 to 4 feet.
2,000 White American Spruce.	200 Pyramid Apples, Pears, and Plums.
1,000 Abies Douglasii, 1½ to 2½ ft.	500 Dwarf-trained Peaches and Nectarines.
2,000 Cupressus Lawsoni, 12 to 18 inches.	2,000 Ligustrum ovalifolium, 2 to 4 feet.
1,000 American Blackberries.	6,000 Acer negundo variegata.
100,000 Common Alder.	10,000 Prunus spinosa.
7,000 Horse Chestnuts.	20,000 English Yews, small.
10,000 Poplars.	20,000 Box, small.
500 Tree Carnations.	10,000 Ligustrum sinensis.
100 Azalea Fieldsii.	1,000 Pansies Bisardii.
500 Cloves, (Jarias).	4,000 Palms, in variety.
300 Herbaceous Calceol.	2,500 Begonias, tuberous rooted.

Samples will be on view on the morning of Sale. Catalogues had on application or forwarded gratis by Post.

Every Wednesday and Saturday.

SALES of STANDARD and DWARF ROSES, GREENHOUSE PLANTS, PALMS, a consignment of CAMELLIAS, AZALEAS, and OTHER PLANTS from Belgium; LILIUM AURATUM from Japan; an extensive assortment of ENGLISH-GROWN LILIES, including most of the principal varieties; IRIS, DAFFODILS, TUBEROSES, DUTCH BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Room, 67 and 68, Cheapside, London, E.C., every WEDNESDAY and SATURDAY, at half-past 12 o'clock precisely each day. On view morning of Sale, and Catalogues had.

Friday Next.—Without the least Reserve.

GREAT SALE of IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 2, at half-past 12 o'clock precisely, upwards of 3000 ORCHIDS, consisting of about:

500 Dendrobium Wardianum	200 Dendrobium Falciferi
500 " thyrsiflorum	500 Laelia autumnalis
300 " Devonianum	500 " majalis
300 " crassinode	

Also great quantities of the following:—Odontoglossum grande, Rosii majus, Pleione species, Cattleya Mossiae, C. speciosissima, new Epidendrum, some specially grand masses of Laelia anceps, white; enormous masses of Schomburgkia, Dendrobium primulinum giganteum, D. chrysotoxum, D. capillipes, several fine masses of Cynochochs chlorochiton (the Swan Orchid), a new blue Utricularia in flower, Lycaste Skinneri alba, Odontoglossum Edwardi, &c.

Also about 300 established plants of Odontoglossum Alexandrine, from a well-known private collection, for Unreserved Sale. On view morning of Sale, and Catalogues had.

Upton.

BY ORDER OF THE MORTGAGEES.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Tokenhouse Yard, City, on THURSDAY, March 8, at 2 o'clock precisely, a compact Freehold MARKET NURSERY, known as the Boleyn Nursery, Boleyn Road, Upton, established for many years, containing an area of about three-quarters of an acre of Land, with eleven substantially built Greenhouses, all span-roof, efficiently heated with Hot-water, three Pits, Potting-bed, and Stabling; the whole in good working order, and ready for immediate occupation.

At the same time the adjoining LAND will be LET by AUCTION in Ten Lots, for the Erection of Shops. May be viewed. Particulars and Conditions of Sale may be had on the Premises, at The Mart, of Messrs. BOLTON, ROBBINS, BASKE, AND CO., Solicitors, 45, Lincoln's Inn Fields, W.C.; and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

Established Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside E.C., on FRIDAY, March 18, at half-past 12 o'clock precisely, a very fine lot of ESTABLISHED ORCHIDS, containing plants in excellent health, among them many rare and fine species.

Ocoidium incurvum album, with spike.	Batemannia Burtii.
Cologyne Dayana, splendid specimen.	Masdevallia hieroglyphica.
Vanda Sanderiana, grand specimen.	Cymbidium macrocarpum.
Laelia Gouldiana, true.	Zygopetalum Murrayaum.
Cypripedium Arthurianum.	" crinitum nigrum.
Odontoglossum Schroderianum.	Lycaste macropogon, unique specimen.
Dendrobium nobile Cooksoni.	" Denningiana.
" Leechianum.	Angraecum Sanderianum.
Trichopilia suavis alba.	" Du Boyssonii.
" lepidia.	Cattleya Fearleyana, new.
	" Matthewsiana, new.
	Masdevallia cupularis.
	" Gelingiana.

The following Cypripediums are from the collection of Norman C. Cookson, Esq.:

Cypripedium albo purpureum	Cypripedium euryandrum
" onanthum superbum	" selligum majus
" plumosum	Schrodere
" Harrisianum superbum	" Ainsworthii
" microchilum	" cardiale

And many other choice kinds. On view morning of Sale, and Catalogues had.

Postponement of Bangholm Nursery Clearance Sale. THE LAWSON SEED AND NURSERY COMPANY, LIMITED. (In Liquidation.)

Owing to the present state of the weather this EXTENSIVE NURSERY SALE, advertised for February 22 and 23, CANNOT NOW TAKE PLACE. The Sale is accordingly POSTPONED until TUESDAY and WEDNESDAY, February 28 and 29.

Catalogues may be had from the MANAGER, at Bangholm Nursery, or the Auctioneer, D. MITCHELL, 6, Comely Bank, Edinburgh. 67, George Street, Edinburgh, February 18, 1888.

The Nurseries, Oaks Hill, near Huddersfield.

NURSERY CLEARANCE SALES.

MR. J. H. LEES has received instructions to offer for SALE by PUBLIC AUCTION, on the Premises occupied by Mr. Wm. Pontey, on WEDNESDAY, March 14, at 11 A.M. prompt, a Large Collection of NURSERY STOCK,

comprising Forest and Ornamental Trees, Evergreens, Fruit Trees, &c. The Stock is already taken up and laid in, and is worthy the attention of Large Buyers.

J. H. LEES, Auctioneer, &c., Huddersfield.

FOR SALE, a good, Old-established NURSERY.

Long Lease; very moderate rent. Large number of Houses, in good order. Stock to be taken at a valuation, of which part may remain on mortgage. Owner retiring through ill health. This Nursery is situated within 25 miles of London. Address X. Y. Z., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

TO BE SOLD, with Immediate Possession, the FREEHOLD of a Small, Compact, and Desirable Property, consisting of eight-roomed Dwelling in Grounds, five Plant-houses, Pits, &c., with Stock in and out, being an Old-established FLORIST'S BUSINESS. Within half an hour of Liverpool and Birkenhead Markets.

For full particulars apply Mr. ADE, Seedsman, Birkenhead.

Enderby Strawberry Gardens, near Leicester.

To Market Gardeners and Others.

TO BE LET, from Lady Day next, the above MARKET GARDENS, comprising good House with indoor Beer License, extensive Range of Greenhouses (30 yards long) in excellent repair, 13 acres of Orchards and Gardens well stocked with Fruit Trees of every description, and 10,000 Strawberry Plants, &c. Enderby is about 5 miles from Leicester and within 1½ of Naborough Railway Station.

For further particulars apply to Mr. G. H. WADE, The Chase, near Loughborough.

TO LET, a Nobleman's fine Walled KITCHEN

Garden, of 2 to 3 acres, with Four Vineries, Stove House, &c., and Gardener's Residence. Close to station and county town. About an hour from London, Brighton, and Portsmouth.

Address OWNER, care of Steel & Jones, Advertising Agents, Spring Gardens, S.W.

THE ROCKS at BATTERSEA PARK.

said to be a true imitation of Nature but allowed to be overgrown, and the other so-called good examples at HIGHNAM COURT and BEARWOOD.

recorded in this Journal recently, were all executed by

PULHAM AND SON,
BROXBORNE.

ORCHIDS.

LARGE IMPORTATIONS

ARE
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BY

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES,

GARSTON, near LIVERPOOL.

FULL PARTICULARS ON APPLICATION.

COVENT GARDEN CLUB.

The ADJOURNED MEETING for the PROMOTION of this CLUB was held at the "Covent Garden Hotel" on MONDAY EVENING last, and numerously attended by Salesmen of the Market and others. The Secretary, Mr. W. ARTHUR BOARD, explained the objects of the proposed Club, which has been a long-felt want in the neighbourhood, particularly amongst the Salesmen in the Market. An animated discussion followed, the Meeting being unanimously in favour of the Club; and ultimately a Committee of three Gentlemen were deputed to make arrangements for the acquisition of suitable Premises and Accommodation, and the Meeting was adjourned until THURSDAY NEXT, the 1st of March, at 8 P.M. The success of the concern is confidently predicted. Salesmen in the Market and Residents in the neighbourhood are cordially invited.

W. ARTHUR BOARD, Hon. Secretary.

CHRYSANTHEMUMS, 600 varieties, best and newest, strong Cuttings from general collection, now ready, 1s. 6d. per dozen, 10s. per 100; plants in January, 2s. 6d. per dozen, 16s. per 100. W. E.'s selection cheaper. Many of the best prizes in the country have been taken from plants and cuttings supplied by me. Mons. Delaux's grand set of 100 sorts, and other new varieties, at reasonable prices. See CATALOGUE, with Essay on Cultivation, 2 stamps. WM. EATHERINGTON, Chrysanthemum Grower, Swansea, Kent.

SIMPLE INSTRUCTIONS by which an abundance can be secured of delicious MUSHROOMS. See Seed LIST, Free. RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

To those about to Plant Roses, &c.

EWING'S CATALOGUE contains short and plain Cultural Notes, besides Descriptions and Prices of the best Roses; and in addition 28 pages are devoted to Ornamental Trees, Shrubs, Fruit Trees, Climbing Plants, Horticultural Requisites, &c. It is forwarded post-free to applicants on receipt of three penny stamps, or Gratis to Customers. Abridged LIST of low priced carriage and package free collections of high-class Roses, gratis and post-free. EWING AND CO., Sea View Nurseries, Havant, Hampshire.

ORANGE GLOBE MANGELS for SALE. 80 to 100 Tons. Apply to W. JOHNSON, St. John's, near King's Lynn.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris 1878. Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

RASPBERRY CANES. Selected Fastolf, 30s. per 1000. **STRAWBERRY PLANTS**, Sir Joseph Paxton, 12s. per 1000. **RED CURRANTS**, 2-yr. old, 8s. per 100. Terms Cash. R. BATH, Osborne Farm, Wisbech.

100 Herbaceous and Alpine Plants for 25s. RICHARD SMITH AND CO.'S selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rock-work, which produce flowers and render the garden attractive all through the year. New LIST of sixty-four pages Free. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LARGE SHRUBS and CONIFERÆ.—American Arbor-vite, 2 to 2½ feet, 16s. per 100; ditto, 3 to 3½ feet, 20s. per 100. Aucuba japonica, 1½ to 2 feet, 30s. per 100. Berberis aquifolia, 1 to 1½ foot, 50s. per 1000. Box Trees, 2 feet, 20s. per 100. Griselinia littoralis, 1½ foot, 30s. per 100. Laurel, Common, 2 to 2½ feet, 10s. per 100. Laurel, Portugal, 1½ to 2 feet, 20s. per 100. Laurel, Colchic, 2 to 3 feet, 18s. per 100; ditto, 3 to 4 feet, 20s. per 100. Laurel, caucasicum, 2 to 3 feet, extra, 20s. per 100. Rhododendron ponticum, 1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100; ditto, 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per 100. White and other colours, strong and bushy, 70s. per 100. English Yews, 2 feet, 28s. per 100. Abies Douglasii, 3 to 4 feet, 35s. per 100; ditto, 4 to 5 feet, 45s. per 100. Araucaria imbricata, 1½ to 2 feet, 24s. per dozen; ditto, 2 to 2½ feet, 38s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen. Cupressus macrocarpa, 2 to 3 feet, 60s. per 100. Cupressus Lawsonii, 2 to 3 feet, 20s. per 100. Cupressus erecta viridis, 2 feet, 30s. per 100. Pinus Nordmanni, 2 feet, 35s. per 100; ditto, 3 to 3½ feet, 18s. per dozen. Retinospora plumosa, 1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. Retinospora plumosa aurea, 1 to 1½ foot, 50s. per 100. Retinospora squarrosa, 12 to 18 inches, 20s. per 100; ditto, 2 to 2½ feet, 50s. per 100. Thuja Lobbi, 2 to 2½ feet, 20s. per 100; ditto, 4 to 5 feet, 12s. per dozen. Thuipais borealis, 2 to 2½ feet, 50s. per 100. Thuja dolabrata, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3 feet, 30s. per dozen.

GARLIES MITCHELL, Nurseryman, Stranraer.

J. CHARLESWORTH, HEATON, BRADFORD, ORCHID IMPORTER AND GROWER.

Large Stock of all Leading Sorts.

INSPECTION INVITED.

PALMS.—A few hundreds, well-grown, strong and healthy.
Seaforthia elegans, Latania borbonica, Phoenix reclinata, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.
Latania borbonica, Seaforthia elegans, Phoenix reclinata, and Corypha australis, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.
Seaforthia elegans, Latania borbonica, Phoenix reclinata, Enterpe edulis, and Areca lutescens, 2 feet 8 inches to 3 feet high, 3s. to 5s. each.
Fine feathery-foliaged Seaforthia elegans, 4 feet high, 15s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

TO PLANTERS STOCK UNIQUE & UNEQUALLED.

NURSERIES over 200 ACRES

MOST MODERATE PRICES.

TRUCK LOADS Carriage Free.

CATALOGUES GRATIS.

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THE QUEEN'S NURSERYMEN,

— CHESTER. —

THE FINEST BLUE MARROW PEA.

SHARPE'S QUEEN.

3s. per Pint, 1s. 6d. per Half-pint.

THE HEAVIEST CROPPING VARIETY.
THE FINEST POD.
THE FINEST IN COLOUR.
THE FINEST IN FLAVOUR.
THE FINEST IN EVERY WAY.

CHARLES SHARPE & CO., SLEAFORD.

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SUTTON'S SEEDS GENUINE ONLY FROM SUTTON & SONS, READING

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 13 next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next.

A. F. BARRON, Hon. Sec.,
Royal Horticultural Society's Gardens, Chiswick.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS

WILL BE THANKFULLY RECEIVED BY

A. F. BARRON, Hon. Sec.,

Royal Horticultural Society's Gardens,
Chiswick, London, W.

To Gentlemen, Nurserymen, Builders and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMs, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. CATALOGUES free on application.

The Nurseries, Trinity Road, Wadsworth Common, S.W.

BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 25s. per dozen. Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain.

CATALOGUES gratis.

JOHN LAING AND SONS, The Nurseries, Forest Hill, S.E.

The New Raspberry.

LORD BEACONSFIELD. (A Seedling.)
The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883. Strong Canes, £3 per 100; 9s. per dozen. Smaller Canes, 6s. per dozen.

Trade supplied. Cash with order.

A. FAULKNER, Inkpen, Hungerford.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to make SPECIAL OFFERS of their fine selected stocks of Home-grown MANGEL WURZEL and TURNIP SEEDS, raised from picked transplanted bulbs, and harvested in splendid condition. Prices and Samples may be had on application. Seed Growing Establishment, Wisbech.

SMALL SHRUBS and CONIFERÆ.—Araucaria imbricata, 8 to 9 inches, 40s. per 100. Abies orientalis, 8 to 9 inch, 12s. per 100. American Arbor-vite, 10 to 12 inches, 50s. per 1000. Cupressus Lawsoni, 12 to 15 inches, 80s. per 1000. Cupressus erecta viridis, 6 to 8 inches, 40s. per 1000; ditto, 1½ foot, extra, 12s. per 100. Cupressus stricta, 8 to 8 inches, 40s. per 1000; ditto, 1½ foot, 14s. per 100. Pinus insignis, 1 year, 4s. per 100. Pinus Cembra, 2 years, 10s. per 100. Pinus Nordmanni, 2 years, 6s. per 100. Pinus excelsa, 1 year, 4s. per 100. Pinus canariensis, 1 year, 5s. per 100. Retinospora plumosa, 10 to 12 inches, 10s. per 100. Retinospora squarrosa, 8 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. Thuja Lobbi, 10 to 15 inches, 40s. per 1000. Thuipais dolabrata, 6 to 8 inches, 4s. per 100; ditto, 12 inches, fine, 12s. per 100. Yew, English, 8 to 9 inches, 8s. per 100. Laurel, Portugal, 8 to 9 inches, 8s. per 100. Common Laurel, 12 to 14 inches, 35s. per 1000. Rhododendron ponticum, 4 to 8 inches, 50s. per 1000; ditto, 2 to 3 inches, 30s. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

Full of Useful Information—No Charge.
BARR'S 1888 SEED CATALOGUE, now ready. In addition to the usual valuable information, will be found special remarks on the Culture of the TOMATO and TOBACCO AS INDUSTRIES, with a Special List of HIGH-CLASS POTATOS, handsome in form, pleasant in flavour, and bountiful croppers. CATALOGUE free on application to BARR AND SON, King Street, Covent Garden, W.C.

- 100 CONIFERS, in 50 distinct varieties for 50s.
- 100 ORNAMENTAL TREES, in 50 distinct varieties, including many variegated golden and purple Acers, &c. for 50s.
- 100 DECIDUOUS SHRUBS, in 50 distinct varieties for 20s.
- 100 EVERGREEN SHRUBS, in 50 distinct varieties for 30s.
- 100 ROSES, in 50 finest varieties, of H.P. and Tea on the Seedling Brier, from the open field for 35s.
- We may state that we have grown Tea on the Seedling Brier in the open field for many years back, proving that they are about as hardy as the H. P., as we have frequently had the latter cut back to the snow line. It is only when the thermometer registers below zero that they require protection.
- 100 HERBACEOUS PLANTS, in 50 fine varieties for 20s.
- 100 PRIMULAS, in 50 distinct varieties for 50s.

Catalogue of Names may be had free on application.

MORRISON BROTHERS,

NURSERIES,
ABERDEEN.

ROSES 20 ACRES.

Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. BUSHES, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100. STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

ROSES IN POTS;

all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

RICHARD SMITH & CO.,

Nurserymen and Seed Merchants,
WORCESTER.

THE NEW ROSE, MADAME GEORGES BRUANT.

Illustrated in *Gardeners' Chronicle*, February 11.

Strong plants, in 5-inch pots, now ready, of this interesting New Rose.

Trade Price. 24s. per dozen.

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WHOLESALE SEED CATALOGUE.

WHOLESALE CATALOGUE OF VEGETABLE AND FLOWER SEEDS,

Containing also all the best Novelties of the Season. May be had on application. Any of our Customers not having received one by post will oblige by letting us know, when another shall at once be posted.

WATKINS & SIMPSON,

Seed and Bulb Merchants,
EXETER STREET, STRAND, LONDON, W.C.
Seed and Trial Grounds: Feltham and Twickenham, Middlesex.

Reduced Prices to meet Depression.

DESCRIPTIVE CATALOGUE, comprising fine transplanted FRUIT TREES, ROSES, HARDY CLEMATIS, RHODODENDRONS, CONIFERS, TREES and SHRUBS, CLIMBERS, FOREST TREES, &c., free on application to

GEO. JACKMAN & SON,

WORKING NURSERY, SURREY.

The Best Pea for Market Gardeners.

SHARPE'S TRIUMPH

Price on Application.

SHARPE'S TRIUMPH

Is a Blue Wrinkled Marrow Pea, of exquisite flavour; pods large and well-filled; height, 2 to 3 feet.

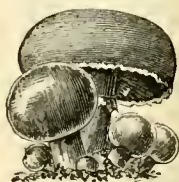
On one plant no less than sixty-nine pods have been counted, containing from nine to eleven Peas in a pod.

A. C. WILKIN, Esq., *Tiptree, Kelvedon* (a large Grower of Peas for Market), says:—"Sharpe's Triumph is a model and grand pattern of a Pea, about 2½ feet high, loaded with pods of a very fine size, dark green coloured, and Peas of a rich and delicious quality."

CATALOGUES POST-FREE.

CHARLES SHARPE & CO.,

Seed Merchants and Growers,
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B. S. WILLIAMS'
Improved Mushroom Spawn,
For Outdoor and Indoor Culture.
Per bushel of 14 cakes, 5s.
Per cake, 6d.; per cake, free by
Parcel Post, 1s.
Victoria and Paradise
Nurseries,
Upper Holloway, London, N.

NEW CUCUMBER.—"Buffalo Bill."

The grandest variety that has yet been raised. It is longer than Telegraph, darker in colour, very slightly spined, and unusually productive. It is sure to be a great market favourite. In sealed packets, 2s. 6d. each. Free by post, on receipt of Postal Order.

R. TODD,

401, Harborne Road, Birmingham.

NEW CUCUMBER.—"Buffalo Bill."

FREESIA REFRACTA ALBA.

An importation of this beautiful pure white sweet-scented bulb has just come to hand. We are prepared to quote them at extremely low prices on application. HURST AND SON, Seed Merchants, 152, Hondditch, London, E.



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price, 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s. None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached. WM. CUTBUSH AND SON (Limited), Nurserymen and Seed Merchants, Highgate Nurseries, N.

THE BEST CARROT.



CARTERS' SCARLET PERFECTION

Will take all the Leading Prizes this season.

PRICE, in SEALED PACKETS, 1s. 6d., per ounce, post-free.

Royal Seedsmen by Sealed Warrants,

237 and 238,
HIGH HOLBORN,
LONDON, W.C.

FERNS A SPECIALTY.

The largest, most complete, and profusely ILLUSTRATED CATALOGUE of FERNS ever published, containing over 120 illustrations, and much valuable practical information on the cultivation of Ferns, &c. 1s. 6d. post-free. Smaller Catalogue of over 1300 species and varieties free on application.

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PROPER SEASON FOR PLANTING.

LILIUM AURATUM, splendid bulbs, 6s. and 9s. per dozen.

GLADIOLUS BRENCHLEYENSIS, 9d. per dozen, 4s. 6d. per 100.

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AMARYLLIS, mixed Seedlings, 12s. to 21s. per dozen.

The following Hardy Herbaceous Plants at 4s. doz. DELPHINIUMS, PYRETHRUMS, HOLLYHOCKS, PHLOXES, CAMPANULAS, GENOTHERAS.

A mixed variety of colour will be sent of each class. For Named Varieties see Catalogue, forwarded on application.

12 DRACÆNAS, in choice named varieties, for growing on, 6s. and 12s.

12 ORCHIDS, choice collection, 21s. and 42s.

HOOPER & CO., LIMITED,

PINE-APPLE NURSERY, MAIDA VALE, N.W., and COVENT GARDEN, W.C.

PARCEL POST FREE.

The following, in Mixed Collections:—

12 ACHIMENES, 1s.; 12 GESNERAS, 3s. 6d.; 12 GLOXINIAS, 4s. or 6s.; 12 BEGONIAS, 4s. or 6s.; 12 Double-Flowered BEGONIAS, 18s.; 12 CALADIUMS, 6s.; 12 TYDEAS, 4s.; 12 TIGRIDIAS, 3s.

Finest collections of Named Varieties in Cultivation, see CATALOGUE, just published, and may be had on application.

HOOPER & CO., Limited,

PINE-APPLE NURSERY, MAIDA VALE, N.W., and COVENT GARDEN, W.C.

FRUIT TREES, SEVENTY-FOUR ACRES.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarfs, Pyramids, Bushes, Cordons, and Trained Trees, in great variety.

VINES, excellent Canes, 3s. 6d. to 7s. 6d. Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c. from 5s. FIGS from 3s. 6d.

DESCRIPTIVE LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

RICHARD SMITH & CO.

WORCESTER.

CLEMATIS—CLEMATIS—CLEMATIS.

As now is the very best time for planting the above most useful, showy, and HARDY Climbers, to insure a grand display of bloom this season, WOOD & INGRAM have much pleasure in placing before the public the following advantageous offers. Their extensive Collection contains all the best and leading Single and Double varieties, including the old favourite "JACKMANI," "Alba magna," "JACKMANI ALBA," "Countess of Lovelace," "Duchess of Edinburgh," "Gipsy Queen," "HENRY VII.," "Miss Bateman," "Imperatrice Eugenie," "Sir Garnet Wolseley," and "EARL OF BEACONSFIELD."

PRICES:—

Twelve plants (in 5-inch pots), in twelve varieties, including box and package, 12s. net.

Also, in great variety, from 1s. 6d. to 2s. each, 12s. to 18s. per dozen.

For sorts see Descriptive CATALOGUE, a copy of which will be sent, free by post, on application.

Special Quotations for Fifty and Larger Quantities.

N.B.—These plants are strong, and are perfectly safe to buy now, having been exposed to the weather all the winter, and are now breaking into growth.

CLEMATIS "INDIVISA LOBATA," a splendid Green-house variety, now in bloom, price 2s. each.

WOOD & INGRAM,

THE NURSERIES, HUNTINGDON.

Terms—Nett Cash with Order from Correspondents unknown to W. & I.—February 13, 1888.

ASPARAGUS, grand Roots for Forcing,
2s. per dozen, 12s. 6d. per 100; strong, for planting,
2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per
100; planting, 2s. per dozen, 12s. 6d. per 100.
RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

Trade Price Current Seeds, 1888.

PETER LAWSON AND SON (Limited),
Edinburgh, have now Posted their Annual CATA-
LOGUE OF VEGETABLE and FLOWER SEEDS to their
Customers, but should there be any not delivered Copies will
be sent upon application.

The ANNUAL CATALOGUE OF AGRICULTURAL SEEDS
will be published later on, meanwhile special offers will be
made upon application.

CHOICE CACTUS DAHLIAS,
pot roots, sound.

MRS. HAWKINS (new yellow), 9d. each; 6s. per dozen.
JUAREZII (crimson-scarlet), 9d. each; 6s. per dozen.
COCHINEAL (dark velvety-crimson), 9d. each; 6s. per dozen.
GLARE OF THE GARDEN, 6d. each; 4s. 6d. per dozen.
CONSTANCE and MR. TAIT, 1s. each, pure white.
SINGLE DAHLIAS, PARAGON and WHITE QUEEN, two of
the finest for cut flowers, 4s. 6d. per dozen.
DOUBLE DAHLIAS, to name, fine show varieties; pot roots.
The above are very healthy sound pot roots.
Carriage paid for cash with order.

Magnificent new Dwarf Striped PETUNIA SEED. This is
without doubt the finest strain possible to grow. The plants
commence to bloom 3 inches high, and are most attractive;
scarcely two flowers are alike. Thousands are sold in Covent
Garden Market, and acknowledged by all to be the best they
have ever grown. Per packet, 2s. 6d., post-free.

CHARLES BURLEY, Nurseries, Brentwood, Essex.

CARNATION "GLOIRE DE NANCY,"
without doubt the grandest Carnation ever sent out for
Cut as well as Conservatory and the Open Border. Flowers
from 2 to 3 inches across, pure white, and strong Clove-
scented. More robust than the old red Clove, and freer. Good
rooted Layers, 25s. per 100, 15s. for 50, 8s. for 25. Cash with
order.—E. COLLINS AND SONS, Cumberland Park Nursery,
Willesden Junction, London, W.

FICUS ELASTICA,
12 to 16 leaves, well grown English plants,
from 25s. to 32s. per dozen.

Usual Trade discount, for cash with order only.

MARSHALL BROS. AND CO., Barnham Nursery, Bognor.

NOTICE OF REMOVAL.

HORTICULTURAL SUNDRIES.

MISS J. SLAYMAKER, daughter of the late Mrs. Slaymaker,
who for 43 years was Tenant of a Shop in the CENTRE AVENUE, COVENT GARDEN,
begs to inform her Customers that she has

REMOVED HER BUSINESS OF FLORIST AND HORTICULTURAL SUNDRIES
FROM COVENT GARDEN to 25, CATHERINE STREET, W.C.

(directly opposite the main entrance of Drury Lane Theatre), where the Business will be conducted on
the same lines and with the same attention to the wishes of Customers and the Public as hitherto.

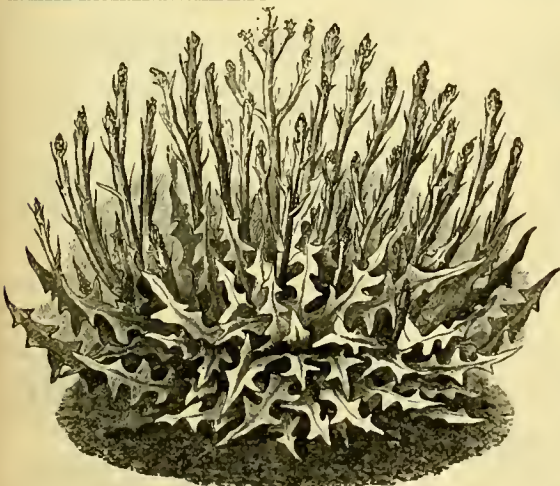
THE SHOWROOMS at the New Premises will be stocked with all the Latest Designs in
BOUQUETS, WREATHS, CROSSES, BASKETS, &c., also all HORTICULTURAL and FLORIST
REQUISITES. The favour of an early visit of inspection is respectfully solicited.

The New Premises are situated less than one minute's walk from the Flower Market and Central
Avenue, Covent Garden Market, where Messrs. SLAYMAKER & Co. for nearly half a century have
enjoyed the support which, with the increased facilities now at their command, they trust still to receive.

SLAYMAKER & CO.,

25, CATHERINE STREET, COVENT GARDEN, W.C.

CATALOGUES Free on application.



A Valuable New Vegetable.

CHICORY ASPARAGUS.

In its native country this Vegetable
is described as Nature's Sure Cure for
Indigestion. The benefit derived from
the consumption of the stems for only
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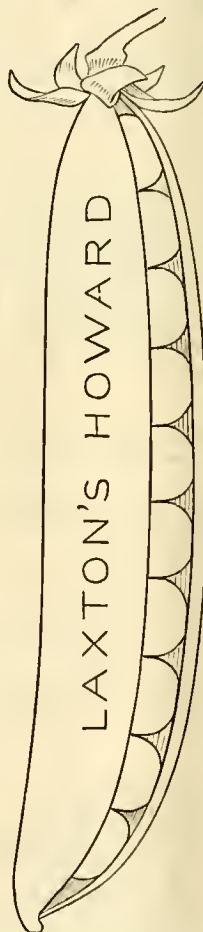
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 25, 1888.

CONIFERS FOR CHALKY SOILS.

THE SPANISH FIR (ABIES PINSAPO).

NOT long ago a correspondent of the *Gardeners' Chronicle* pointed out how well suited this pretty and distinct Fir is for planting in chalky or limestone districts; and as this is not generally known, nor the advice acted upon, at least in instances where it might well be so, a few words of a supplementary nature may not come amiss at the present planting season. In the chalky districts of Kent this tree thrives with unusual luxuriance; indeed, nowhere have we seen either larger or healthier specimens than are to be found on many of the estates in that county. At The Rookery, near the now famous little village of Down, amongst a rich and varied collection of Conifers, we the other day were shown some of the largest trees of the Spanish Fir that it has yet been our good fortune to behold; and not only were these of unusual size, but with such a rich tint of bluey-green pervading the foliage that it was some time before we could recognise an old favourite, or believe that we were not being misled by some other and nearly allied form. The largest was fully 60 feet in height, with a beautifully rounded and gradually tapering stem, whose girth at 3 feet and 5 feet from the ground we found to be 7 feet 9 inches and 6 feet 11 inches respectively. From base to tip this peculiarly symmetrical tree is thickly furnished with branches, whose diameter of spread where they sweep the greensward is exactly 33 feet. The bole of this perhaps unique specimen, contains 67 feet of timber. Now, when we consider that the Spanish Fir was only introduced in 1839, or about forty-eight years ago, it must be admitted that the specimen whose dimensions we have just recorded, has made no bad use of its time. The upward rate of growth has been 15 inches for each year, assuming that it was planted the same year it was introduced to this country, and the annual cubic content of wood formed nearly 1¼ foot. The soil on which this fine tree is growing is a sandy loam mingled with chalk, and resting at no great depth on pure chalk rock;

while the situation is fully exposed to the worst winds of that particular district. Not a hundred yards from this specimen grows another of almost similar dimensions, the bole of which girths 5 feet 11 inches at a yard from the ground level, while the branches cover a spread of nearly 30 feet in diameter. The same bright healthy look is noticeable about both trees, while the luxuriant foliage and branches, particularly of the latter, quite hide the stem from view. In various other Kentish gardens, and growing where only a few inches of loam overlies the chalk, we have noted how rapid of growth the Spanish Fir is, and how healthy and bright is the abundantly produced foliage. Where not a particle of limestone or chalk was incorporated with the soil we have noticed this Fir thriving, as we then thought well; but a comparison of such specimens with others growing on the warm chalky cliffs or limestone beds, the differences are marked—indeed, far more than we could have anticipated.

The *Wellingtonia* (*Sequoia gigantea*) is likewise doing unusually well at the same place, one stately and robust-growing specimen being fully 60 feet in height, and with a trunk proportionately large. Being fully exposed, we did not expect this usually wind-shorn tree to have put on its best form on the eminence on which it is planted; but no doubt the peculiar quality of the soil—loam on chalk rock—had much to do with the bright pleasant green of the abundantly produced foliage. It is no uncommon thing to see the *Sequoia* "Carrot-shaped" in stem—that is, the lower portion of the butt out of all proportion in point of size to what it is further up, or in comparison with the height; and this we have noticed is usually the case when the tree is unsuitably placed, and in consequence becomes stunted in growth. The specimen under consideration was not so, for the stem had a gradual taper throughout, and rose as straight as a ship's mast for its entire height, the branches being rather longer and more lithe than is the case in the majority of specimens. Too often do we find this giant of the Fir tribe crowded up amongst other trees, and where its huge proportions are never fully developed, the lower branches being either dead or dying off piecemeal, and the tree with a scanty ill-begotten appearance, that renders it anything but an ornament to the grounds it is intended to embellish. This, we need hardly say should never be tolerated, for it is far better to have half-a-dozen trees with well furnished healthy foliated stems than half a hundred crowded and cramped together, and whose natural beauty, owing to not being allowed sufficient room for lateral development, can never be fully appreciated. The *Sequoia*, like the *Araucaria* and the Spanish Fir—indeed, the majority of trees—cannot abide being overcrowded, or shut in by other subjects; so in order to have good shapely specimens, give plenty of room for the branches to become perfectly developed.

The *Mount Enos Fir* (*Abies cephalonica*) is, as might be expected from the limestone rocks of its native habitat—the Black Mountain in Cephalonia—well adapted for growing in the chalky districts of southern England. [It is, however, spring-tender when young, En.] In several gardens and parks that we have visited lately, particularly in north Kent, this pretty and desirable Fir has rather surprised us with its rapid growth and abundance of the brightest and healthiest of foliage. Some places where we saw it of unusually strong and robust growth the soil was little more than pure chalk, with a small admixture of loam or vegetable mould, and yet in such it seemed quite at home, the annual growths being stout and well matured, and the foliage such as betokened perfect health.

The number of evergreen trees that succeed in anything like a satisfactory manner on chalk soil is well known to be limited; and how great a thing it is that two so beautiful and hardy subjects as the Spanish and Mount Enos Firs there find their most congenial home and put on their best form even where but a few inches of soil overlies the chalk.

Some of the first plants, raised from seed sent home by Sir Frederick Adam about 1824, are growing at Blairadam, in Scotland, and the following measurements, supplied to us by a kind friend there, show that these trees, at least, have not succeeded in a very satisfactory manner, and cannot compare with others planted several years afterwards and in soil

composed largely of chalk. The measurements were taken two years ago. No. 1, height, 35 feet; stem girth at 3 feet from the ground, 4 feet 4 inches. No. 2 is 38 feet in height, and girth 4 feet 11 inches at a yard up; while No. 3 stands 36 feet in height, and has a stem girthing 3 feet 8 inches. These trees are coarse and ill-grown, and have repeatedly lost their leading shoots. Those who are interested in this distinct species of Fir should refer to that pleasantly written book, *The Colonies*, by the late Sir Charles Napier, when Governor of Cephalonia.

We have ourselves measured, not one, but many specimens of the Mount Enos Fir growing in various parts of the country of from 50 to fully 60 feet in height, but in most cases the soil on which they were growing was either of a calcareous or chalky nature.

The *Weymouth Pine* (*Pinus Strobus*) has more than once been recommended as a suitable tree for dampish, nay, even damp soils, but such statements we could never corroborate, at least from our observations or experiments. That it is a valuable adjunct to the list of such as succeed on chalk we make bold to announce, and more than one of the readers of the *Gardeners' Chronicle* will take up the caddis in our behalf on this point should such be required. We had often thought, when viewing those grand 90 feet high specimens, whose stems were straight as arrows, branchless for three-fourths their length, and upwards of 8 feet in circumference, in the grounds at Gwydyr Castle, in North Wales, that the soil which reared such giants must have peculiar suitability for the work in hand. Rocky, partially slaty, *debris*, with a small quantity of decayed vegetable matter atop, were the principal component parts of the soil that produced the Gwydyr specimens. No such trees as the *Weymouth Pine* have we yet met with in the "Garden of England" as were those Welsh specimens; but in judging from trees of perhaps forty years' growth, growing on chalk rock, there can be little doubt that in years to come, should no accident befall them, the dimensions of the Kentish trees will be well worthy of record. A few days ago we could not help admiring the bright healthy appearance of the specimens of *Strobus* that lined one of the roads here, and which in company with the Scotch Pine and numerous hardwoods, lent quite an unusual air to the landscape. What a pity it is that the *Weymouth Pine* gets so "bedraggled" in wet weather! Then it looks miserable indeed, just as if it had been dragged through a pond and reinstated in position again; and what is rather strange, the dripping of moisture from the foliage of this Pine is a singularly slow process, and this we have noticed for many years past, but how to account for such has proved a puzzle.

It cannot be denied that the state of the weather exerts a powerful influence over trees and shrubs, particularly in their appearance, for when, may we ask, does the Weeping Spruce (*Picea Morinda*) look half so beautiful as when subjected to a couple of days' clear frosty weather?

The *Scotch Pine* (*Pinus sylvestris*) ranks high as a tree for planting in chalky soils, as any one must admit who has travelled through some of the southern English counties. Near the chalk pits at Down, just at the division of Earl Derby's and Sir John Lubbock's estates, is a noble clump of the Scotch Pine, and I have never seen a better example than is here presented of Darwin's "survival of the fittest," for, owing to Nature having been allowed her own way, the strongest trees are gradually killing out and exterminating the weaker. But this is not all, for by such a course of natural treatment, clean, straight, and almost branchless trees are produced, and which when compared with such as have been allowed room to develop their side branches, are vastly superior, for economic value at least. From this we do not, however, wish to inculcate that Fir plantations in this country—which is widely different from Norway, Sweden, or Canada—should not be thinned, but what we have oft before said, and again repeat, that in order to grow timber, particularly Pine, for profit, an unbroken leaf canopy must be preserved throughout the entire woodland. But where the value of the timber produced is only of secondary importance, and the production of ornamental, far-spreading trees forms the primary object, by all means give plenty of room for lateral development of the branches; but do not expect clean and valuable timber as well, or you will be sadly disappointed. It has always been my motto, where practicable, to show off the stem of any tree where this is of large size and well formed, and it is a question whether these fine columnar trunks do not add considerably to the ornamental aspect of such specimens, more so, we believe, than if they were elad to the ground with

the greenest of foliage. Tastes differ, and some estate-owners would consider it but little short of an act of vandalism were their foresters to show off, by pruning, the stem of any tree, be it ever so large and well-proportioned. But we are wandering from our subject, and in retreating may say that the clump of Scotch Firs above-mentioned, is growing on a bed of chalk with a quantity of loam atop, and not far distant from where chalk for building purposes is procured.

The *Giant Arbor vite* (*Thuia gigantea*) should be made a note of by proprietors who own tracts of chalky or limestone ground, for it is peculiarly well-suited for planting in such. This beautiful, fast-growing, perfectly hardy, and valuable timber-producing tree is fast coming to the front for afforesting purposes, and most growers find it somewhat difficult to meet the demand. Thanks are due to several readers of the *Gardeners' Chronicle* for recording their observations in various parts of the country, and thus bringing publicly to notice the merits of so valuable a tree. We saw it the other day growing with great luxuriance where chalk was freely commingled with the soil, and Sir C. W. Strickland, of Hildenley, Malton, informs me that he has it growing with extreme vigour on thin soil upon limestone-rock and where Larch had several times been planted with little or no success. Taking everything into consideration this is a capital tree for general forest planting anywhere in the British Isles, and we may well ask the question, "Who has ever known this tree to be uprooted by the wind or to lose its leading shoot even during the most severe and long-continued storm?" [We have ourselves had one tree overthrown. En.]

The *American Arbor-vita* (*T. occidentalis*) also does well when planted in chalky soil if this be not too dry. For forming a screen fence this tree or big shrub is admirably adapted, but for timber purposes, or as an ornamental subject, we will not say much in its favour, at least as grown in this country.

The *Larch* does better when planted on chalk soil than would be imagined, and enquiries made by us only prove the accuracy of what we every day see on the downs of Kent. These are a few of the coniferous trees that we have, from actual observation, found to be well suited for planting on chalk, but we will advert to the subject on another occasion, and then record a list of such deciduous trees and shrubs as seem to be in every sense of the word adapted for use in similar situations. A. D. Webster.

ORIGANUM HYBRIDUM.

From Mr. C. Wolley Dod I received, some time ago, a specimen of a very ornamental *Origanum* which he says he received some ten or twelve years ago under the name of *O. pulchellum*. This plant is the same as Mr. Dewar wrote about at p. 71 of the *Gardeners' Chronicle* for July 16, 1887, under the heading of *O. Tournefortii*, and which he there correctly identified with a specimen of Bishop Goodenough's in the Kew Herbarium labelled *O. hybridum*, with the note, "hybridum *O. dictamnus* matre, *O. sipyleum* patre? vel e contra," and as Goodenough's herbarium was formed probably between 1780 and 1800, it is, no doubt, the plant described by Miller as *O. hybridum* in the eighth edition of his *Gardeners' Dictionary* (dated 1768). *Origanum*, n. 12, which name is corrected in the list of errata at the end of the work to *O. hybridum*, as it appears in later editions of that work, where it is considered to be a variety of *O. dictamnus*. Mr. Benthams, in *De Candolle's Prodrum*, quotes "*O. hybridum*, Mill. *Dict.*, n. 12," as a synonym of *O. sipyleum*, but certainly Goodenough's and Mr. Dod's specimens (which admirably agree with Miller's description of *O. hybridum*) are quite distinct from *O. sipyleum*, which is a glabrous plant, with smaller leaves of a different texture, whilst *O. hybridum* is softly hairy, except the inflorescence. It is also quite distinct from *O. dictamnus*, which I believe is a much less hardy plant. From *O. Tournefortii*, under which name Mr. Dewar says that it is grown in gardens, it differs in being hairy, the true *Tournefortii* being quite glabrous. With regard to *O. pulchellum* (Boissier *Flora Orientalis*, vol. iv., p. 547), I am unable to say with certainty if it is the same as *O. hybridum*, as there is no specimen of *O. pulchellum* in the Kew Herbarium, but Boissier's description quite agrees with Mr. Dod's

FIG. 37.—*ORIGANUM HYBRIDUM*, MILLER.

plant, and as he received it under the name of pulchellum, I have no doubt that it is the right plant, which Boissier states came from the East to the Paris gardens, where it was cultivated as *O. dictamnus* and *O. pseudo-dictamnus*. This is an interesting point, because Miller also states under his description of *O. hybridum*, "I have also dried samples of another variety, which arose from seeds in the Leyden Garden;

the seeds were sent from Paris by the title which Tournefort gave to that which he found in the Levant" (that is, *Origanum Dictamni cretici facie*, now called *O. Tournefortii*), "which I have joined to the variety before mentioned" (*O. hybridum*). By which I understand that Miller considered the Leyden plant (originally from Paris) as the same as his hybridum. And it is quite possible that the Paris plant described

by Boissier as *O. pulchellum* is a descendant of the plant mentioned by Miller, and if it really came from the East (that is, the Levant), and, as I believe, is really the same as *O. hybridum*, it is very interesting as proving that species originate naturally by hybridisation as well as by artificial aid. Gardeners will please note that the name to adopt for this plant is *O. hybridum*, which has the priority of ninety-one years over the name *O. pulchellum*, the latter being first published in 1859. The allied species of the group to which *O. hybridum* belongs, such as *O. dictamnus*, *O. Tournefortii*, *O. sipyleum*, &c., are all ornamental plants, and one or two of them some years ago were favourite cottage window plants, but of late years I have seen them but rarely. (See fig. 37). *N. E. Brown.*

NEW OR NOTEWORTHY PLANTS.

DENDROBIUM CHRYSSEUM, Rolfe, n. sp.

A DEEP yellow flowered *Dendrobium* has just been sent to me by Messrs. James Veitch & Sons, of Chelsea, with the remark that it passed into their hands as an Assamese importation, and is distinct from anything known to them. I, too, am unable to identify it with anything already described, and therefore propose for it the above name. Its flowers are a rich golden-yellow, almost orange, and with much of the appearance of those of *D. chrysanthum*, but it belongs to the racemose group, called by Bentham *Eu Dendrobium calostachyæ*, and not to *fasciculatæ*. Pseudobulbs $1\frac{1}{2}$ foot long, erect, arching above, slender, $\frac{1}{4}$ inch broad, nodes $1\frac{1}{4}$ — $1\frac{1}{2}$ inch apart, sheaths white, reaching to node above. Leaves linear-lanceolate, acuminate, probably 3—4 inches long. Racemes lateral, 1—2 inches long, two to three-flowered. Bracts short and tubular at the base, almost overlapping, the upper ones oblong obtuse, $\frac{1}{2}$ inch long, all striate and pale green, the lower ones marbled with dark purple. Segments subacute, $1\frac{1}{2}$ inch long, the sepals oblong, petals broadly elliptical, lip orbicular, minutely pubescent, and with a minutely fimbriated margin. The only departure from uniformity of colouring is, that the front of the lip is a little paler than the rest of the flower, and there are a very few faint crimson lines on the side lobes near the base. Though the racemes are short, the affinity is unmistakeable, the very characteristic bracts being precisely of the type of *moschatum*, *clavatum*, and others of the group. There are several plants, each behaving alike, but I believe the short racemes arise from weakness, through not being established after importation, especially as many of the flowers have not opened properly. When established it will most likely improve, and not unlikely the foregoing description will require amendment in a few points. *R. A. Rolfe.*

MASDEVALLIA CUPULARIS, Rehb. f.

When Herr Oberhöggartner Herrmann Wendland made his trip to Guatemala and Costa Rica—unfortunately a very short one—he was the first who explored those hunting-grounds, but he selected with the eye of a botanist. Thus the number of new discoveries made in a few months was very considerable. One of those discoveries was *Masdevallia cupularis*, found on August 5, 1857, in Costa Rica. All I knew of the plant for a long time consisted of two dried specimens. After an interval of twenty-seven years the plant was once more found in Costa Rica by Mr. F. Sander's traveller, Mr. Hübsch. In December, 1887, a plant obtained from Mr. Sander flowered with Herr Baron Hruby von Telenyi, of Peckau, under Mr. Pfau's excellent management. The same plant flowered nearly at the same time with Mr. F. Sander. It has small oblong blunt shining leaves, cuneate at the base. The flowers, evidently showing the typical characters of the *Coriacea* group, do not exceed 2 inches in length when much developed. The tails are nearly equal to the body, and the midribs from which the tails extend are green. The remaining part of the outer perigone, the cupula, is light brown, with

numerous brown spots, so densely arranged that the surface appears quite brown. It is very markedly glossy. The petals and lip are ochre-coloured—petals with a mauve mid-line and spots of the same colour on each side of the mid-line. Lip with three brown longitudinal lines on the anterior lobes, with numerous brown spots on the side-lobes. Column green, white at the top. The inside of the cupula is very dark brown.

It is not a grand Orchid, but a Masdevallist will appreciate its peculiar qualities; and last, not least, it is very scarce. Very few, excepting myself, have it. It is a very slow grower. *H. G. Rehb. f.*

LÆLIA ANCEPS MUNDA (*Rehb. f.*) and *L. A. ROSEA* (*Rehb. f.*).

I hear that these two varieties are believed by some to be synonymous. Some would gladly adhere to this opinion, if *munda* and *rosea* were really identical. If we look to the types or to the original descriptions we find we cannot follow this innovation. *Lælia anceps rosea* appeared at Mr. W. Bull's in December, 1879, and was very much admired there by our lamented friend, Mr. J. Day. It has the mid-lacinia of the lip acute and short, and the flower is mostly of a delicate rose colour. *Lælia anceps munda* is an introduction of Herr Consul Kienast Zölly, of Hirslander, Zurich, in 1886. It is one of the whitest forms of *anceps*, with the most delicate hue of red nerves on the lip, whose mid-lacinia is blunt. It is the sister of *vestalis*, the treasure of Sir Trevor Lawrence, and *alba*, the pride of Mr. W. Bull and Herr Heinrich von Ohlendorff, Hamburg, the possessor of a select Orchid collection kept in an excellent manner by Mr. Blythe. *Munda* is distinct from both in its very light rosy nerves on the side-lacinia. The other white *anceps*, *Dawsoni*, *Sanderiana*, *Schroderiana*, *Williamsiana*, *Stella*, have very deep coloured blotches on the lip. *H. G. Rehb. f.*

AVAILABLE FOOD FOR THE PEOPLE.

A PAPER bearing this title was read by Mr. D. Tallerman, in the Hall of the Bakers' Company, Harp Lane, Great Tower Street, E.C., on the 15th inst., it being the fourth of a series of lectures, and its scope, in common with that of the other three, was to put forward the scientific, mechanical, and practical arrangements that enable foreign produce to displace home-grown food in British markets. This particular paper deals with "The Results and their Remedy." The Earl of Winchelsea occupied the chair, and there was a fairly good attendance. Various coloured diagrams on the walls served to illustrate some of the points put forward by Mr. Tallerman.

The Chairman said the supply of food was a matter of national importance. They were to a large extent an agricultural community, and the question was therefore one specially of interest. It is a good policy to get as large a supply of food as possible from home.

Mr. Tallerman called attention to the fact that while British agriculturists were in a desperate position, farmers in foreign lands, far and near, are enabled to send their produce to British markets, and successfully compete with home farmers on their own ground, notwithstanding the unequal terms upon which they contend; while our own agriculturists, although surrounded by larger groups of consumers than will be found in similar areas in any part of the world, suffer from such an unbearable depression that the lands are gradually going out of cultivation, while the agriculturists of distant lands destitute of consumers, can profitably supply our markets, their industry prospering and rapidly developing itself to a remarkable degree. Three terms may be used as setting forth the means by which these great results have been achieved by others—1st, Combination, or the systematic organisation of the owners of pro-

duce and material for their economic production, utilisation, collection, distribution, and realisation. 2nd, Refrigeration, or the systematic application of the known natural law for the preservation of perishable foods by means of a dry, low temperature. 3rd, Evaporation, or the systematic application of the known natural law for the preservation of perishable produce by means of a dry, high temperature. Foreign combination operated to send us a large portion of the 160,000 tons of butter and cheese that reached us last year, and for which we paid £12,000,000 sterling; preserved meats to the value of £1,500,000 sterling, and £1,000,000 sterling worth of fish, fruits, and sundries. Refrigeration was the means by which in the same period we imported 80,000 tons of fresh beef and mutton at a cost of £3,500,000 sterling. Evaporation was employed in the preparation of the 500,000 cans of condensed milk, also the large quantities of dried fruits and vegetables we received, only a very small portion of the respective crops preserved by the farmers of America, Canada, and Eastern Europe. After dwelling in detail upon the means by which these systems are utilised abroad, he thought that in the important particulars he set forth will be found the germ of the success that must attend home over foreign operations, when the time shall arrive for refrigerators to be utilised in connection with the distribution of fresh meat by the British farmer. After showing the advantages enjoyed by the home farmer—specially mentioning two—1st, the small cost of the temperature necessary to keep the meat in good condition; 2nd, the short time occupied in its transit from producer to consumer—Mr. Tallerman went on to dwell in detail upon the processes by which the results might be attained; he applied his remarks to Wheat, meat, flour, dairy produce, and fruit. Under the last heading some very interesting information was given, to which further reference can be made. Proceeding next to dwell upon the commercial phases of distribution, he deplored the lack of the commercial mind in the English agriculturist, especially in relation to the ever important economic axioms that "the supply of an article tends to create the demand for it," and "the demand establishes its value." By way of practical results he would operate through Chambers of Agriculture, Farmers' Clubs, Trade Societies, Working Men's Clubs, &c., so as to secure the combination of producers and consumers for their mutual interest. The essential point to be understood is the fact that the operations necessary to bring producer and consumer into direct communication as sellers and buyers are of a purely mechanical character. The food material exists in one direction, and the means wherewith to purchase it in another. The problem lies in the provision of a ready means by which those who have particular commodities to sell can be brought into contact with those who wish to purchase them.

Farmers and their landlords, with working men and their employers, may well deal with the subject from one common standpoint, and consider how a working arrangement for bringing home producers and home consumers into definite contact can well be brought about. Both parties have large organizations that may be usefully occupied. Agriculturists have their Royal and County Societies, Chambers of Agriculture, and Farmers' Clubs. The industrial bodies have their Trade Societies, Unions, Co-operative Stores, and Clubs. Let the representatives of both meet, and take some steps by which the supplies of the one and the demands of the other can be adjusted, and a fairly remunerative price may be readily arrived at for one to pay and the other to receive. The paper concluded with references to the position of the middleman, the masses and their meals, and the railway difficulty and how to deal with it, to which subject also a further reference will be made.

A brief but interesting discussion followed, which was closed by Lord Winchelsea proposing a resolution to the following effect:—"That the time has arrived when home producers should adapt themselves to the altered circumstances of the home market, and com-

bine in the same manner as the foreigner in order to bring their products directly to the consumer." This was seconded and carried, and the proceedings closed with hearty votes of thanks to Mr. Tallerman and to the Chairman.

THE BULB GARDEN.

THE EARLIEST FLOWERING CROCUSES.

I HAVE before me as I write six distinct species of Crocus gathered in the open garden, and in some instances protected by glass; they are singularly pretty in January and February, but we seldom get enough sun to open the flowers either out-of-doors or under the glass lights; but when the flowers are cut and placed in glasses in a warm room at night they open as freely as if they were exposed to bright sunshine; and the colours are most charming by artificial light. *C. alaticus* has been gathered from a clump quite in the open ground on February 9; it is a distinct and charming species. The inner segments of the perianth are of the purest white, the outer segments are also white, but the outer surface and the scape is of a dingy purple. *C. imperati* is also very pretty, though a common species; the segments of the perianth are lively pale purple, the outer surface of the outer segments is buff, with deep purple lines. *C. corsicus* is much like it, and they have both flowered together. *C. carpatanus* is quite distinct from any other flower at this time. The flowers are of a delicate lilac colour, flushed with yellow at the base of the segments internally. Mr. Maw, the authority on the Crocus, says it flowers from February to April, and as late as May, in its native habitats.

We have also in flower together two species of a deep yellow colour, of which *C. ancyrensis* was the first to flower in a cold frame, and about the middle of January. The colour is rich orange, and the flowers are small; from the other—*C. chrysanthus*—I gathered flowers on February 9, which opened at once in the room in the evening by artificial light. This was the variety *fusco-tinctus*, whose flowers have perianth-segments of deep orange, the outer ones externally suffused with brown. This species is very variable, as besides the yellow normal form there are also white, blue, and blue with white varieties. The frost does not seem to injure the flowers, for they may be quite stiff with the frost, and when a thaw comes they may be gathered to open in the house, and are very pretty arranged in small vases. *J. Douglas.*

LILIUM THOMSONIANUM.

This seems to be one of those plants about which doctors differ. Wallich made a new genus of it called *Notholirion*, then Don, in *Prod. Nep.* 51 (1825) called it *Fritillaria macrophylla*. Wallich, 1832, called it *Lilium roseum*, *Wall. Cat.* 5077, under which name it was figured in *Bot. Mag.*, t. 4725, and again in *Belg. Hort.* (1853), t. 21. In Rözel's *Illustrations* (1839), t. 91, Don again named it *Fritillaria Thomsoniana*; while Lindley (1845), *Botanical Register*, 31, t. 1, gave it the name above quoted, and Griffith in his *Icones*, t. 277, named it *L. longifolium*. In the *Genera Plantarum* the name given by Lindley is cited, with the remark that the floral characters are nearer *Lilium* than *Fritillaria*; and as it will be less confusing to follow the standard laid down by Bentham and Hooker, we have adopted the name given by Dr. Lindley. The Messrs. Loddiges are said to have been the first to flower it in this country; in April, 1844, and although an interesting plant it has probably not been deemed sufficiently good as a florist flower to include in general collections. It does not, however, lack beauty, a few of the coloured drawings we have seen representing fairly sized flowers of a pretty delicate rose colour, while the form in flower at present in the herbaceous department at Kew is a creamy-white with greenish tips, and a very faint fragrance, and corresponds in every way with a photograph of a plant flowered by Herr

Max Leichtlin a few years ago. It seems to be widely dispersed. Lindley gives Mussoore, others give Almoro, 5000 feet elevation; Afghanistan, 5000—6000 feet, &c., while the bulbs of the above plant were received from Hazara, Afghanistan; a few years ago. Its leaves are over a foot long, lanceolate. *D.* [A good figure is given at p. 773, vol. xxi., 1884.]

FNEESIAS.

When pure white sweet-scented flowers are required during the early autumn and winter now is the best time to plant the bulbs, as the best matured bulbs arrive in England from Natal at this season of the year, and, if not planted before next autumn, they very often fail to start into growth; hence the complaints made by some growers. *F. refracta alba* is one of the best varieties, and if planted at once, say, six bulbs in a 5-inch pot in good fibrous loam and peat of equal quantities, with a plentiful addition of sand, with good drainage, the pots should be placed in gentle bottom-heat in cocoa-nut fibre until they have made a growth of a few inches, when they should be exposed to the light and kept at a temperature of about 55°—60°, giving them an abundant supply of water. *J. G. Hill.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA VELUTINA VAR. LIETZEI, *Gartenflora*, 1888, t. 1265.

A BRAZILIAN species, with elongated pseudobulbs, lanceolate leaves in pairs at the end of the bulbs, and flowers in loose terminal racemes. Each flower is about 3 inches across, with oblong acute spreading segments of an olive-colour, spotted with sparse red spots; the lip is whitish, convolute in the basal half over the column, expanded in front into a broad rounded and yellowish lip with numerous radiating stripes.

LÆLIA PORPHYRITIS, *Revue de l'Horticulture Belge*, February, 1888.

Flowers like those of *Lælia pumila*, with oblong acute segments of a dull purplish colour, a lip the basal two-thirds of which are convolute around the column, and a roundish terminal lobe of a rich carmine colour.

ONCIDIUM MANTINIX, *Godefroy, Orchidophile*, February, 1888.

A supposed hybrid between *O. Marshalli* and *O. Gardneri*. The flowers are in racemes, each exceeding 3 inches in diameter, with oblong sepals, shorter than the oblong obovate retuse spreading petals; both sepals and petals yellow, with a large central blotch of chestnut-brown. Lip with a narrowish stalk, dilating into a large roundish yellow anterior lobe, sprinkled with a few purplish-brown spots.

PAPHINIA CRISTATA VAR. MODIGLIANA.

This elegant Orchid, described in the *Gardeners' Chronicle*, 1888, is now illustrated in the *Lindenia*, t. 117. It has pendulous racemes of starry white flowers, each about 2½ inches across. The typical plant has, as is known, purple flowers.

CYPRIPEDIUM HARRISIANUM X VAR. SUPERBUM.

One of Messrs. Veitch's hybrids, raised between *C. villosum* and *C. barbatum*. Leaves mottled; peduncles purplish, villose. The upper sepal is broadly ovate acute, with a reddish-purple ground marked with darker nerves, and edged with white. The lateral petals are oblong obtuse, dull purple; lip thimble-shaped, purplish. *Lindenia*, t. 118.

DENDROBIUM ROTRIFERUM.

This remarkable New Guinea Orchid, described in the *Gardeners' Chronicle*, p. 746, December 17, 1887, is now figured in the *Lindenia*, t. 119. It is evidently a most remarkable species, with elongated, slender pseudobulbs, lanceolate leaves, and short dense ra-

cemes of pinkish flowers, each about three-quarters of an inch long, and resembling a sabot or shoe in form. It is to be regretted that no analysis accompanies the illustration of so remarkable an Orchid.

CATASETUM PULCHRUM.

A curious species, with flowers 1½ inch, segments oblong-lanceolate, green, with horizontal purplish-brown bars and an orange-yellow boat-shaped lip. Figured in the *Lindenia*, t. 120.

ARRANGEMENT OF HOT-WATER PIPES.

CONSIDERABLE advance has been made during the last few years in the construction and internal arrangement of plant-houses, and this is most conspicuously the case in the matter of ventilation. Not many years ago the only purpose ventilators were supposed to have was as a means of regulating the temperature, the necessity of a supply of fresh air to the plants at all times and in all seasons being almost if not entirely overlooked. This is now remedied, and we have our ventilators arranged so that fresh air is constantly entering the houses, the result being an improvement in the health and vigour of the plants.

In like manner our heating arrangements have been improved in various ways, the most important being the distribution of the pipes in the houses. The old and, I may say, stupid plan was to place all the pipes under the side stages, partly, I suppose, to get them out of sight, and partly because it was thought they were as well there as anywhere else. In small, narrow houses this was no doubt right, but in large wide structures it was utterly wrong. I have to do with an old house which is an excellent example of what I mean. In it there are eight rows of pipes under each side stage, and the house is so large that in very cold weather these pipes have to be kept so hot that they cannot be touched, otherwise the temperature of the house would be too low.

In winter all plants should rest, but what rest can there be for the plants which stand upon these stages, beneath which there are eight burning-hot pipes? The stage gets hot, the gravel dry, the soil baked, and the plants covered with insect pests of all kinds; or, if this is prevented by pouring water on the stages and by frequently watering and syringing the plants, then quite as much harm is done by the excessive heat and moisture at a time when these should be kept at a minimum. Evaporating pans are quite as bad as the frequent watering, except that they save labour somewhat. The air about these shelves is necessarily much hotter than it is further away when the heat is diffused. Had these sixteen rows of pipes been distributed over the house, having, say, four rows on each side under the stages, and the other eight rows in chambers on the sides of the central path, four on each side, it is obvious that they would have done their work better, and the shelf plants would have escaped treatment which at present is simply either baking or stewing.

But the sixteen rows of pipes are clearly insufficient to heat the house under notice for the following reasons:—

When pipes are heated to such a degree that one cannot place his hand upon them for a moment they become dangerous to the plants about them. Fierce heat like this is bad for both man and plant. Every gardener understands the term "stinking heat," and knows that it does harm, but in houses where there are not sufficient pipes this disagreeable heat is unavoidable in very cold weather. Had there been twenty-four rows of pipes in my house instead of the sixteen, and these properly distributed over the house, then they would have done their work satisfactorily without "stinking."

The house for Cattleyas, built by Messrs. Veitch about three years ago, affords a good example of how pipes ought to be arranged in a house, and the

wisdom of using sufficient. This house is 22 feet wide by 132 feet long, and 14 feet high, and although an intermediate temperature is all that is required, yet sixteen rows of pipes run from end to end, and they are spread right across the house. This house has proved a perfect success for Cattleyas—no mean test. Other modern houses could be named as instances of improvement in this direction, but this is sufficient to prove my point.

The first cost of extra piping is as nothing when compared with the immense advantages it gives, and there is no excuse now-a-days for such bad arrangements as would make it necessary for the whole of the pipes to be under the side stages.

I have lately discussed this matter with several who do not appear to be quite clear as to the advantages of the arrangement here insisted upon; possibly others interested will let us have their views upon what must be considered of much importance horticulturally. *W. Watson, Kew.*

CULTURAL MEMORANDA.

THE TUBEROSE.

THIS bulb should be grown by every one who has a hotbed and a greenhouse from which frost can be excluded. The best bulbs sold by most of the nurserymen at 30s. per hundred are the cheapest in the end, inasmuch as a large percentage of the bulbs sold at a much lower price will not throw up a flower-spike. A small batch of tubers should now be potted into 3-inch pots in light sandy loam, burying the bulb three parts deep in the soil, and taking care to first rub off any bulbets that may be attached, for herein lies the secret of success in flowering the Tuberose. Every sucker that springs from parts other than the apex of the bulb should be removed as soon as they appear.

Plunge the pots to the rim in a bottom-heat of 80°—85°, and apply water very sparingly to the bulbs until active growth has commenced. When the flower-spikes have attained to a height of 6 or 7 inches shift the plants into 6-inch pots, and grow on near the glass in any warm frame, pit, or house that may be at hand, withholding water from the roots until the latter have pushed into the new soil, and damping the plants overhead morning and afternoon on bright days to keep them free from the ravages of red-spider. As soon as the roots have pushed well into the soil a slight sprinkling of Beeson's manure twice a week before giving water at the roots will tend to the production of finer flowers than would otherwise be obtained. The flower-spikes should have supports. The Pearl, a dwarf-growing American variety, is one of the best varieties.

WINTER-FLOWERING BEGONIAS.

The present is a good time to take cuttings of this useful class of stove flowering plants. Cuttings from 2 to 3 inches long inserted in 3-inch pots filled with light sandy mould, put in heat and watered, will soon take root. They should then be potted singly into small 60-sized pots, put back in heat near to the glass watered, and shaded from the sun for a few hours daily until the roots have taken to the soil, when it should be discontinued. Pinch the shoots a few times to insure dwarf bushy plants; give water at the roots when needed, and shift the plants into larger pots—48's and 32's—when they require more room at the roots. Plants thus raised will be much admired when used for furnishing purposes before the close of the present year, and as cut flowers. *H. W. Ward.*

GLOXINIAS.

To obtain good blooming plants, seed should now be sown, and from this sowing plants will be produced which will flower in the late summer and autumn. The seeds, being very small, should be sown thinly on the surface of the compost, when it has been made quite level, and be just covered with sand. The plants will soon appear, and should be

pricked out when of small size a dozen or so in a 60-sized pot. When the leaves have met together they may be potted off, but this time three in a pot, and kept in a minimum temperature of 60°, with a moist growing atmosphere; the plants grow very rapidly, and in three or four weeks will require to be repotted singly. The best potting materials are loam and peat in equal portions, with a little decayed manure, and some sharp sand, with good drainage. I grow the two-year-old tubers in 8-inch pots, and very beautiful specimens these make for large houses. They are seldom attacked with insect pests if the temperature and atmospheric conditions are right. *J. Douglas.*

ROSES.

THE SCOTCH ROSES.

At a meeting of the Royal Horticultural Society held in June last, a collection of cut Roses was shown of a very interesting character, representing groups the flowers of which are seldom seen by those who do not grow them. The Scotch Roses were well represented. This Rose is a native of the North of England and Scotland, and can be found wild in many parts of the country. When I was in Llandudno in May, 1886, I found a variety of Scotch Roses growing on the hills, all single and white, but varying in the size and slightly in the colour of the blotches surrounding the centre. From seed many pretty and interesting varieties have been raised, and it is only of late years that their charms have been appreciated as they ought to be, for they are very pretty and sweet-scented; and they bloom early in spring before any other Roses. Among those exhibited were the double white, Gil Blas, delicate blush (double); Mrs. Stirling, bright rosy-pink, very pretty indeed; Scotch Provence, delicate pink; Mrs. Tritter, delicate pink and white; Duchess of Bedford, a little paler than Mrs. Stirling; and Stanwell Perpetual, large, double, and delicate blush in colour. When in Wales I made an effort to secure a few of the best varieties on the hills, but of those I brought away only two survived, which I hope to flower this year. In searching for the roots it was remarkable how far they had travelled between the rock and the turf which covered it. Hot and dry as the position seemed they were flowering very freely indeed. With those seen at South Kensington the exhibitors had set up some charming bunches of the Austrian Roses, viz., the Austrian Copper, with its large single blossoms; the double Persian Yellow, the deepest in colour; and the fine double golden-yellow Harrisoni. That they were much admired goes without saying. *R. D.*

NEGLECTED ROSES.

I would venture to add the following Roses to the list given by "Wild Rose" in a recent number of the *Gardeners' Chronicle*, and which are all too seldom seen in gardens:—

Auguste Mic.—This is one of the most delicate and perpetual-flowering of the unique-coloured, light, glossy pink Roses.

Jules Margottin.—No garden was considered complete in its Rose furnishing a few years since without Julia, as this popular favourite was commonly called some twenty years ago; now, such a familiar name would beget a bewildered stare, and you may enter scores of gardens without finding one lighted up by the light cherry-coloured blossoms of this most free-blooming, useful Rose.

John Hopper.—This popular favourite, though only twenty-six years old, is gradually disappearing also, though it is unrivalled in good qualities, and certainly is not yet superseded in its not very numerous class of bright rose on a base of pale lilac.

Duchess of Sutherland.—This is one of the oldest and still very best of our rosy-pink, exquisitely-cupped Roses, of vigorous habit and robust constitution.

La Reine.—These two are placed together, as they

were the first two perpetuals grown by the writer. *La Reine* also resembles the *Duchess* in form, though the flowers differ widely in colour; the latter, indeed, vary considerably on different soils, sites, and plants, and sometimes on the same plant. Their normal colour is rose, shaded with lilac, occasionally with crimson.

Centifolia rosea.—This Rose is but a quarter of a century old, and already it is on the wane, and yet it is one of the most beautiful and fragrant of our bright light Roses. Being much shown in the early period of its history, and being apt to show its eye at times through the thickness of its petals, a prejudice was raised against it, though it is one of the choicest of our cupped Roses.

Fisher Holmes, a Rose about the same age, is disappearing from similar causes, though it is one of the most brilliant of our crimson-scarlet Roses.

Duchesse de Caylus, too, one of the most brilliant and most fragrant of our brightest carmine-red Roses, is going out of fashion before our eyes, because it is not such a Cabbage as *Paul Néron*, nor equal in bulk to many others.

Madame Knorr.—Bright Rose, fading into paler edges, beautifully cupped and fragrant.

Madame Laflay.—It seems but as yesterday that this fine crimson Rose was as popular in any garden as *La France* is to-day, and already it is not only neglected, but forgotten by most growers.

And such brilliant companions as *Marie Rady*, *Maréchal Vaillant*, and *Senateur Vaisse* seem almost in danger of slipping into the ranks of the neglected, unless "Wild Rose's" timely notes make rosarians pause, ponder, and re-weigh all Roses, old and new, on their merits.

I trust that when "Wild Rose" picks out the neglected from other groups he will not fail to do justice; to possibly the most beautiful, as well as the most neglected of all pink Roses, *Compe d'Hebe*, and its companion in neglect, though not quite its equal in beauty, *Charles Lawson*. *Rosa.*

THE ABIES NOBILIS AT THORPE PERROW.

THE specimen of *Abies nobilis* (fig. 38) is growing in the gardens of Thorpe Perrow, Bedale, and has, says Mr. Culverwell, the gardener, a little history of its own. "The tree was bought of Messrs. Knight & Perry, then at Chelsea, just one year before I came to this place in 1848. The tree, like many others, was planted in a secluded corner for shelter; this turned out to be a mistake, as the plants became drawn and tender, and made unnatural growth; the consequence was, that in the severe winter of 1860 and 1861, when 46° of frost were registered, nearly all the Conifers were destroyed, only one of Hartweg's collection being left—that was *Pinus Benthamiana*, of which we have now two grand specimens; but the cold had no effect on *Abies nobilis*, neither had the summers up to that time. The trees were quite stunted, the rate of growth being at about an inch in the season, and the shape that of a branch about 4 feet high. At last, the tree becoming quite an annoyance, I had orders to destroy it, and in taking it up I discovered that the plant had been grafted on a weak stock—*Abies Frazeri*—and a collar was about the graft four times the size of the stock. I cut four pieces of bark from the swollen part of the graft, and replanted the tree, but this time 6 inches deeper, well ramming the soil in round the union. It threw out roots quickly from the graft where the bark had been removed, and in two years it had made a strong leading shoot, and grew away with great rapidity, as the present height (56 feet) and stem (6½ feet round at 1 foot from the ground) prove. As the position was one exposed to the north-west winds, the roots have been weighted on three different occasions with about 20 tons of soil, so that the tree stands on a mound, and its appearance is much improved in consequence. Other grafted Conifers here have been treated in the same way, with similarly successful results.

PTERIS TREMULA.

ALTHOUGH one of the most useful Ferns for decorative purposes, and one that is extensively grown for market work, this is considered of little value by those who grow collections of Ferns. In most private establishments it is treated more as a weed than as a plant that is worthy of better culture, and consequently it is not seen in its best form. When once introduced into an establishment, and fertile fronds are developed, the spores will float about, and eventually seedlings will spring up in any genial position; but when species are sown in the ordinary way, it is often difficult to get a good batch of plants, for, being very fleshy and tender, they are liable to damp off when crowded together, as they invariably are, even when the greatest care is taken to avoid sowing the spores too thickly.

It is perhaps on account of its being so often seen in an unsatisfactory condition, that it meets with so little favour. When plants are left to take care of themselves they soon get drawn and leggy, especially if crowded up together in a warm position; but pot the plants in fairly good soil, give them plenty of room, and an intermediate temperature, with water as they require it, and good plants may be obtained in a very short time. When a little extra care is bestowed upon them, very elegant plants, which for decorative work cannot be surpassed, will be the result. Old plants, after they get a little shabby, should be discarded, to make room for young ones, a batch of which should always be coming on for succession. There are several very distinct forms of *Pteris tremula*, but it is not until recently that any of the varieties have been considered worthy of distinction. The form which I was acquainted with some fifteen years ago (of which I had dried specimens) was widely different from that usually grown for market work at the present time. Where large numbers of seedlings are grown variations will frequently occur. The variety selected by Messrs. Veitch & Sons, and named *P. tremula foliosa*, is one of the best forms I have seen. In this variety the stipes are short, the fronds broad and spreading, the pinnules close and much broader than in the normal type. *P. tremula flaccida* (May), is another very distinct variety; in this the fronds are longer, the terminal pinnules being much elongated; the lower pinnules of the side pinnæ are also more extended and slightly twisted, giving the fronds a beautiful undulating appearance. First-class Certificates have been awarded for both of the above varieties. Crested forms occasionally make their appearance, but they are not very constant. *P. tremula grandiceps* is the most distinctly crested form. *Pteris.*

NURSERY NOTES.

W. ICETON'S, PUTNEY PARK LANE.

THIS nursery is situated close to the Barnes end of the Lane, very near Barnes station on the London and South-Western Railway. The specialty of this nursery consists of Palms, of which there is a very large stock of various sizes, from small seedlings in thumbs up to fair sized specimen plants. Two good samples of *Kentia Forsteriana*—probably the most useful of all Palms for decorative purposes—average about 18 feet in height—a decent size. But it is of the smaller sized plants that the stock consists—Mr. Icton having had this last season 70,000 of this useful species. *Cocos Weddelliana* is largely cultivated, and so also is the true *Phoenix rupicola*, which is a very handsome Palm, and of which Mr. Icton has a nice healthy lot. A noticeable Palm is *Areca Sanderi*, which is remarkable on account of the whitish nerves of the leaves and red colour of the petioles; it is distinct, and will probably find many admirers; only small plants of it were to be seen here. *Areca lutescens*, *Latania borbonica*, and other popular sorts are also grown. Other plants besides Palms also find room here, and next in importance are the *Dracenas*, of which D.

Lindeni, with the pale golden-yellow variegation, is the most attractive; it makes a first-rate furnishing plant. *D. australis* and *Cordyline brasiliensis* are both represented by good plants in fine condition. Other *Dracenas* are *D. linearis*, *D. Danielli*, &c., both good kinds. Before quitting the foliage plants mention has to be made of *Ficus elastica*, which is grown as far as possible on the Continental system, being planted out in pits, and thus gaining the rich bronzy hue which so enhances its beauty. A large space is devoted to the decorative *Asparagus plumosus*, which is raised from seed saved in the nursery, the demand for the "foliage" of this plant is ever on the increase in the market,

who can make it convenient to visit the nursery. The sprays gracefully arch over, and present the upturned faces of the flowers, ranged in two rows, with the greatest precision; the well-rounded petals, the curiously curved spurs, the delicately sulphur-tinted white flowers, with a shade of sky-blue near the column, are all well shown up by the dark green of the plants. A spike or two with a piece of Maidenhair Fern could leave nothing to be desired as a spray for evening wear.

Angræcum dependens.—This is also in bloom in good quantity for the first time; it is a robust grower and very profuse flowerer, and so also are the rare *A. fastuosum* and *A. polystachyum*, the

dered distinguishable by name) should be mentioned, as they are the best which have yet appeared in their sections. The one has the general features of *C. T. Backhousiana*, and has a similar dark tip to the delicate lavender petals, but the glowing purplish-crimson of the front portion of the labellum is still further intensified by the rich orange throat, and the blending of the two colours where they merge into each other. The other is of the delicate tint of that known as *C. T. delicata*, but is a perfectly-shaped, neat florist's flower, the slightly rose colour of the labellum being clearly displayed, the habit of the whole plant and flowerspike is erect, and the parts of the flower are exquisitely arranged.

The two large houses of *Phalanopsis* are now well over the fog difficulties, and are displaying bloom profusely, the pretty and fragrant *P. Schilleriana* supplying the bulk of it, though *P. amabilis*, *P. Stuartiana*, and others, are plentiful, and with them are some flowers of *P. Sanderiana*, and the new and curious *P. denticulata*.

The *Cypripediums* now are a great feature here. Five new houses have been built for them and filled, and now this genus alone occupies as much space under glass here as some nurseries can give to the whole of their stock. Many thousands of the new *C. Sanderianum* are here, and as many of them have been in flower, all others available have been crossed with it, and so there are "great expectations." Certainly an examination of the quaint beauties of the flowers now open seems to say that its hybrid progeny would produce some wonderful things. Many of the other *Cypripediums* are in flower or bud, and among those expanded are *C. Haynaldianum*, *C. Lawrenceanum*, and others in quantity.

The *Odontoglossums* are in equally great force, and a grand strain of *O. crispum* give their attractive flowers to the houses, as well as good supplies of bloom on *O. luteo-purpureum*, *sceptrum*, *Pescatorei* (out of which some fine *O. excellens* have flowered), *blandum*, *mirandum*, *pulchellum majus*, &c.; and in a warmer house a lot of *O. Roezlii* is in bloom, about which a curious fact is noted. The varieties with red or crimson in them smell like Roses, but that called *alba*, having no colour, except a yellow tint on the labellum, has exactly the odour of Lily of the Valley.

Among the other Orchids in bloom at the Clapton Nurseries, are in more or less quantity, *Cologne cristata*, *Lycaste Skinneri*, *L. plana*, *Dendrobium Fitchianum*, *D. Wardianum*, *D. heterocarpum*, *D. crassinode*, several of a new strain of *D. lituiflorum*, with nearly white sepals and petals; *D. fimbriatum oculatum*, *D. Brymerianum*, a grand lot of high coloured imported *D. nobile*, some *Zygopetalums*, and *Oncidiums*, and a pretty and presumably new *Restrepia*, with brownish-crimson lines on golden-yellow instead of the spots usually seen in that section of the genus. *J. O'Brien*.

FOREIGN CORRESPONDENCE.

BERLIN.

SINCE my last letter on the Berlin flower shops the display in them has somewhat altered. Hyacinths in the finest white and rose varieties are much in request, as well as yellow ones; the darker sorts are, however, seldom to be found—preference is given here to the tender tints of varieties of Hyacinths as well as of other forced flowers. White and light blue *Syringas* are in almost every shop; *Galanthus* and *Myosotis* are still scarce, but in great request. A delightful arrangement—a basket in Mr. Manso's establishment—has attracted the attention of every spectator. The large dark brown basket was filled with mess, in which were placed a great many twigs of *Salix*, with dark reddish-brown bark and rose-coloured catkins, interspersed with rose Hyacinths and rose *Anemones* and long tender shoots of a very small leaved dark variety of *Ivy*, with bright greenish-white nerves. The handle was dressed with a bouquet of rose Hyacinth with dark brown leaves of *Mahonia*. This basket was so much admired that some days after



FIG. 38.—*ABIES NOBILIS* AT THORPE PERROW. (SEE P. 236.)

Of plants in flower there are but few comparatively forced—Lily of the Valley, largely grown and in a capital manner, formed the chief; Hyacinths and Tulips following in less quantities, and a bright relief was seen in the house devoted to Ghent Azaleas, which were masses of rich bloom.

ORCHIDS AT MESSRS. HUGH LOW & CO.'S.

Angræcum citratum.—This charming Orchid, represented by the largest quantity ever seen together, and bearing over 2000 of its neat and elegantly arranged sprays of flowers, forms the chief attraction of the Clapton Nurseries at the present time. The beauty of the display is altogether beyond description, and an opportunity to witness such a sight should not be allowed to pass by any lovers of flowers

latter having sprays of white flowers with curious convolute lips, and exhaling a fragrance like that of *Pilumna fragrans*. A very large quantity of the fine *A. sesquipedale* has a few of the spring-flowering variety coming into bloom, and some new species are sending out spikes which it is to be hoped they will bring to perfection.

Cattleyas.—Many houses are devoted to these, one of them alone containing some 8000 plants; but in the matter of flowering the varieties of *Trianae* have it now nearly all to themselves. The strain throughout is of the best, and in one little batch, with flowers of excellent shape, the colour of the glowing lipped *C. T. Osmani* is closely imitated—a very rare thing in any importation of *C. Trianae*; two specially distinct things (which it is to be hoped will be ren-

similar arrangements might be seen in a great many other flower-shops. Very nice were those variations with dark-red Anemones. Violets are still in great quantities; Lilies of the Valley less so. Much appreciated and almost in every flower-shop, are now two plants, in former years rarely seen—Amaryllis and Acacia. Of the first you find everywhere large bundles of flowers. The yellow flower-twigs of the second are to be found in a great many of the bouquets sold in the streets by the flower women. Tulips and Daffodils in fine specimens everywhere, Cyclamen and Roses now seldom. D.

VARACH SEEDS AND CRABOO FRUITS.

Under the name of Varach seeds and Varach candles there were exhibited in the Gambia Court at the Colonial and Indian Exhibition in 1886 some flattened roundish seeds strung upon a piece of Sorghum stalk, each about a foot long. The information given with these very primitive candles was that in some parts of the interior, where the plant grows, the natives use the seeds sometimes as candles, by threading them closely together, so that when burning they catch fire slowly one after another—one of the so-called candles above described giving an uninterrupted light for nearly an hour and a half. None of the seeds in the specimens exhibited were perfect, being either broken or partially destroyed by insects, so that it was impossible to identify them botanically. Since then, however fresh material received at Kew has proved the seeds to be those of the Coco Plum (*Chrysobalanus Icaco*), so that it would seem that the seeds of this plant contain sufficient oil to enable it to burn readily.

Craboo fruits were exhibited in the British Honduras Court of the before-mentioned Exhibition, and were described as a small acid fruit, in size between a black Currant and Gooseberry, which, when sweetened, makes a pleasant wholesome drink. In Morris' *Colony of British Honduras*, p. 56, the Craboo is thus referred to:—"Another common 'Pine ridge' plant in the South is the 'Craboe,' which yield a kind of Plum or Cherry, sometimes used for food, and whose bark is used for tanning." The fruits exhibited at the Colonial Exhibition were procured for the Museum at Kew, and upon examination proved to be those of *Byrsonima spicata*.

VENTILATION.

CONSIDERABLE additions, at an estimated cost of about £40,000, are being made at Eton College, from the designs of Arthur W. Blomfield, Esq., M.A., architect, who has entrusted the warming and ventilating arrangements to J. Weeks & Co., Chelsea.

The buildings are to be warmed by means of patent hydro-caloric warming and ventilating coils, which admit, into each apartment a continuous stream of fresh warm air, either perfectly dry or charged with an agreeable amount of humidity, at pleasure. As these coils have been largely used by the Government and in many public buildings, their principle of inlet is pretty well understood; our readers will, we think, be more especially interested in their method of purifying the rooms, by extracting the vitiated air, as this is a matter of great sanitary importance, not only to those whose houses are warmed by means of a hot-water apparatus, but also to those who cannot afford that luxury.

The apparatus consists of properly constructed air ducts, next the ceiling of the various passages, commencing at the extremities of the buildings and converging to one large vertical shaft, situated, in this instance, about the centre of the building. The warm vitiated air from the upper part of each room is passed into one or other of these air ducts by means of ventilators specially constructed for the prevention of down-draught. This influx of hot air naturally renders the ducts warm throughout, and serves to create a continuous and steady exhaust from each of the compartments. But to render this exhaust

assured, and of various degrees of potency—for it can be regulated to a nicety—the upright shaft is fitted with a powerful extractor, consisting of a series of gas-jets, which when lighted increase and confirm the tendency which the rarified air already possesses to pass out of the rooms and discharges it with considerable velocity above the roof without the possibility of any back-draught. The capability of this system of ventilation may be judged from the fact, that it effects a complete change of the air in the various rooms at least twice within the hour, and that without opening any doors or windows.

Another valuable feature of this system is its adaptability for summer as well as winter use. During the former season the heated air can be continuously drawn off, and cool fresh air passed into the rooms without discomfort or trouble, as the apparatus, when once set going, is self-acting.

FORESTRY.

USES OF COAL-TAR IN FORESTRY.

COAL-TAR, an almost waste product of gasworks, has remarkable preservative properties when applied either to dead or living wood, but unfortunately its great value in this particular way is but little understood. True it is that for painting wood and iron fences coal-tar is greatly in request; but what we particularly wish to draw attention to at present is the great value it possesses for coating over freshly amputated branches, and wounds caused by trunk cavities, loosened bark, or branches riven off during high winds. Trees that have been neglected for a number of years are frequently to be seen with their boles seriously injured by cavities, caused, it may be, by the decay of dead or broken branches, effects of lightning, or carelessness on the part of those who are entrusted with the charge of horses in the woodlands. These evils can, perhaps, not be cured, but they may certainly be minimised, and in many instances the progress of disease may be arrested by careful pruning away of all dead wood, making the edges of the wounds as smooth as possible, and applying a coating of tar to the surface. Without penetrating deeper than ordinary paint coal-tar forms an impervious coating to the wood-cells, and thus causes water to run off and wards away decay. Bark that becomes loosened from whatever cause can never again attach itself to the trunk, although more than once we have noted those who were ignorant of the fact nailing it on under the impression that it would again become united. Where loosened bark is present on the stem of any tree the best way is at once to have it carefully removed, the edges neatly rounded off with a sharp pruning knife, and the whole coated over with tar.

Some of the attending evils of loosened bark are that it prevents the circulation of sap, and forms a snug retreat and breeding ground for numerous insects that are injurious to tree life. The odour of the coal-tar soon drives away all insects that may be present on the stem, and by its complete adherence to the wood prevents others from settling thereon. No injurious effect has been noted in connection with the application of coal-tar to forest trees generally, but instances have come under our own notice, and have also been reported from the Continent, in which stone fruit trees, particularly the Plum, have suffered severely from an application of this tar. The Apple and Pear show no bad effects, even from several applications, and we have treated large specimens of the Plum and Cherry with perfect success, while young trees of the latter have been all but killed by a single application. Where the bark is young and tender the tar should be applied with caution, and never, if possible, wholly around the stem of the tree or shrub requiring treatment.

Coal or gas-tar is of great value to the forester in another way, for by daubing the outer branches or stem (or even small stakes inserted in the ground alongside) of any plant with which ground game interfere, it will immediately and for some time put a stop to such depredations. We have found it to be a good and safe plan to stick a few pieces of branches around the plant requiring protection, and daub these over with tar at intervals of time varying from one to two months, according to the state of the weather. Both hares and rabbits have a great aversion to the smell and taste of coal-tar.

In applying tar, whether it be to living or dead wood, it is advisable to use it in as thin a state as possible, and to insure this the easiest method is to boil or heat the tar just before it is wanted for use. Tar in a hot state may with great benefit be applied to fences or dead wood, but it is highly injurious to coat either bark or living wood with it when partially heated. When tarring fences it may be well to inform the inexperienced in such matters that just at the ground surface, or where earth and air meet, decay in the wood soonest sets in; therefore, to counteract this as much as possible the tar should be applied well down to the ground level, all surface herbage having been previously removed to facilitate the operation. A. D. Webster.

DURABILITY OF SILVER FIR AS RAILWAY SLEEPERS.—With a view to test the durability of the above wood as railway sleepers, compared with Baltic Pine ones, I made the following experiment:—On April 17, 1877, I had four Silver Fir sleepers laid beside new Baltic Pine ones, on the Caledonian Railway line four miles north of Perth. On June 21, 1884, one of the four Fir sleepers was raised for the purpose of exhibiting it at the Forestry Exhibition held at Edinburgh. Although it had been seven years and two months in use, it was in a remarkably good state of preservation, whereas many of its Baltic Pine companions had been thrown out after being but six years in use. In August last, 1887, when renewing sleepers on the line, two of the remaining three Silver Fir ones were thrown out, the fourth being considered still fit to retain its original bed. As the success of my experiment seemed fairly satisfactory, I consider the result obtained worthy of all publicity, for when it is remembered that the average duration of Larch sleepers is about eight years, it cannot but be regarded as noteworthy that those of the wood experimented on should have attained a duration of ten years and four months before being thrown out. But durability is not the only point in which the Silver Fir is equal to the Larch, for it luxuriates and produces sound timber on soils that will affect injuriously the Larch with dry rot, which deteriorates so much the ultimate value of Larch.

I do not know any coniferous tree (Douglas Fir excepted) that equals the Silver Fir in producing bulk of timber per acre, for after reaching its fiftieth year it outstrips all other Conifers in size. In planting this tree great attention should be given to the selection of favourable sites for its growth. Humid situations should be avoided. Upon estates where my advice has been asked, I invariably recommend to plant Silver Fir on suitable sites for the permanent crop, at about 14 feet apart, filling the intervals with Larch only at 4 feet apart. When this mode of planting with Silver and Larch has been adopted, if at an early stage of their growth, the trees intended for the ultimate crop give indications of becoming healthy, the Larches may be gradually thinned out, and the permanent crop reared purely of Silver Fir; or the plantation may be reared a mixed one; or, should the Silver Fir trees fail to advance satisfactorily, the plantation may be converted into a pure crop of Larch. Wm. McCorquodale, *Jeannie Bank, Perth, January 26, in the "Perthshire Constitutional."*

ADMINISTRATION REPORTS OF THE FOREST DEPARTMENT, MADRAS, 1885-86.—A copy of this bulky publication has lately reached us. The work of the year mainly consisted in the selection and reservation of the laod that is to form the permanent forest area of the Presidency. Mahogany and ceara-rubber are likely to do well, Eucalypts are a failure on the plains, Manilla Hemp and the Date Palm promise well in the southern districts, Ipecacuanha plants are in a promising condition at Nilambur, while Maples and Conifers are doing well on the Nilgiris.

PLANTS AND THEIR CULTURE.

CALATHEAS (MARANTAS).—Few plants show signs of distress sooner or more plainly than these; and when this arises from the exhaustion of the fertile ingredients of the soil, their leaves not only get smaller, but are very apt to take on a singed-like appearance round their edges. *C. Veitchii* is very sensitive in this respect, and seeing that the ornamental value of the plants depends on their foliage, the cause of this should, if possible, be avoided, and an abundance of clean, well-developed growths aimed at. To secure this result it is advisable to repot the plants

annually, employing a porous soil, such as rough fibry lumps of peat or loam, with large pieces of charcoal, and sandstone or brick rubbish broken up rather finely. A good portion of sharp sand, and a little dry powdered cow-dung may be added to the above. This compost suits equally *Alocasias*, *Schismato glottis*, *Drymonias*, *Carnerias*, the dwarfier growing *Hoffmannias*, and many of the *Anthuriums*, such as *Andreanum*, *Scherzerianum*, *Veitchii*, and *Waroequeanum*; but for the stronger growing *Anthuriums*, like *magnificum*, *ornatum*, *crystallinum*, and *aculea*, loam may replace the peat with advantage. The last-named *Anthurium* is by far too seldom met with: it is a noble foliaged plant with green leathery leaves a yard or more long, and a foot broad; the spadix is upwards of one foot long, has a Violet scent and colour, and is followed by white fruits. All these plants enjoy a high temperature and moist surroundings, but the *Calathas* are extremely sensitive to sudden fluctuations, and are much injured by being placed in a draught; and they dislike full exposure to the sun. If peat of the best light fibry kind be not at hand, some finely chopped sphagnum may be used instead of it; and in the case of *Anthuriums*, tufts of fresh sphagnum inserted between the fibry lumps on the surface of the pots are beneficial. Give plenty of water at the roots, but avoid letting the soil become soured from over-watering.

Franscescas.—These plants will now be on the move, and should be encouraged either by potting, top-dressing, or with liquid manure. A light loamy soil suits them best, as in it the growth is sturdy and floriferous: the wood also ripens well, and does not require so much pruning back as is the case when peat or leaf-mould is used. They are cool stove plants, delighting in plenty of light and air, with copious syringing during the growing season. Cuttings of the half-ripened wood inserted singly in sandy soil in small pots and placed in a propagating frame will be well rooted in a month, when by potting them on and growing in brisk heat, with once or twice pinching, they will make handsome little decorative plants within the year; but the wood must be well ripened to secure this result, by giving plenty of warm dry air towards the end of August and during September. They may afterwards be kept cooler until it is desired to start them. There are many varieties, but the well known *F. calycina*, its large-flowered variety, *F. c. major*, and *Lindeniana*, are the best—*acuminata*, *confertiflora*, and *eximia* being added for variety.

The Forcing Department will require attention in order that the supply may be kept up. A great many hardy flowering shrubs will now be easily excited into bloom, viz., *Rhododendrons*, *Lilacs*, and *Azaleas* of the Ghent or mollis type. Of *Deutzias* the double-flowered *D. crenata flore-pleno* should now be started, as well as a first batch of *D. gracilis*; *Prunus* of sorts—especially the newer *P. Pisardi*—are very effective plants when forced. A number of the *Guelldres Rose* put in now would flower in time for the Easter decorations, when the large white flower-heads are much appreciated. Syringe them freely, and maintain a temperature of about 60°, and they will come on quite as fast with this temperature as a higher one, unless it be that the rise is occasioned by sun-heat. Look over the various bulbs, and see that they are not becoming drawn. Place fresh relays of them in heat according to demand; but very little heat will be required in most cases—ordinary greenhouse temperature being sufficient. Mere protection from frost will greatly forward these plants, and in most cases will be all that is required to bring on *Narcissus*, *Scillas*, *Crocuses*, *Hyacinths*, *Anemones*, and *Ranunculus*; *Astilbe japonica* and *Lily of the Valley* should be placed in the forcing-house. Neatly stake, and give manure to all forced plants that may require these aids. Indian *Azaleas*, such as the old white, *Borsig*, *Deutsche Perle*, and *punctulata*, are easily induced to open their flower-buds; but in forcing this species it is not desirable that they should also produce young leaves with the flowers, as this rather tends to spoil the plants and mars the effect. To prevent this as much as possible it is better not to wet the foliage more than can be helped, and give only just sufficient water to enable them to expand their flowers. Forced plants which have flowered and are now making their growth, should receive encouragement until it is completed; they will come in useful for starting at an early period next season. See that such plants as *Gesnera cinnabarina*, *G. refulgens*, *Poinsettias*, and *Tydeas*, which have gone out of flower, are carefully watered, and the foliage preserved in health until it has performed all its

functions; for on the attainment of this, their progress next season will in a great measure depend. *F. Ross, Pendell Court, Bletchingley.*

THE ORCHID HOUSES.

SHADING.—The sun's increasing ardour will remind us that the shading for the houses must be overhauled to ascertain what is required for the season. The south side of the cool *Odontoglossum*-houses that run east and west must be shaded for an hour or two in the middle of the day if bright, or the foliage of the plants will not keep of a fresh green tint. I am of the opinion that they will bloom quite as well and produce finer flowers for a season or two when the sun is allowed to shine upon them sufficiently to make them of a reddish-brown appearance, but the plants will not retain their foliage so long, and which make it appear that the plants are not doing so well as under shade. Once over the middle of February I find it is better to shade a little on bright days rather than to give ventilation sufficient to keep down the temperature, especially while cold winds prevail. The East Indian-house is best shaded with some light material at first, the heavy summer shading making the house too dark and cool. Sun-heat is very beneficial to these species of Orchids, but the tender foliage of many of them cannot bear with impunity the direct rays of the sun passing through glass. *Cattleyas* will enjoy a fair amount of sunshine provided the floors are damped often and the ventilators kept open. Sunny weather is good for *Cattleyas* when forming their flower-buds, causing them to expand to a larger size, and the colourings to be richer; but the flowers fade soon if not shaded from too bright sunshine.

Repotting Vandas.—The months of February and October I consider to be the best time for an examination of the *Vandas*; some plants will require only top-dressing, whilst others will be better for being plunged, pot and all, into a larger one, first picking out all the old moss, and filling up with large new crocks near to the rim; others that have lost their lower leaves will have to be set lower in the pot by cutting away a portion of the stem, but leaving sufficient roots to sustain the plants; those that have not yet rooted near enough to the bottom foliage to make shapeable plants when cut down, should be encouraged to do so by syringing the bare stems daily. All *Vandas* that have been disturbed at the root will right themselves quickly if the atmosphere be kept moist and a little warmer than that of the *Cattleya*-house.

Dendrobiums that have their flower-buds well advanced will open much larger if placed near the light in a moist, warm house, such as the East Indian-house. *D. Findleyanum* we grow suspended in the East Indian-house all the year round.

Pachystoma Thomsonianum is starting to grow in the warm house, and will require now watering oftener. Give a little air to all the houses on mild days, as early in the morning as the temperature of the houses will permit; close the warm houses early in the afternoon of bright days, so as to secure a portion of the sun's heat. *C. Woolford, Downside, Leatherhead.*

THE FLOWER GARDEN.

LAWNS.—Frost and snow will have delayed all turfing operations, but these should, on the first favourable opportunity, be completed without delay. In filling up and levelling eschew rich soil, if a patchy appearance is to be avoided. In the making of lawns, tennis-courts, &c., drainage is one of the first points to be considered, and cannot be over-rated, but is the preliminary to all other work. After draining and levelling operations, next in importance is the surface soil; this should be dug over a spit deep, and if poor it should be afforded a dressing of rich manure, to be dug in as the work proceeds, and let the digging be done roughly, so that the soil may get pulverised by frost and wind. Prior to sowing the seed, in the first week in April, the surface should be brought into a suitable condition by levelling, raking, and rolling, treading it down firmly, and clearing away stones and rubbish. In cases where the soil is of poor quality a covering several inches thick of good loam should be added, if the best

results are looked for. In ordering of the nurseryman it is advisable to state the character of the soil, so that a suitable mixture may be sent. Choose a calm day for sowing, going over the ground twice, crossing and recrossing at right angles, so as to ensure everywhere an even plant; after sowing rake over the surface, and roll in with a wooden roller. After-management for the remainder of the season will consist chiefly of mowing with the scythe, picking out any weeds that may appear, and frequently rolling in showery weather, and immediately after each cutting. [Many persons prefer to sow the Clovers and larger grass seeds first, lightly hoeing these in before sowing the finer seeds, which are then merely raked in with a wooden rake, or one that will not penetrate the ground so deeply as to disturb the first sown. Walking over the ground after sowing with short boards fixed to the feet is better than rolling. En.]

Walks and Carriage Drives.—Grass edgings should be cut with the edging iron, and put in order as soon as practicable, rolling the grass previous to doing so, and afterwards the gravel, when dry enough. *J. Horsefield, Heytesbury.*

FRUITS UNDER GLASS.

PITS AND HOUSES.—Melons.—Regulate the growth of Melons, and when the shoots have reached the top of the trellis they should be stopped. Attend to the fertilising of the flowers as they appear, endeavouring to set about six or eight at one time, so that they may grow with uniformity. Be careful in applying water at the root at this early season, and maintain a steady temperature of 65°—70° at night, admitting a little air daily. A successional batch of plants should be started, as formerly directed.

Cucumbers.—With more light and sun-heat a greater amount of moisture may be given, and a rich top-dressing should be placed over the roots whenever these appear on the surface; this is preferable to placing a large quantity of soil around them all at once. Those Cucumbers put out on mounds at an early period of last month should now be growing freely, and when the shoots have reached the top of the lights the points must be pinched and the lateral shoots stopped at each joint as they continue to grow. A hotbed may now be got ready out-of-doors, and any approved varieties planted in it when ready. The material of which the bed is to be constructed should consist of leaves and stable litter in equal parts; this should be mixed and thrown into a loose, conical heap, and turned two or three times prior to making up the bed; in the meantime let the frame be well cleaned and, if necessary, painted. *Wm. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

STRAWBERRIES.—The plants set out last autumn will require to be looked over, as numbers of them will be found to be lifted out of the ground by frost; and as soon as the ground is sufficiently dry to tread upon, the soil may be trodden around the plants, lightly hoed, and the weeds raked off. Then give a thick mulch of long stable-manure between the rows, placing it neatly round the plants with the hand. The rains will carry the manurial properties out of the mulch down to the roots, and the surface will have a clean appearance. Older plantations which have not yet received a dressing of manure should be attended to, and long stable-straw be strewn thinly on the surface to keep the fruits clean.

Miscellaneous.—During bad weather an opportunity will be afforded for the relabelling of those fruit trees which may require it, and a list of the names should be prepared accordingly. The labels must be well cleaned and painted afresh, and after drying the names may be either written or printed thereon. Here we use stencil plates and Indian ink for the purpose of printing the names on the fruit tree labels, and the work is quickly and easily performed by their use. After the ink is dry, the labels receive two coats of clear varnish, and the names will then be legible for several years. The fruit in the fruit-room will require frequent attention. I find that late varieties of Apples are keeping well; but Pears are finished with the exception of *Bergamotte d'Esperen*. *A. Ward, Stoke Edith Gardens, Hereford.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, MAR. 1—Linnean Society.

SALES.

TUESDAY,	FEB. 23.	Orchids in flower, at Protheroe & Morris' Rooms. Azaleas, Camellias, Roses, and Shrubs, at the City Auction Rooms, by Messrs. Protheroe & Morris.
WEDNESDAY,	FEB. 23.	Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms. Lilium auratum, Palm Seeds, Roses, and other Bulbs, and Plants, and First Sale of Nursery Stock (from sample), at Protheroe & Morris' Rooms.
THURSDAY,	MAR. 1.	Established and Imported Orchids, 10,000 Lilium auratum, at Stevens' Rooms.
FRIDAY,	MAR. 2.	3000 Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	MAR. 3.	Roses, Bulbs, &c., at Protheroe & Morris' Rooms.

The late ex-Curator, Royal Gardens, Kew. IN our last issue we made mention of the claims upon the respect of the gardening community that this venerable Nestor possessed. His example is an encouraging one to young gardeners. Beginning in the very lowest ranks, with the slenderest means, and enduring hardships few are now called on to bear, he eventually became Curator of the Royal Gardens, Kew, whose present condition is in no small degree due to his initiative, and, moreover, obtained a good place as a botanist.

In spite of the weight of ninety years—in spite of the total deprivation of sight—the veteran persevered to the last, and retained to the end his interest in gardening and botany, while his richly stored memory did not appear to be impaired by his many years. The letter we append was dated February 10, only two days before his death, and was addressed to the present Director in reference to the Garden Library:—

“Park House, Kew.

“DEAR SIR,—The books are tied up ready to go to the library if you will kindly direct some one to fetch them, as I have no one to send.

“I am very glad to learn that the library is in a flourishing state. I call it now my grown-up child. When I came to Kew I had three books, and was therefore considered a great man. In time my books increased, and I used to lend them to the men

most inclined to learn, and explain to them the parts of plants; this went on for a number of years. Under the auspices of Sir W. HOOKER money was granted for founding the men's library. The books were for some time kept in my house, and I took great interest in and framed rules for their use, which Sir W. HOOKER sanctioned, and which I continued to take interest in till the time of my retirement.

“Believe me, yours, very truly,

(Signed) “JOHN SMITH.”

The funeral took place on Saturday last in Kew churchyard. There, where also repose several members of his family, the ex-Curator lies, associated in death, as in life, with the Directors—AITON and Sir W. HOOKER—under whom he worked and to whom he rendered such distinguished service. It was fitting that the late Director—Sir JOSEPH HOOKER—and the whole staff of the garden and herbarium, were present to testify their respect to a former colleague, and to the man who helped so materially to make Kew what it now is.

The action of frost on seedlings.

HERR L. KNY* has been making experiments to determine whether the action of frost on seeds influences the development of the seedlings produced from them.

In cold climates the annual period of growth is shortened, as it were, the season during which the plant must vegetate is condensed, and the shoots and flowers have to unfold rapidly, in order to “make hay while the sun shines.” This is very marked in the Alps, where the green covering of the hills makes its appearance with astonishing rapidity; and in the extreme North we have the Willows flowering directly the sun's rays fall on them, weeks before the ground is fully thawed. Again, showing how vegetation has to hurry up in the Alps, the flowers of Parnassia, Gnaphalium dioicum, Gentiana germanica, Solidago, Dianthus superbus, come out a month sooner in the high mountains than they do lower down, otherwise they could not ripen their seeds.

The question arises, Is this hurried development favoured by the long intense cold to which the seeds are subject? Several experiments seem to point to this conclusion, and various observers—KNIGHT, KRASAN, FRANK, &c.—have found that perennial plants exposed to low temperatures during the winter-rest put forth shoots more rapidly and earlier in the spring than the same plants kept warmer in the winter.

MÜLLER-THUNGAU took ten Potatoes, all alike, and of about the same size and weight; he placed five in an ice-cellar and surrounded them with ice, the other five were kept in an ordinary house-cellar. Those exposed to the freezing process yielded a large crop in three months after planting, while the others, planted at the same time and in exactly the same way, soil, &c., had as yet only begun to show shoots, and bore no tubers. It is important to notice that the exposure to cold increases the amount of sugar in the tubers, i.e., of food directly available in growth, &c.; whether this is also connected (as SACHS has suggested) with a greater secretion of ferments in the same must remain a question.

The author discusses other instances, and points out that, in cases of acclimatisation, it has not yet been decided whether an inherited disposition to hurry the vegetative processes is established, or whether the immediate action of the low temperature is manifested. Some experiments by HABERLANDT, who used Mustard, Flax,

* Sitzungsberichte der Gesellsch. naturforsch. Freunde zu Berlin, November 15, 1887.

Maize, Wheat, Rye, Peas, &c., seem to point to the latter conclusion being correct for the Flax and Mustard seeds.

The author used Beans, Lupins, Peas, Clover, Tobacco, Barley, &c., and obtained negative results. Consequently he does not decide the question, but he comes to the conclusion that the action of frost on seeds varies in different species subjected to the same treatment, and varies with the treatment otherwise, e.g., whether the seeds are swollen or not before the frost acts. It is desirable that experiments should be carefully conducted on a large scale to test—(1), How the seedlings of different plants behave after the seeds have been exposed to frost, as compared with those from similar seeds not so exposed; (2), the influence of exposure to different degrees of temperature; (3), the influence of the time of exposure in each case; (4), whether it is important or not how long after ripening the exposure to frost commences; (5), comparisons of effects of freezing swollen and dry seeds; and so forth. It is extremely probable that an important physiological and agricultural question might be solved if such experiments were thoroughly carried out by competent botanists, aided by foresters, horticulturists, and agriculturists: in any case the results would be of great interest.

THE ROYAL HORTICULTURAL SOCIETY.—We understand that the Rev. Mr. WILKS has undertaken the duties of Hon. Secretary. The clergy generally have not a reputation for being good men of business, but in this case a man of wide views, clear head, and business capacity, has been appointed. A paid Assistant-Secretary is to be appointed, at a moderate salary. The real requirement, however, is that of a first-class man, like the manager of a railway, with a corresponding salary. As the finances do not permit this, the Society must needs do without such an officer. An ornamental official, at a low salary, will probably be as useless as his predecessors generally.

THE COUNCIL.—Two vacancies have been caused on the Council by the resignation of Messrs. LEE and COURTAULD, who, in the interests of the Society, have tendered their resignations. Their places are filled by Mr. WOODNURGE, a practical gardener, and Mr. HAYWOOD, the Treasurer of the National Rose Society. By these changes half the Council is renewed. The self-abnegation of the two gentlemen above mentioned will meet with the cordial recognition of the Fellows.

THE SUBSCRIPTION RATE.—We believe it is proposed that in future the subscription shall be £4 4s., £2 2s., and £1 1s. respectively, with corresponding privileges, but with only a single vote in each case. It is proposed also to establish a grade of Associate at an annual subscription of 10s. 6d., comprising personal admission to all meetings and shows, but without the privilege of voting. The associateship is to be confined to *bonâ fide* gardeners of good repute in their craft, and who shall be recommended by not less than two personal acquaintances. Hereafter it is hoped that a still more honourable grade may be established by means of the examination of candidates, the successful ones among whom shall be entitled to honorary rank, but this detail must be postponed for the present.

COUNTY REPRESENTATIVES.—The Council and committee will do well to nominate without delay in every county of the three kingdoms one or more gentlemen interested in horticulture as local representatives (or what other title may be preferred). Some, no doubt, would do no work, but others interested in horticulture would do good in their several localities, and form a much-needed link between the London contingent and their brethren in the provinces.



LAPAGERIA HOUSE, WORKSOP MANOR.



VALLOIA PURPUREA, NASH COURT.

LOCAL SECRETARIES.—We press upon the new Council to elect at once certain of the secretaries of the chief local societies already affiliated to the Society as local secretaries, with a seat at least on the general committee. The proposed new rates of subscription ought not in future to preclude anyone with a real interest in the subject.

THE NEW PREMISES.—The offices are well situated and convenient. The Drill Hall is open to considerable objection, but it is convenient of access, close to the offices, is comparatively inexpensive, and may be given up at the end of the year.

CHISWICK.—This will in future constitute the heaviest expense to the Society, and its finances must be rigorously managed. Among the things that can be done at once is to organise at least one show during the course of the summer in the old gardens, and we would suggest that, with a view of making a beginning in the attempt to secure the co-operation of the local societies, overtures be made forthwith to the horticultural societies of Chiswick, Richmond, Putney, and Ealing—indeed, to all the societies within easy reach by rail, for this purpose. It is monstrous that the Society should have allowed a local Society to grow up under its very eyes at Chiswick, and to avail itself for nothing, or next to nothing, of the Society's garden, but there is no reason why the young cutting should not now be removed from the cutting pot and planted out. In following years shows might be organised with the co-operation of the local societies in Croydon, Hampstead, Richmond, and other important suburbs.

THE CITY.—While the site in Victoria Street is well adapted for headquarters, it is to be hoped that no opportunity will be neglected for ensuring one or two meetings annually in the City, where the corn factors and stockbrokers already hold their own shows. The fact that the present Lord Mayor is a Fellow of the Society, Belgian by birth, and therefore a born gardener, and that during his reign it is probable that sundry of our Belgian friends will be invited to the Mansion House, make it very desirable that efforts should be made at once in this direction.

NEW FELLOWS.—Although there has been a very considerable falling off of old Fellows, yet there is a gradual accession of new ones, and it may be confidently expected that when the new policy becomes known, and the Council is seen to be in earnest in carrying it out, as far as time and circumstances permit, that large numbers of new Fellows will be forthcoming. Many, we know, are hanging back till the new subscription rates are fixed.

FUNDS.—The financial position is deplorable, but not hopeless. It will probably form the first matter for consideration by the new Council. The donation fund is proceeding favourably, but this is to be devoted only to the expenses of removal.

ASSETS.—A good deal is said, and rightly so, about the debt of the Society, which, however, has been many times larger in past years, but nothing is said about its assets. We hear, but have no certain knowledge, that there are sundry statues still remaining in the possession of the Society. Surely **HEN MAJESTY**, the donor of some of these statues, could, after her recent message, feel no compunction about the sale of these rather useless works of Art. However excellent they may be, the Society cannot afford to keep them under present circumstances. The Fellows should be made acquainted with the nature and extent of their property—if any.

J. D. DICK.—Great changes unfortunately always injure some one. The removal of the Royal Horticultural Society from its quarters at South Kensington entails upon Mr. Dick the necessity of quitting a residence in which he has made a home for many years. Mr. Dick is a model departmental officer, whose "books" are the admiration of all who consult them, and one who enjoys so thoroughly the esteem of the horticulturists, that it is to be hoped

that the inevitable change may be made as little irksome as circumstances permit.

A BOARD OF AGRICULTURE.—We see with great pleasure that it is proposed to establish a Government department under a responsible Minister. The only drawback is, that in our system of government the exigencies of party directly or indirectly predominate over public interests. It is very important at the present juncture that horticulture should be recognised in the constitution of this new department, for it is obvious that while agricultural methods are no longer adequate to meet the circumstances of the times, the requirements of the case would be very largely met by the introduction of horticulture or of horticultural methods. We earnestly hope that the Royal Horticultural Society, in its reorganisation scheme, will not neglect its obvious duty in this matter. It is more than time that the gardener should be heard, and he could most effectively be heard through a gardeners' society. It is a splendid opportunity for the Society to prove to the public that it is concerned in something beyond the whims and fancies, however laudable, of those who find their recreation in horticulture, and with something more than the interests of those who cater for the supply of the requirements of the *dilettante*. Forestry, market gardening, and fruit culture will occur to every one as great and, up to the present time, little worked departments; but it is to the adoption of horticultural methods, the increase of scientific knowledge of the conditions under which plants grow, of the diseases which affect them, and the enemies that prey on them particularly, that the farmer of the future must trust. When he tills his field as carefully as a gardener makes a Vine border, when he is as careful to secure the right strain of Wheat and Mangel, or what not, as a grower of Chinese Primroses for market—when he avails himself of every resource of the chemist, the botanist, and physiologist, by putting their discoveries to the test of practical experiment before adopting any—there will be hope for the farmer. In the meantime let the Royal Horticultural Society, as becomes its duty, bestir itself in the matter.

BRUSSELS INTERNATIONAL EXHIBITION.—This exhibition will open on May 5. Mr. LEE BAPT, 3, Queen Victoria Street, is the Commissioner for England. English exhibitors may be represented by resident superintendents, so that the personal attendance of the exhibitor is not necessary. Classes 22–24 are devoted to agriculture, horticulture, and forestry.

THE MEANS OF PROTECTION POSSESSED BY PLANTS.—On Tuesday evening, February 21, Mr. F. M. CAMPBELL, F.Z.S., F.L.S., &c., President of the Hertfordshire Natural History Society, delivered the Presidential Address on the above subject at the annual meeting of that Society held at the Free Library, Watford. The different means of protection touched on were as follows:—Protection by means of concealment; protection by means of objectionable flavour; protection by means of objectionable flavours and colours; protection by means of appliances; protection by means of mimicry; protection of seeds and spores. Mr. CAMPBELL gave numerous instances of all these various modes by which plants are protected.

THE LINNEAN SOCIETY OF LONDON.—A meeting will be held on Thursday, March 1, at 8 P.M., when the following papers will be read:—1. "On a New Genus of *Cytinaceae* from Madagascar," by Mr. E. G. BAKER, F.L.S.; 2. "Notes on the Flora and Fauna of the Kermadec Islands," by Mr. J. F. CHEESEMAN.

PERMANENT AND TEMPORARY PASTURES.—We are glad to see that Mr. M. J. SUTTON has brought out a new edition, at a low price, of his very serviceable book on this subject. Mr. SUTTON's book is one of the best that has been published, being

based almost entirely on practical experiments made from the point of view of the cultivator.

HORTICULTURAL CLUB.—There was a large attendance of members at the annual dinner of the Club on Tuesday, the 14th inst. The chair was occupied by Mr. JOHN LEE, and amongst those present were Dr. Hogg, the Rev. W. Wilkes, Messrs. D. T. Llewellyn, Crowley, H. J. Veitch, Wm. Bull, H. Turner, H. J. Pearson, C. Pearson, H. Herbst, J. S. Cousens, C. T. Drury, George Deal, T. Francis Rivers, Geo. Bunyard, Geo. Paul, A. F. Barron, and Geo. Nicholson. The Chairman, in proposing "Success to the Horticultural Club," mentioned that it had been enabled during the past year to offer places of meeting not only to the National Rose Society, but to the Nursery and Seed Trade Protection Society, the National Dahlia Society, the National Auricula and National Carnation and Picotee Societies; and had thus shown its value to the horticultural world in general. The Secretary, in responding, announced that the committee had that day voted a donation to the Gardeners' Orphan Fund, as they had some years ago done to the Gardeners' Benevolent Society. The toast of the "Royal Horticultural Society" was responded to by Mr. H. J. VERTCH, the "Horticultural Press" by Dr. Hogg, and the "Visitors" by Mr. BANNON and Mr. NICHOLSON. Some magnificent bunches of Gros Colmar Grapes were kindly sent by Mr. THOMSON, of Clovenfords, and some beautifully coloured Apples from Mr. RIVERS and Mr. G. BUNYARD; the former also contributing a dish of fine samples of Knight's Monarch Pears. A pleasant and agreeable evening was spent, and many hearty wishes expressed for the prosperity of the Club.

CHAMBRE SYNDICALE OF GHENT.—At a meeting held on the 15th inst. the following awards were made:—

First-class Certificates.—To Mr. A. D'Haene, for *Oncidium splendendum*; to Mr. E. Pynaert, for *Cypripedium Dauthieri marmoratum*; to Mr. J. Hye-Leyens for *Cattleya Trianae* var., *C. Trianae alba*, *Odontoglossum coronarium*, and *Cypripedium Van Houttei*; to Messrs. Vervae & Co., for *Cattleya Trianae* var. No. 1, and for vars. No. 2 and No. 4.

Commendations.—To M. A. D'Haene, for *Cattleya Trianae* vars.; to Mr. Jules Hye-Leyens, for *Cypripedium Spicerianum magnificum*, and for *Lycaste Skinneri alba*, and *Cypripedium Argus*; to Messrs. Vervae & Co., for *Cattleya Trianae* var. No. 5; and for *Cypripedium vernixium* and *Odontoglossum Wilkeanum*.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.—As attempts are being made to reorganise the Royal Horticultural Society, it may be of interest to state, on the authority of Mr. F. BENOMANN, the Secretary, that the French Society has now 2500 members, divided into *membres titulaires*, who pay 20 francs a year, and after thirty years membership may, if they apply, be named *membres honoraires*, and then they have nothing more to pay. These *membres titulaires* form the main body of the Society; there are a few *Dames Patronnesses*, who pay 25 francs a year, and a few *membres correspondants*, elected by the Council. A member by paying 250 francs cash becomes a life member; if he gives 20 francs *rente* on the French Fund (Government 3 per cents.), he becomes a perpetual member, &c. The Society was founded in 1826, and has been royal, national, and imperial, and is now national again. The Chief of the State is called its *Protecteur*, the Minister of Agriculture is *Président d'Honneur*, but they never interfere with the Society except to preside over the opening of its exhibitions. The affairs are conducted by a *Conseil d'Administration*, elected by the Fellows. It is composed of:—President, elected for four years, and re-eligible; First Vice-President, elected for four years, and re-eligible; four Vice-Presidents, elected for two years, and not re-eligible till after the lapse of a year; one Secretary-General, elected for four years, and

re-eligible; one Secretary-General-Assistant, elected for four years, and re-eligible; four Secretaries, elected for two years, and not re-eligible; one Treasurer, elected for four years, and re-eligible; one Treasurer-Assistant, elected for four years, and re-eligible; one Librarian, elected for four years, and re-eligible; one Librarian-Assistant, elected for four years, and re-eligible. These sixteen gentlemen form the *Bureau*; many things can be decided by them alone. The other members of the Council are sixteen *Conseillers*, elected for four years, and not re-eligible till after the lapse of a year, a delegate from each of the committees, the Secretary, and Editor, elected by the Council. The Society has seven committees, for pomology, kitchen-gardening, floriculture, horticultural industries, science, tree culture and forestry and landscape gardening respectively. The members of the Society may become members of whichever committee they like. The officers of these committees are elected by the members themselves. These committees prepare the work and make the awards, which are then submitted to the assembly or meeting for ratification. There are also seven administrative committees—Exhibition, Publication, Finance, Household, Awards, Arbitration, Mutual Assistance; the members of these sub-committees are named by the Council.

"BOTANICAL MAGAZINE."—The February number contains illustrations of the following plants:—*Amorphophallus virosus*, t. 6978.—A fine species, closely allied to *A. campanulatus*, but differing in the large circular spots on the spathe. It flowered in the Royal Gardens, Kew, in June last. The species was originally described in our columns by Mr. N. E. Brown (*Gardeners' Chronicle*, 1885, vol. xxiii., p. 759).

Calogyne Massangeana, t. 6979.—A pretty species, described by Professor REICHENBACH from a specimen which flowered in the collection of M. MASSANGE, of Baillonville (see *Gardeners' Chronicle*, x., 1878, p. 684, and xvii., 1882, p. 369). The flowers are in pendulous glabrous racemes, the segments buff-coloured, the two side lobes of the lip striped with brown, the central lobe much shorter, circular, with a short central point, and marked on its disc with a number of wart-like processes.

Salvia scapiformis, HANCE, t. 6980.—A Formosan and Khasian (East Bengal) species, with stalked oblong crenate leaves and elongated spikes of small amethystine-blue flowers. Flowered at Kew.

Aloe Hildebrandtii, t. 6981.—For horticultural purposes, says Mr. BAKER, this Aloe is "one of the most desirable of all the Aloes from its compact growth and the unprecedented abundance of its flowers," which are flesh-coloured with green tips. It has an erect stem, amplexicaul, lanceolate leaves and a large branching panicle. It is a native of East Tropical Africa.

Oncidium Jonesianum, t. 6982 (see *Gardeners' Chronicle*, xx., 1881, p. 781).—A species with thick pendulous quill-like leaves and slender many-flowered racemes. Each flower is about 2 inches across in the long diameter with oblong green segments, mottled with purplish-brown, and with a broad roundish white lip, the base of which is provided with a series of yellow pointed tubercles. Native of Paraguay. Flowered at Kew.

AMARABOYA SPLENDIDA.—A magnificent greenhouse shrub, native of New Granada, with square stems, sessile, opposite, oblong acute ribbed leaves, purple on the under surface, and with circular flowers nearly 5 inches across, with six oblong obtuse petals, of a rich rose colour, tapering into a wedge-shaped white base. Stamens fourteen. These plants are so splendid that it is a matter for surprise that they are not better known. The plant now mentioned is figured in the *Lindenia*, t. 34.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—At the last monthly meeting of the Council of this Institution, held at 26, Charles Street, St. James', it was resolved:—That at the

next election, on June 13, 120 fresh pensioners should be added to the list of annuitants, viz., twenty married couples, twenty males, forty females, and twenty octogenarians.

LARGE GOVERNMENT ORDER FOR FOREST TREES.—We note in the *Dumfries and Galloway Standard* that the firm of Messrs. T. KENNEDY & Co., nurserymen, Dumfries, were recently invited by Her Majesty's Commissioners of Woods and Forests to tender an offer to supply 600,000 young forest trees of specified varieties for planting on the Crown lands in the Isle of Man. Their offer has been accepted for over a quarter of a million plants, which have to be straightforth delivered to the Crown Receiver at Douglas. The order consists of Birch trees, Beech, Sycamore, Alder, Silver Fir, Corsican Pine, Austrian Pine, Douglas Spruce, Scotch Firs.

THE SUPPLEMENTARY SHEET.

THE LAPAGERIA-HOUSE AT WORKSOP MANOR.—The house planted with Lapagerias shown in our supplementary illustration is a lean-to facing north. It is 45 feet long and 10 feet wide, and contains three plants, viz., *L. rosea* and its varieties rubra and alba, planted ten years ago in well-drained boxes—peat, charcoal, and silver-sand being the materials used to fill them. The shoots are tied to wires so as to make them internigle, the red varieties being at each end, and the white one in the middle. The plants are liberally supplied with rain-water, occasionally with weak manure-water from the farmyard tank during the flowering season, which lasts from six to eight months. Mr. T. H. Sutton, the gardener, informs us that at the time the photograph was taken there were about 1800 blooms on the plants.

The back wall of the house is covered with Roses—Gloire de Dijon, Homer, Sombreuil, and Reine Marie Henriette, which are now finely blooming.

VALLOTA PURPUREA.

This South African bulbous plant is too well known to require a lengthy description; suffice it to say that it belongs to the natural order Amarillydæ, is allied to *Cyrtanthus*, and is amenable to greenhouse treatment, and in the warm parts of England may be grown very well on sunny borders with a fair prospect of success. The plants delight in a soil composed of fibry loam, leaf-mould, burnt earth, and sand; and should be planted the height of the bulb below the surface of the soil, which should be made very firm at the time of potting. It dislikes to be disturbed, and it is therefore essential to success in its cultivation to afford it the most thorough drainage, so that beyond annual top-dressing nothing shall be required for three or four years. When the increase of the bulbs in number points to the necessity of more root space being afforded, it will be found best to shift the root-mass into a larger pot with but little disturbance of the roots. This operation is most properly done during June and July, when root-action commences, before the flower-scapes are thrown up. When the roots are in a crowded state, and have been long in the pot or tub, occasional waterings with manure-water in dry weather have a good effect.

The large specimen pictured in our Supplementary Sheet is that of the plant belonging originally to Messrs. Knight & Co., of Ore, near Hastings, and exhibited by them on September 14 and 15, 1887, at the Brighton and Sussex Horticultural Show. The variety is *V. p. magnifica*, and differs from the type by its robustness, the greater size of the flowers, and the white colour in the throat. It had fifty-three spikes of from five to seven flowers on each.

This specimen has since passed into the possession of Mrs. Lade, of Nash Court, Faversham, under the care of whose gardener, Mr. Humphrey, it is, judging from what we saw of it lately, likely to maintain its health, and increase in size.

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

LETHORION.—Our attention has been drawn to your remarks in last week's *Gardeners' Chronicle*, in reply to a correspondent's letter complaining that one of our Lethorion cones had exploded in his hand, and announcing it as a dangerous compound. We think the writer would have acted more fairly if he had made his complaint in the first place direct to us, as we could easily have eased his mind on this matter. To convince your readers that there is nothing explosive or dangerous in the cones we have up to the present time sent out many thousands, and, with this one exception, there has not been a single complaint; but on the other hand, in every instance where they have been tested fairly according to the directions and without prejudice, they have given the greatest satisfaction. We distinctly state that there is nothing explosive used in manipulation of the active properties, and it is the most simple and harmless article that could be produced if used according to the directions. If the cone was roughly shaken, as your correspondent says, after having been lighted, it is possible that the small bottle might have broken, and its contents become ignited instead of evaporating; but, as there is no necessity to shake or break the bottle, this cannot occur. The manufacture has been entrusted to the entire supervision and management of highly experienced chemists, who would, if necessary, prove to any one that risk from explosion is impossible. Corry, Soper, Fowler & Co. [The correspondent whose complaint was forwarded to us still maintains that there was no carelessness on his part. Ed.]

Seeing the complaint made in your last number of 11th inst., at p. 177, I think it fair to say that I had first received some sample cones through the Standard Manufacturing Company, of Derby, and that I tried a large and a small cone for aphides with most satisfactory results. So much so, that I intend calling the attention of the Royal Tuscan Horticultural Company to its merits, at their next monthly meeting, to take place in a few days. I lighted mine with a caudle, which is the best way to insure the cones being lighted all round so as to burn regularly. I remarked they emitted little sparks, caused probably by nitre or some such substance, used to ensure combustion, and I can perfectly understand that one of these bright scintillæ falling into a match-box would ignite the contents. H. J. Ross.

NOTES ON THE NEWER VARIETIES OF PEAS.—

While most people will admit that considerable sums have been expended for small returns for new Peas during recent years, yet I cannot agree with those who say that the money so spent is all lost. I have bought several of the new Peas as they were sent out, and, to give them a fair trial, I have always sown them towards the end of a row of some tried kind. Very often they will not grow again, but now and then I found one that was worth further trial, and eventually after several trials it has taken the place of some old variety that was discarded. The result is that now I grow only one variety that I grew fifteen years ago, and that is Ringleader, which with me is still a few days earlier than any other kind. I may say that earliness is its only recommendation, William I. being a much better Pea. It is rather surprising that Peas should vary so much on different soils. When Mr. Walker sent out his Perpetual Bearer, a friend who obtains very good results on the Oxford clay, wrote me a very glowing account of it. I forget the exact dates, but I believe he took 1st prize at the Oxford show in July, and the 1st prize again in September from the same sowing. According to my usual practice I tried it, and, contrary to my custom, planted a long row of it, but good as it was on the Oxford clay, it proved a complete failure on the Bagshot sand. The kinds I now grow are Ringleader, William I., Criterion, Satisfaction, Huntingdonian, Sturdy, and Emperor of the Marrows. A few of the American Wonder Pea I sow at the very foot of a sunny wall—a position which makes it a little earlier than Ringleader grown a few feet away from the wall. I will not enumerate the many kinds

I have tried and found wanting in one or other of the three requisites of a good Pea. It should be a good cropper, with flowers that set well at all times, and are produced in long succession. Many of the recent introductions fail in this latter point; they bear a prodigious crop of pods, but all are ready to gather at the same time, which is all very well for a market grower, but it renders them of much less value for a gentleman's garden. Of such a character are Day's Sunrise and Dr. Maclean, and the very reverse of this is Sturdy, an excellent dwarf Pea. *G. B.*

EMIGRATING GARDENERS.—I quite agree with Messrs. Curtis, Sandford & Co., that emigration is the best remedy for the poverty from which the gardening profession suffers; and if we only knew which country gardeners would be most likely to succeed in, I think there are plenty amongst us who would want but little persuading to go, and thus make room for those left. In our own colonies there is no demand for any but the agricultural labourer. Professional classes (which, I suppose, includes gardeners) are particularly warned against going. Perhaps some of your readers will be able to give us a little advice on the subject. *Emigrant*. ["Emigrant" should apply at the Government Emigration Enquiry Office, Westminster, where he will get the latest and most trustworthy information. *Ed.*]

GALANTHUS SHARLOCKI.—I enclose flowers of *Galanthus Sharlocki*, as it seems to be of botanical interest, not only from the green lines on the outer perianth segments, but also from the two upright green leaf-like bracts [which result from the splitting of one. *Ed.*]. If the latter peculiarity is caused by the flower-bud requiring more protection than that of the common Snowdrop, the position in which *G. Sharlocki* was originally discovered, would be of peculiar interest. Is its origin known? *C. M. O.*

DISEASED EUCHARIS RESTORED TO HEALTH.—[The following letter from a friend of Mr. W. B. Grove, St. Vincent Street, Birmingham, has been forwarded by the latter gentleman for publication, and may be of service to those who may have *Eucharis* affected with the fungus disease described by Mr. W. B. Grove in our columns March 27, 1866. *Ed.*]

—Referring to yours of April 16, 1886, respecting *Eucharis* bulbs, I am pleased to say that my bulbs are now one of the healthiest stocks in this part of the country. As I told you, I potted some diseased bulbs and some good ones in the same pot; the result is, they are both now healthy and vigorous bulbs. From what I have seen of the *Eucharis* mite, I am almost of opinion that it is only when the bulbs have been allowed, through bad management or overwork, to fall in a sickly state, and the outside of bulbs begins to rot. Then the mite begins to appear—as I take it—the rotten portion of the bulb furnishing it with food. I find that the *Eucharis* is often grown in situations not suitable, viz., in too much light, as I find mine to do much better when heavily-shaded. I also find that when a bulb is badly diseased it is much better to cut the roots clean away and leaves also, than to attempt to renovate it with old roots and leaves left on. I followed your advice as far as possible. My plants are not plunged, but are standing on stages immediately above very hot pipes. I keep them well supplied with water both at roots and leaves; my house is continually dripping with water. *Henry Porter.*

THE WINTER IN LANCASHIRE.—The past week has been very wintry with us here, though we have not had so much snow as has fallen in southern and inland districts, still the cold has been great, and the past ten days have been the severest experienced this winter. February 11, 12, and 13 were very cold, with snow and hail and sharp north-westerly winds. Monday evening, however, was much calmer, and there were signs of a sharp cold night, and still many were surprised on the Tuesday to find their thermometers had registered from 18° to 24° of frost. This was a very sudden fall, and on Wednesday and Thursday it continued very cold, and on Friday the 17th 16°, and on Saturday 10° of frost were recorded. Early this morning (Monday) we had a fall of snow, but it soon disappeared. This amount of cold will retard the ascent of sap in trees and shrubs that already were beginning to show signs of growth. Desirable as an early spring may be, it is too often the cause of regret and loss, rather than of pleasure and satisfaction. There is yet time for a period of cold weather, and coming now, ere much growth has commenced, it will retard vegetation beneficially. *W. Swan, Avenham Park, Preston.*

DAFFODILS GROWN AS HYACINTHS IN GLASSES.—By this post I send you the bulb and glass, so that you may see the result of a mere accident. Six bulbs of *Ard Righ* single Trumpet Daffodil were given to a gentleman for trial in pots, but by some error on his part he gave the bulbs to his cook, who put them in claret glasses of water last November. The result is that the entire six bulbs have bloomed as you see the sample, quite drawn up from the heat of a dark kitchen, and not as they otherwise would have been under proper treatment. I have no doubt but if they were treated properly, after the fashion of Hyacinths, and glasses made to fit the bulbs at the "neck," with a little moss or whole charcoal in the water, and put near the light to keep them short and sturdy, that very good blooms could be procured by this method of cultivation, and also very early. I do not know if all Daffodils would stand the experiment. Certainly well ripened bulbs of *princeps* or *Ard Righ*, and probably *Horsefieldi* would answer. Have any of your readers tried or heard of the experiment? *Daffodil.*

SOLOMON'S SEAL SCENTED.—The query was raised in your columns by "D. T. F." in June, 1886, whether Solomon's Seal was fragrant, and I then replied that I found it to be so in the garden clumps. This evening on entering my library I was surprised by a strong fragrance, which I found to arise from a large pot of Solomon's Seal which had been forced in a cool greenhouse, and which my gardener had placed there to prove its possession of a most fragrant scent. The odour is that of the Almond, and it is most powerfully developed, as it quite fills the greenhouse with a fragrant odour. If "D. T. F." doubts this I hope he will put the matter to the proof, as there can be no doubt about the fact. *W. Brockbank, Brockhurst, Didsbury, Feb. 9.*

THE ROYAL HORTICULTURAL SOCIETY.—My objections to Mr. Burbidge's original proposal as to the appointment of a Botanical Assistant Secretary to this society, on the lines suggested by him, are, that his view of the case points to the conclusion that such an official would prove the saving force of the Society if possessing ample powers. Now if the Society were a pure autocracy the appointment of an autocrat, if a capable man, might be attended with beneficial results—although I fail to see from what source such a man is to be drawn. But the Society is a representative body, and just recently the great demand on the part of its members has been for fuller representation—a state of things absolutely incompatible with autocracy. So far the chief fault seems to have lain in the imperfect constitution of the Council, because of the grave defects of a representative nature found in the Society. Efforts are being made to amend that defect, with the possible result that a very diverse and much more capable body of men may shortly form the governing body. Now if this wonderful official, who is to be the select Assistant Secretary, be appointed he must be either the master of the Council—a condition of things which would be intolerable—or else the servant; and if the latter in what way could the Council be better served than through its own existing servants? The Society has had Secretaries and Assistant Secretaries *ad infinitum*, but the real defect of government has lain in the composition of the Council. If a new official be appointed to become the Society's autocrat it will be officialised with a vengeance. If he be but a servant he could then only perform duties which existing servants could do just as well. Still it is so easy to understand the faith officials have in the power of officialism. I read Mr. Fish's interesting paper upon the reconstitution of the Society, and, whilst agreeing with many of his conclusions, seriously differ from him in his assumption that the retention of Chiswick garden is a matter of no great importance. I awaited the result of the general meeting of the Fellows—because till then everything was in a state of uncertainty—to send to Chiswick seeds and plants for the production of subjects requiring the attention of the committees later on. These things are not "rubbish," as so indiscriminately denounced by Mr. Hiberd recently, but selections, and were sent to Chiswick for trial, because only under ordinary culture and growth can the committees adjudicate upon their merits. Very probably some fifty other persons may be anxious to do the same thing; thus adding to the interest of the garden, and providing work for the committee of the most useful and instructive kind. For this reason alone, apart from many others

which could be advanced, I should regard the obliteration of a garden in connection with the Royal Horticultural Society as a serious misfortune; in fact, it would be the lopping off of its most useful limb. The reference to what the Royal Agricultural Society has done for agriculture is just now, considering the condition of agriculture, not a happy one; the revolution to which Mr. Fish refers seems to have been in the wrong direction. What we rather want now is to see our agriculture "gardenised," and to that end a strong national horticultural society might contribute something useful. After all, this must be said—the general conditions of political, social, and commercial life are gradually changing, and, without doubt, the Royal Horticultural Society, in common with other institutions, is feeling the force of the revolution. *Spade.*

CELERIES.—Permit me to draw attention to two *Celeries* of sterling merit, viz., Sutton's White Gem and Carter's Incomparable Crimson, the former being an excellent extra early sort, of compact solid growth, with but little waste, and indispensable for early supplies and exhibition; as such, perhaps it has no superior. The latter is of medium growth, late, and possessing this exceptional advantage over most other varieties, viz., that the very outside leaf-stalks are equal in flavour and crispness to the centre ones; hence there is no waste whatever. This absence of stringiness may probably militate somewhat against its becoming a market kind, for it is so extraordinarily brittle that the utmost care is necessary in handling the sticks to prevent their snapping; but for private use none surpasses it in merit. It is also later in bolting in the spring than many other late varieties. *J. R.*

LATE BRITISH APPLES AND PEARS.—Fruit growers (either private or trade) may be glad to hear of the following announcement:—With the view to increase the production of late varieties of hardy fruits the Vegetarian Society (London Auxiliary) invite quotations for delivery during the next two months of any quantities of Apples and Pears of sound table sorts, and, if possible, with the correct names carefully affixed, so that an increasing interest may be gradually taken by the fruit-eating public in the best kinds of these wholesome fruits. Quotations should include packages and delivery in London. As there is to be a two months' Food Reform Mission in the West End, commencing March 1, when samples of fruit and cereal foods will be distributed, this should prove a practical method of helping both producers and consumers. *W. S. Manning, 8, St. Bride Street, Ludgate Circus.*

A GOOD VARIETY OF POTATO.—As an excellent late Potato, suitable for growing on a chalky soil, I can honestly recommend a variety I have grown here for some few years under the name of Peach Blow or Peach Blossom. I do not find it mentioned in any of the catalogues now coming to hand—a circumstance probably due to its not being an exhibition variety, the eyes being a little too deep for that purpose. Its character may be briefly stated thus:—Shape round, strong grower, heavy cropper, fit for use from October till the end of June; flesh white, and when properly cooked floury, reminding one of the old Fortyfold. Some years ago I grew as many as forty varieties, and discarded annually such as were not considered good enough for the table, till now I am reduced to three varieties only, viz., the one under notice, Myatt's Ashleaf, and Beauty of Hebron—a few of Myatt's only being grown in frames and on south borders for early use. I must confess we were reluctant to part with *Magnum Bonum* on account of its disease-resisting qualities, but at last have decided on doing so solely because of it being too large for ordinary table use [too much manure]. A Potato which requires to be cut in half, or in three or four pieces, before being cooked is quite unsuited for any table where good quality is the first consideration. *J. Horsefield, Heytesbury.* [Peach Blow has been in commerce for more than a dozen years. It is rich in starch, and is therefore a useful tuber for spirit distillation, starch making, &c. It is of American origin. *Ed.*]

FIELD MICE.—On p. 184 "West Cheshire" complains of field mice attacking crops and plants. I have been troubled this winter more than ever by their barking and eating off Brussels Sprouts, and as I will not tolerate cats on account of them destroying useful birds, I have to do the mousing without them. When I first noticed the mischief I was a little uncertain as to my enemy: I took up a few steel mouse-traps and set at the entrance of some disused

mole runs, and first caught a common shrew-mouse. I also set traps close up to the stems of Sprouts that were freshly bitten, and soon caught a number of small field mice, with thick heads and short tails, which are about half the size of the large field mice met with plentifully in the hayfields in summer. I have frequently caught mice of the same species before, but considered them to be dormice. I enclose one which I took from one of the traps to-day. [It is a species of field-mouse, but it was too decomposed for us to determine which one. En.] If not dormice, please describe the difference. In setting this kind of trap it is very necessary that the catch should be set as slightly as possible, so that the least touch will let it off, and also to keep the catch greased, or it rusts and sets so fast that a mouse does not let it off. This is the kind of trap I use in the house and all over the premises, and need no cats, these animals proving a nuisance in many ways. When Peas and Beans have been attacked—which may always be seen by noticing the rows having small holes scratched out down to the seed—I have used the common wood-and-wire trap, which catches them alive. My plan is to split a bean and bore a small hole with the point of a penknife nearly through, and push the small hooked wire through so that it fits tight on the wire, to prevent the mouse taking bait without letting off the trap. I have never any difficulty in catching these long-tailed mice, which have also the reputation of robbing the bee-hives in the winter months. *J. Hiam, The Wren's Nest, Astwood Bank, Worcestershire.*

—Mr. Dod's article on the destructive tendency of mice in gardens recalls very forcibly the losses I have sustained through the troublesome action of these creatures, which, though insignificant in size, have a capacity for mischief far beyond what might be assumed from their bulk, and they have a provoking disposition to select the most treasured plants in the rock garden. When snow covers the ground mice work in security beneath it, and they are safe for the time from both cats and traps—the aids which I chiefly employ to keep these pests in check. The various kinds of Cheiranthus, Anemone, and Dianthus often suffer under the circumstances which I have mentioned. The late heavy snowfall gives me many uneasy moments on that account. Mice have an inherited taste for alpine plants and their seeds; I have seen evidence of their presence at considerable altitudes on the Alps; I know a chalet left untenanted during the winter by its owners which, though nearly 9000 feet above the sea-level is yet infested by mice in the absence of its proper occupants. I suffered an invasion a few years since from the bank vole, which is smaller than the field vole, and of a foxy colour, and more inclined to be gregarious than its relation of the field. A colony appeared suddenly on a slope thickly covered with the lesser Periwinkle, *Vinca minor*, four years ago, the stalks of which it severed. The extent of the havoc committed may be judged from the fact that quite a cartload of dead stalks, the work of the vole, was removed from the bank. From this position they advanced to a large clump of evergreens, barking most of them, particularly *Laurustinus*, and then vanished. This vole seems to have some of the gregarious habits of the Norwegian lemming in taking a line of country and clearing all before it, and then disappearing. For the last two years I have sought for specimens of the bank vole for a friend, but fruitlessly. *Wm. Ingram, Belvoir.*

PROPAGATION OF DOUBLE-FLOWED PRIMULAS.—These are not so generally grown in private gardens as they deserve to be, the reason being that they cannot be raised from seed so freely as the single varieties of Chinese Primulas. They are, nevertheless, very readily propagated by cuttings after flowering, and, considering their decorative value as handy material for bouquets, I think there are few greenhouse plants which produce better results with so small an amount of trouble. With a moderate stock of plants abundance of blooms can be obtained from November (or earlier if desired) until April. I find cuttings strike more readily—or rather they are not liable to damp off—plunged in a hothed made in a pit or frame, than is the case when a close, stuffy atmosphere is maintained, or the propagating-case is made use of. With proper attention to airing, shading, and watering, I lose not more than 5 per cent. of the cuttings. The compost I use for the cuttings consists of equal portions of light loam, leaf-mould, and silver-sand, and for the repottings I use a larger proportion of good fibrous loam with a few pieces of pulverised bones added. The following kinds are, I find, the best:—

Earl Beaconsfield, very double, colour bright pink—very pretty; King of the Purples, strong, free-growing, profuse-flowering variety, very double, deep purple flowers; White Lady, beautifully fringed, and very double—pure white; Marchioness of Exeter: this is also a very free growing and flowering variety, flowers large and exquisitely fringed, pure white, but if grown in a cold damp atmosphere the flowers are suffused with pink. These were all raised by Mr. Gilbert, of Burghley, if I recollect aright. *Candidissima* is also a free blooming white variety, but the colour is not so pure as the Marchioness and White Lady. *J. H.* [Another method of propagation practised by a well-known grower is described by a correspondent in the following note. En.]—The simple method adopted by Mr. Stevens, of Putney, for propagating this useful plant is one worthy of record. In April some fine cocoa-fibre is heaped up about the stems of the plants, almost touching the lowermost leaf-stalks, and this is kept moist, and in due course roots are put forth into it, and so the plant may be said to renew itself, for when the newly-made roots are strong enough to require that the plants shall be repotted, the stem is severed just above the old soil and repotted, if small, into large 60-pots, but if of good size into 48-sized. Indeed, but little, if any check is experienced, and the plants go on flowering with almost unchecked vigour. There is, therefore, no expenditure of time or labour in taking and striking cuttings; and there is no loss of bloom, for all the while the plants are engaged in putting forth fresh roots they go on producing bloom. Here, double Primulas are in flower almost all the year round, any increase of stock is obtained by the plants throwing out two or three main shoots, as many of them do. They are potted off as soon as ready, and the compost used is

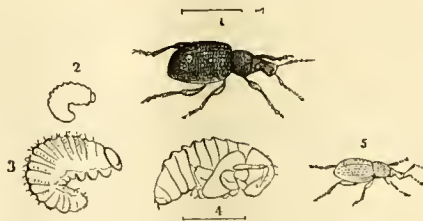


FIG. 39.—WEEVILS AND THEIR GRUBS. (SEE P. 248.)

old *Chrysanthemum* soil that had grown the specimens of the previous autumn, and turned out in a heap in the open for the winter and spring. It is of a light nature, fairly rich, no new manure of any kind was added, and the Primulas appear to thoroughly enjoy it. The secret of keeping the plants in good condition all through the dull part of the winter, Mr. Stevens declares to be in the act of keeping the basal leaves carefully cut away directly they show signs of decaying. He holds the opinion that they convey damp and rot to the main stem, which causes the loss of plants. Since he has adopted this practice he rarely loses a plant, and he holds that the end attained justifies his action. It will be long before any double Chinese Primula is raised so persistent in blooming as the old double white. Thanks to Messrs. Gilbert, Sutton, and others, they have produced fine and distinct varieties; but none of them show the almost perennial profusion of flower shown by this old favourite. *R. D.*

HARDY PLANTS IN FLOWER AT THE YORK NURSERIES, FEBRUARY 7.—The mild weather of the last few days has tempted many spring beauties to show themselves. Of rarer plants *Leontice altaica*, with its pretty yellow flowers, was rather taking; *Hepatica trifolia* in the sunshine was charming, and so was *Saxifraga Burseriana* major, with its pure white blossoms almost hiding the pretty rosettes of its leaves; this *Saxifraga* has been in flower for nearly six weeks. Among better known plants a long bed of *Leucoium vernum* quite captivated me. Who does not care for delicate white flowers with a scent as delicate? *Hepaticas* of various colours, the fair blue *Anemone blanda*, and *Primrose Harbinger*, ought to be well known enough not to require praise; *Helleborus colchicus*, purple (not very deep), and *H. olympicus*, greenish-white, were effective, especially the latter. The Christmas Roses were going off, though enough were still left

in blossom to give an idea of the glorious sight they must have presented when 60,000 or 70,000 plants were in flower together. Perhaps Madame Fourcade kept its flowers best. I would strongly recommend, after trying it several times, *Helleborus corsicus* (it has many other names in catalogues) for cutting foliage from to arrange with Christmas Roses; its leaves keep their colour and firmness for at least a fortnight. I was much struck in walking through the rock garden when the sun was shining with a scent which seemed to load the air; on searching for the cause I found a strong plant of *Cistus cyprius*. *North-Easter.*

DRYING OFF OF ALLAMANDAS.—The question sometimes arises, Should the Allamanda be dried off so as to lose all its leaves? I say it should not, for by drying off and afterwards cutting back the shoots the effectiveness of the plant is destroyed. The fact of its being an evergreen climber indicates the erroneousness of the practice of drying off and pruning the branches in; not only so, but the latter method encourages the growth of gross wood, and robs the plant of its pendent flowering branches. In the winter months little water will be wanted, unless the specimen should stand in a very dry position. *Mayflower.*

PLANTING AT OAKWOOD, SURREY.—One of the latest novelties at Oakwood is a miniature mountain, modelled partly after a very old friend in Perthshire, Schiehallion. When the question of planting came up I was fortunate enough to find Mr. Anthony Waterer disengaged, so we inspected and thoroughly discussed his dwarf Conifers in their beds. I had no conception that he had such a number of beautiful forms. These and some species of Box, *Euonymus*, *Osmanthus*, &c., were duly planted, and towards the base of the east side a collection of hardy Heaths from Mr. Smith, of Darleydale, and in the same line on the north side a number of seedling *Menziesias* taken from an old Heath bed, where they show themselves very freely. The west side of the mountain is planted with seedling Conifers, grown in the wood from seed kindly sent me from the Himalayas. The north side slopes down to a bog, of which so far the only inhabitants are offshoots from a large plant of Bog Myrtle, brought by me many years ago from Perthshire. So far all the plants look extremely well. *G. F. Wilson.*

ARALIA JAPONICA.—With reference to the remarks of "R. D." (p. 180) regarding the non-flowering of *Aralia japonica*, I have similar experience to record. A fine large plant, growing in the open air, which has flowered freely for years past, gave last autumn the promise of flowering, but finding they were long in pushing up, I examined the buds, which were large, but, alas! found them all quite decayed, and resembling very much a ripe Medlar. The dry summer of 1887 may be the cause—at least, the growth made is not so robust, as our specimen hitherto has made; the plant was usually in full flower during December. I may remark that I never saw the *Laurustinus* bushes so full of flower as they are just now; the garden is quite ablaze with their beautiful white flowers, and the trusses much larger than usual, which is doubtless due to the warmth enjoyed in 1887. *D. C., Powerscourt.*

COCKROACHES.—I herewith enclose three cockroaches, in order to see if you can recommend anything that would do away with them. I have been catching them for the past two years with beer in bottles, set as a trap. Some weeks I catch as many as 200. They are very destructive to Orchids. *W. Watson, Co. Down.* [We have had several similar communications lately. A good remedy seems in general demand. En.]

BULLFINCHES AND FRUIT-BUDS.—These birds have been more numerous this winter than ever noticed, and although I have taken exactly sixty in or round my garden with properly constructed trap cages since September last, a few remain for which I have a charge or two of powder and shot in waiting. To-day I could have shot a pair on a Green Gage Plum tree, but have paid the penalty before by damaging my trees; and, as I could not get them to take to the hedges or less valuable trees, they are at liberty. As an instance of their destructiveness I may mention that last Monday I watched one single bird on a Plum tree, and counted the rate at which my Plum prospects vanished. In the first minute I distinctly counted twenty-five, and in the second twenty-six bloom-buds pinched off and destroyed. I fetched my gun, shot the bird, opened its stomach and gizzard, which was crammed full of blossom.

This would give a rate of about 1500 buds per hour, or, say, 90,000 buds for the sixty birds on somebody's trees. *J. Hiam, Astwood Bank.*

TRANSPLANTING.—Having successfully removed large trees and evergreens without the aid of a specially designed machine, I am of opinion that those who dispense with their use need not despair of success. It is nearly thirty years since I first saw very large evergreens transplanted by a machine with success, but I have more recently seen a machine at work which with the tree required six-horse power to move it, and I then came to the conclusion that such a cumbersome weight of soil was rather an obstacle to success than otherwise, particularly so as much of the soil removed was not permeated with roots, and if it were not removed with the tree it would be no injury to the tree. To transplant a large *Wellingtonia gigantea* I would first clear away all the soil above the roots, then open a circular trench—say, 10 feet diameter—afterwards reducing this with a fork, so as not to further injure roots, to about 8 feet diameter [If 2 feet thick, this is about $3\frac{1}{2}$ tons]; then around this must be placed some appliance that would enable the operator to clasp it sufficiently to retain it in a compact ball, and much benefit will accrue if this girdle is perforated at the base, so as to permit some strong iron rods being driven underneath; then under this girdle make four holes, penetrating to nearly the centre, and into each thrust a

when planted out to give it a trial, when I think they will be satisfied with the result. I have grown plants of *Coleus* in 7 inch pots, whose diameter was $2\frac{1}{2}$ feet; the markings were more distinct, and the plants larger than if loam had been employed. This was, I think, due to the greater ramifications of the roots which allowed the plants to take up a considerable portion of the sustaining substance of the moss. *Chrysanthemum coronarium* does well in it, and will bloom all the winter if assisted with manure-water, as will also *C. coronarium frutescens*, *Cinerarias*, *Primulas*, *Impatiens Sultanii*, *Nicotiana affinis*, *Abutilons*, *Dielytra*, *Lily of the Valley*, and *Chionodoxa Lucilæ*. It is very good for plants that have to stand in rooms where the air is very dry, as they do not then seem to suffer so much from drought, even when watered less seldom than those grown in loam or peat. *A. S., Monmouth.*

THE SNOWSTORM IN BUTE.—This usually mild island and popular summer resort has not escaped the severity of the weather on this occasion; while last year about this season snow and hard frost prevailed in England and on the Continent, cutting down outside Tea Roses in Orleans, France, we in *Rothsay* were having genial spring weather; but just now we are having our share of the cold. Monday opened with from 6 to 8 inches of snow, and every night since from 10° to 16° of frost, excepting last night, when the thermometer ranged

better adapted for the growth of Peas for sowing purposes. *Ed.]*

PROTECTING CAULIFLOWERS.—Up to the present time I have Autumn Giant Cauliflowers in the open garden, which I kept by placing a piece of newspaper over the flowers. I do not know whether this is anything fresh, but it is so to me, to get a supply all winter by so simple a method. The paper keeps out the snow and rain, and the frost does not appear to settle on the flower as it would without this simple protection. *J. Hiam.*

EXCEPTIONS TEST THE RULE.

It is no wonder that naturalists dislike dogmatic assertions, for in Nature variation, to use a Hibernicism, is constant, and its limits are often beyond artificial boundaries, however cleverly constructed. An *Odontoglossum* should produce lateral spikes from the side of the mature pseudobulb, but sometimes the spikes are produced at the top of the bulb, when, in botanical language, the inflorescence becomes terminal.

An illustration of this in *O. Pescatorei*, which occurred at Kew, and was drawn for us by Mr. Weathers, is illustrated in fig. 40.



FIG. 40.—*ODONTOGLOSSUM PESCATOREI*.

strong 12 or 14 feet plank, and with these as levers the tree can be raised so that a table fixed upon rollers can be run underneath. It may then be drawn away and planted, taking care in its journey that it does not wobble about. *Gardener, Newton Nurseries, Chester.*

SOLANUM CORNIGERUM.—Mr. Hart, in the *Gardeners' Chronicle* of January 14, writing about *Solanum cornigerum*, seems to consider it identical with the common *S. mammosum*. At the time I wrote the note concerning it, I had in my hands a fruit of the latter for comparison. The two fruits are very different in appearance and shape. I saw no trace of the lateral horns which give the former its name, and the fruit was smaller and rounder. The flowers and foliage seem to be identical in both species. I may say that all the fruits I obtained in Fernando Noronha were similar, though the horns were irregular in number and form. Probably *S. cornigerum* is a mere variety of *S. mammosum*, and it will be interesting to see if the seeds I brought of it will come up and keep true. *S. mammosum* is not mentioned in the *Flora of Brazil* as a Brazilian plant. *H. N. Ridley.*

FERTILISING MOSS.—I quite agree with your correspondent, Mr. Abel, p. 106, as to the ease with which plants can be grown in the above substance, having tried it with many diverse plants, both hard and soft-wooded, but I have not found that the hard-wooded plants did so well as the soft. I would advise those who find their bedding plants suffer

from 22° to 26° all night, the lowest reading, if I mistake not, which has occurred for many years. But for the friendly covering of snow, vegetation must have suffered severely here. *Michael Cuthbertson, Rothsay, February 16.*

IN WILTS.—In South and West Wilts the snowstorms of the 13th and 14th inst., although of great violence, have been, comparatively speaking, productive of but little injury to trees and shrubs; amongst the latter more damage will doubtless manifest itself on the disappearance of the snow. *J. Horsefield, Heytesbury.*

SAMPLES OF PEA SEED.—We enclose you two small samples of Peas out of one bulk of crop 1887, to show how very largely they may be affected by season. In this case, the Peas being American grown, experienced an even more severe season than ours. We are writing to verify the fact, but we have no doubt that this lot was grown in one field, and are of the same variety, viz., William the First. In our experience we find that hybridised Peas are very apt to vary in sample in extremely dry or wet seasons. We also wish to demonstrate that it is impossible, after such a season as 1887, to identify some varieties of Peas by the appearance of the sample. Another effect of the great heat and drought has been to make many samples look old and shrivelled. *Jacob Wrench & Sons, London Bridge.* [There was great diversity in the samples sent to us; due, doubtless, to the too rapid ripening of the seeds by heat and drought. A cooler climate than that of some parts of Canada is

SOCIETIES.

ROYAL HORTICULTURAL: Feb. 14.

Scientific Committee.

Present: Mr. F. Pascoe, in the chair; Messrs. Murray, Wilson, O'Brien, Ridley, Michael, Smee, Bennett, Smith, Boulger, Morris, Dr. Lowe, and Rev. G. Henslow, Hon. Secretary.

Orchids.—Mr. O'Brien remarked on a so-called *Masdevallia culex*, but which is really *Pleurothallis Barbarea*, bearing minute delicate flowers. A *Dendrobium Kingianum* var. *albidum* was also exhibited. The inflorescence bore eighteen flowers. The original specimen, figured in the *Botanical Magazine*, 1845, No. 61, bears pink flowers, and in the description two only are said to have then been the average number. It was re-figured, in 1850 in the *Botanical Magazine*, No. 4527.

Ponthieva.—Drawing of.—Mr. Ridley showed a drawing of this genus, by Lehmann, from Ecuador, which was figured and described in the *Gardeners' Chronicle*.

Wallflower, Monstrous.—Mr. Henslow reported upon the specimens exhibited by Mr. Lynch at the last meeting, known as "Miss Hope's." They were not gynanthous, but a form of "double" flowers. The calyx was normal, but contained more or less than ten petals, that is to say, the usual four, and six others representing the stamens. Instead of a pistil, ten axis was prolonged, and terminated with a double flower, having a normal calyx, but a corolla

of an indefinite mass of petals. This case, therefore, resembled the double form of *Helianthemum vulgare*, only in that flower the calyx and corolla are repeated three or four times.

Æcidium pseudo-columnare (J. Kühn).—At the last meeting of the Scientific Committee some specimens of the Silver Fir were exhibited which showed the injury done to the extreme tips of their branches by an *Æcidium*. Having in my herbarium some specimens of the fungus in question which Mr. Munro had sent me some years ago, I submitted them to Professor Julius Kühn, with the request that he would examine them and report whether they were the true *Æcidium columnare* of Albertini and Schweinitz, which has its teleutospores on *Vaccinium Vitis-idea* as *Calyptospora Gœppertiana*, or whether they were the recently described *Æcidium pseudo-columnare* into whose life cycle the *Calyptospora* does not enter. Professor Kühn in reply says, that they belong to his *Æcidium pseudo-columnare*, a fungus which has not previously been recorded as British. *Charles B. Plowright*.

Honey from Eucalyptus globulus.—A specimen had been sent from Adelaide, South Australia, to Mr. T. Christy, as possessing similar properties, to those of the tree itself; being, for example, antiseptic in its nature. It is found to be very efficacious in cases of lung disease. The honey can only be procured every other year, as the tree flowers biennially. One peculiarity is that, though liquid on arrival, it rapidly crystallises in this climate. It has a very peculiar flavour and scent.

"Jambul," Eugenia Jambolana.—Mr. T. Christy sent a growing plant as well as seeds of this important drug. Its peculiarity resides in the power of its seeds to arrest the conversion of starch into sugar; hence its value in diabetes. The seed appears to contain about 31.4 per cent. of oil and 4.32 per cent. of ash; also yellow-green resin and a crystalline principle are present. Experiments with starch and malt extract, with and without jambul, showed that while 22.4 grains were converted into sugar where no jambul was present, only 9.8 grains were charged with 15 grains of the seed; and 6.3 grains of starch became sugar with 25 grains of jambul. It is now used very extensively in America and Germany, and has begun to be employed in England apparently with very beneficial results. From a preliminary analysis, the seed does not appear to contain any starch, and therefore the question arises whether the particular ferment which emulsifies oils in seeds may not generally have a sort of anti-diastatic action. Further details will be found in No. 10 of *Med. Com. Pl. and Drugs*, by Mr. Christy.

Oranges, Cultivation of, in England.—Mr. T. Christy contributed the following remarks upon Orange growing:—"In discussing the question of Orange growing in this country with Dr. Amadeus he tells me how much has been done by grafting in Porto Rico. He recommends the graft to be made on the strong stems, and the plants do much better when not grafted too young. With regard to the transport of the fruit, he believes that the fifteen days' sea journey will be fatal to the quality and flavour of the thin-skinned Oranges, so that it would be better to send some cases of plants of the best varieties for growth in houses here. Since the receipt of the large shipment from Bahia many growers have bought stock of the Orange trees, with the view of so doing, and some correspondents have already contributed some very interesting information, showing how well the culture is understood [see communications from Mr. Jas. Douglas and "M. F.," *Gardeners' Chronicle*, vol. iii., January 14, 1888, pp. 46, 47], and it only remains for the commercial question to be threshed out. One grower informed me that he got so much juice in his fruit that it burst in ripening; so this fact sets at rest the question of hard 'woody fruits' only being produced in this country. Mr. A. Dixon, of Cherkley Court, Leatherhead, has two Orange trees, each bearing more than 200 fruits; and from his Pomeloes he says that he is able to make a delicious preserve. With regard to foreign fruit, a captain in the Mediterranean trade tells me that from his experience in collecting Oranges from most parts of the world where they are grown, he believes the palm for delicately flavoured varieties must be awarded to those from Malta. This he attributes to the great care bestowed in their cultivation. When attending the display of fruit at the Agricultural Show in Paris every year, I have been struck with the fine exhibitions of these fruits together with Citrons and Limes from Algeria; and I was informed that the French government obtained thence the best varieties for

their botanical gardens, and that the trees were in full bearing."

A fine series of home-grown Oranges, Lemons, Citrons, and kindred fruits was exhibited by Mr. Rivers, who has cultivated them for the last twenty years. Mr. Michael corroborated the difficulty of importing Oranges from Bahia—one of the best Orange-growing districts.

Rhododendron Hybrids.—A series was exhibited by Mr. Veitch at the exhibition, as follows:—*R. Imogene*, between *R. Teymanni*, male (pure yellow), with *R. Taylori* (red), itself a hybrid. It retained the foliage of the male, the blossoms being pale lemon-coloured, tinged with red in the filaments and anthers alone. The red tint was thus almost entirely eliminated. *R. Ruby*.—This is a cross between *R. jasminiflorum* [var. ?] *carminatum* (crimson, female), with *R. multicolor*, var. *Curtisi* (male)—this being a crimson variety of the normally lemon-coloured *R. multicolor*—both parents being red, the offspring was ruby-coloured. Two effects gained were a dwarfer habit and a freer blooming. *R. (unnamed)*.—A hybrid between *R. Monarch* (salmon-coloured, female), and *R. malayanum* (pale crimson, male). The influence of the male overpowers the female, as there is no salmon colour in the hybrid, though it has the habit of the male with an increase in the number of flowers. *R. (white, unnamed)*.—A cross between *R. Princess Beatrice* (rosy-pink), and *R. multicolor* (lemon). In this case the union of two colours caused the total disappearance of both, the result being a pure white.

Fruit Committee.

A showy exhibit was that of Mr. T. F. Rivers, Sawbridgeworth, which consisted of the Pernambuco, St. Michaels, White, Silver, Long, Maltese two varieties, Egg Oranges, the Faringo and common Shaddock, some few small fruits of Limes, and the white Lemon. All of these were grown at the nursery, Sawbridgeworth, and go far to prove the feasibility of Orange growing for dessert purposes when intelligently carried out. A collection of ninety dishes of Apples came from the same place. These and the Apples shown by others seem to indicate the unusual maturation of the fruit last season. A Silver Banksian Medal was awarded.

Messrs. G. Bunyard & Co., Maidstone, showed 106 dishes of Apples, exceedingly well preserved. (A Silver Banksian Medal.)

Messrs. Cheal & Sons, Crawley, showed seventy dishes, most of them of high colour, as usual from that district. (A Bronze Medal.)

A similar award was made to Mr. Sydney Ford, gr., Leonard's Lee, Horsham, for twenty-four dishes of very fine examples of late keeping Apples; he likewise showed some bunches of the Grape Lady Downe's, which were in good condition still, after having been in the Grape-room twelve weeks.

Sixty dishes of Apples came from Mr. Smee's garden, Wollington.

Mr. C. Ross received a Bronze Medal for a small collection of Apples.

Four dishes of Apples, very well kept, came from Mr. J. Smith, gr., Mentmore, Leighton Buzzard.

Wrench's Variegated Kale, a much-curled variety, and of good colour, was sent from the Chiswick Gardens.

Numerous dishes of Apples were shown by various exhibitors. Mr. C. Blair, Trentham Gardens, Stoke-on-Trent, sent some excellent samples of Calville Blanche, stated to have been gathered on February 10 this year; Royal Pearmain, and Keddeleston Pippin were well shown from Mr. R. Dean, Ealing.

Mr. Burnett, The Deepdene Gardens, Dorking, made an interesting exhibit; he had fruit from Lady Downe's Grape grafted on to Black Hamburg, and also from the same on West's St. Peter's, the berries in the former case being large, solid, and good in flavour; those from the latter were small. Mrs. Pince on the Royal Muscadine was also shown. The characters of the varieties were greatly altered. The produce in the first and last instance was good, in the other case poor.

Mr. J. Crook, Farnborough Grange, showed in a fairly good condition specimens of Tomatoes; and Mr. R. Dean contributed two dishes of Onions, viz., Tennis Ball, a round white-skinned sort, and Danesfield, with brown skin.

FIRST-CLASS CERTIFICATES.

To Mr. H. B. May, for *Pteris cretica nobilis*.

To Messrs. J. Veitch & Sons, for *Rhododendron Ruby*.

To Messrs. J. Veitch & Sons, for *Rhododendron Imogene*.

To Messrs. J. Veitch & Sons, for *Ardisia mamillata*.

To Sir Trevor Lawrence, for *Odontoglossum crispum pardalinum*.

To Sir Trevor Lawrence, for *Dendrobium nobile Cooksoni*.

To H. M. Pollett, Esq., for *Dendrobium nobile Cooksoni*.

To Sir Trevor Lawrence, for *Dendrobium corys-discus*.

To Messrs F. Sander & Co., for *Lycaste Skinneri Imperator*.

To Mr. C. Turner, for Tree Carnation Phyllis.

To Messrs. Paul & Son, for Iris Histrio.

To Messrs. H. Cannell & Sons, for *Primula Braid's Seedling*.

CULTURAL COMMENDATION.

To Mr. H. Ballantine, for *Odontoglossum crispum Stevensi*.

EDINBURGH BOTANICAL.

THE Society met on February 9, at 5, St. Andrew Square, Dr. Craig, President, in the chair. A minute expressing the loss the Society had sustained by the death of Professor Dickson, drawn up at the request of the Council, was ordered to be engrossed in the minutes, and an extract sent to the late President's relatives. The President noted how the Society had lost since last meeting four other members including Professor De Bary, Drs. Asa Gray and Boswell of Balmutto.

The following communications were read:—

1. On the Fruits of the Genus *Anemone*. By Professor Edward Janczewski, University, Cracow.

2. Note on *Juncus alpinus*, with exhibition of specimens. By Dr. Buchanan White, F.L.S.

3. Additions to the Scottish Flora during 1887, with a *Résumé* of the Year's Work. By A. Bennett, F.L.S., Croydon.

4. On the Origin of Evergreens. By P. Geddes, F.R.S.E.

5. On Temperature and Vegetation at the Royal Botanic Garden. By R. Lindsay, Curator.

6. On Temperature, &c., at the Glasgow Botanic Garden. By Robert Bullen, Curator.

Report for December, 1887, on Temperature and

Vegetation at the Royal Botanic Garden, Edinburgh.

During December last, the thermometer was at or below the freezing point on twenty-four occasions, indicating collectively 132° of frost for the month as against 174° for the corresponding month of 1886. The lowest readings occurred on the 10th, 22°, 11th, 21°, 25th, 20°, 27th, 22°, 31st, 22°. The lowest day temperature was 30° on the 11th, and the highest 52° on the 3rd. Rain, sleet, or snow fell more or less on thirteen days. Only one plant came into flower on the rock garden during December, viz., *Tussilago fragrans*. The total number of species and well marked varieties which have thus flowered during the past year, amounts to 1407 as against 1165 for the preceding year. A record has been kept showing the date when each plant was first observed in flower. The largest number came into flower during the months of May and June, viz., 328 and 445 respectively.

January, 1888.—The weather of January has again been unusually mild for the season. Vegetation is considerably in advance of what it was at the same date last year, early though it was. Frost was registered on fourteen mornings, indicating collectively 67° of frost for the month, as against 91° for the corresponding month last year. The lowest readings of the thermometer occurred on the 3rd, 27°, 19th, 20°, 20th, 24°, 28th, 24°, 29th, 20°. The lowest day temperature was 31°, which occurred on the 19th; and the highest 59°, on the 9th. On six days throughout the month the maximum temperature reached 50°. The rainfall was very light. Snow fell heavily on the 2nd, and slight falls took place during the last four days of the month. On the rock garden twenty-four species and varieties came into flower.

Of the forty plants whose dates of flowering are annually recorded to the Society, the following came into flower:—*Tussilago fragrans*, December 28 (1887), *Dondia epipactis*, January 5; *Corylus Avellana*, January 25; *Galanthus nivalis* and *Crocus susianus*, January 26; *Galanthus plicatus* and *Scilla præcox*, January 26; *S. sibirica* January 30.

Exhibits from the Garden.—Fine truss of *Rhododendron argenteum*, Hook. f., Sikkim Himalayas; *Narcissus cyclamineus*, Portugal; presented to the garden last year by the Rev. C. Wolley Dod, Edge Hall, Malpas. Seedlings of *Helleborus orientalis*,

having different coloured flowers, raised from seed ripened at Balmutto, and presented by the late Dr. Boswell, from the open air. Branch of *Rhododendron dahuricum* in full flower, from the open air.

Report on the Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, November, 1887.—The lowest temperature registered during the month was 24°, or 8° of frost, during the night of the 22nd. Frost was recorded on twelve nights, giving a total of 51°. The mean day temperature has been high for the month, much the lowest reading being 31°, on the 29th; the highest was 47°, on the 5th. The first and last weeks of the month were stormy, with a considerable rainfall. Many fine spring-like days are recorded for the middle of the month, which were very favourable to all kinds of outdoor garden-work. The young wood of all kinds of hardy trees and shrubs is well ripened, and with well-developed buds. All kinds of hardy *Rhododendrons*, also of *Azalea pontica* and Ghent varieties, are unusually well set.

December, 1887.—The lowest temperature registered during the month was 20°, or 12° of frost, during the night of the 10th. Frost was registered on eighteen nights, giving a total of 85°, mostly between the nights of the 3rd and 21st. Since the latter date the mean temperature has been above the average both day and night, frost having been recorded three times only, the lowest being only 2°. The above are the records of a maximum and minimum thermometer at 5 feet from the ground. The temperature on the grass varied from 5° to 6° lower. Owing to the weather being mostly dry the frost retained a firm grip of the ground to the end of the month; hence the low surface temperature. The fall of rain and snow has been light in this neighbourhood.

January, 1888.—The lowest temperatures registered during the month (thermometer 5 feet from the ground) were during the nights of the 18th, 27th and 28th, when 9°, 8°, and 11° were recorded respectively. Frost was registered on thirteen nights, the total being only 54°. The temperature on the grass was generally from 2° to 3° lower. With the exception of the last ten or twelve days the month was remarkably fine, with many spring-like days and a temperature much higher than usual, there being only one day on which the temperature did not rise above the freezing point, that being on the 19th, when 1° was recorded. Since then we have had more or less of real winter weather; fog, rain (sometimes heavy), wind-storms, and latterly snow, alternating with fine days. The changes have been remarkably sudden.

(To be continued.)

NATIONAL CHRYSANTHEMUM.

The report on p. 210 can now be supplemented by stating that it has been definitely arranged to hold a provincial show of Chrysanthemums, and that on the invitation of the Sheffield and West Riding Chrysanthemum Society it will take place at Sheffield, about the third week in November, probably on the 16th and 17th. The Sheffield Society undertakes to guarantee a stipulated sum towards the prize list; the National Society undertakes to offer a sum for prizes in medals and cash, not less than one-third more than the sum guaranteed by the local Society; an equal number of judges to be appointed by each Society, the judges themselves selecting a referee. The local Society to undertake to defray all the expenses usually attending a Chrysanthemum Show, and also the general arrangements, with the exception of those on the show day, which will be carried out conjointly—the National Society receiving one-third of the nett profits, if any; all members of the National Society to be entitled to compete or visit the show free of charge. A sub-committee reported upon proposals for a new catalogue of Chrysanthemums, which shall contain, besides other matters, a selected and full descriptive list of the best varieties of Chrysanthemums for exhibition purposes in the following sections, viz.:—Incurved, Japanese, Japanese reflexed, reflexed, large Anemone, Japanese Anemone, pompon, pompon Anemone; each section to be preceded by a typical illustration and brief description of its general characteristics, and also a complete alphabetical list of Chrysanthemums, with synonyms in italics, also indicating the section to which each belongs; and, further, an abridged description of all those varieties not included in the selected lists.

The committee is to consist of amateurs and gardeners only—Chrysanthemum growers of repute, not necessarily members of the Society.

The Catalogue Committee is formed of Messrs. E. Molyneux, G. Gordon, Harman Payne, C. Orchard, W. K. Woodcock, C. Herries, Shoesmith, Woodgate, Garnett, A. R. Cox, Lyne, Gibson, R. Parker, W. N. Dyer, G. Beckett, E. Sanderson, J. Wright, Flight, E. C. Jukes, Martin, Sullivan, Mease, Salter, Ridout, Udale, A. Salter, Lewis Castle, Kendall, Mardlin, and W. King. Messrs. Castle, Gordon, and Harman Payne, were constituted as the Revision Committee (the latter to act as Secretary). This committee will receive, tabulate, and prepare for the press the reports of the members of the Catalogue Committee.

A Floral Committee was appointed as follows:—Messrs. Steves, R. Deau, Mardlin, Owen, Bevan, Gordon, Gibson, H. Cannell, Gilbey, Addison, Swift, Wright, Kendall, Castle, and Boyce. The Floral Committee will meet on September 12, October 10 and 24, November 7 and 21, December 5, and January 9.

The Tiverton, St. Neots, Hnackley, and Faversham Societies were affiliated.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The annual general meeting of this Society took place at the Caledonian Hotel, Adelphi, W. C., on Monday evening, February 13, Mr. Richard Dean in the chair. There was a large attendance of members. The Secretary, Mr. W. Collins, read the report, which stated that during the past year fifty new subscribing members have been added. One member has died—the late W. Heale, one of the original founders, and the first Secretary of the Society, which office he held for a considerable time. The sum paid to his widow amounted to £49 10s. 6½d., the amount standing to his credit under the Benefit Fund. The sum of £13 15s. 0½d. was also paid to the widow of Edward Southern, who had ceased to subscribe for four years, thus illustrating one of the beneficial principles upon which the Society was founded, namely, that subscribers do not lose their deposits when they cease to be members, the amounts standing to their credit on the books of the Society are paid over to the representatives of the persons at their death.

The amount of sick pay afforded to members during the past year has been unusually heavy, amounting to £61 0s. 11½d., of this sum £18 3s. 6½d. was paid to the late William Heale; £26 4s. 7½d. to George Russell, of Maidstone; £9 19s. 6½d. to D. Nightingale, and the remainder to five others in small amounts.

The Benevolent Fund has increased considerably during the year, sixteen gentlemen having become honorary members, subscribing one guinea per annum.

There is now a sum of £4000 invested in 3 per cent. Consols, showing an increase of £350 during the past year.

The Treasurer's financial statement was read by Mr. James Hudson, which showed that the receipts for the year amounted to £603 16s. 0½d. and the expenditure to £512 15s. 5½d., leaving a balance of £91 0s. 7½d. to be carried forward for the current year.

The Chairman moved the adoption of the report and balance-sheet, which was duly seconded and carried. The following were appointed on the Committee of Management for the ensuing year, in the place of those retiring by rotation:—Messrs. W. Foreman, W. Rapley, Chard, and H. C. Foll. Heartly votes of thanks were then awarded to the trustees and auditors, to Mr. J. Hudson, Treasurer; Mr. W. Collins, Secretary (who was re-elected by acclamation). The sum of £15 was voted from the management fund to the Secretary for his services during the past year. It was resolved that the anniversary dinner should be an annual fixture, to take place in the month of October.

ANCIENT SOCIETY OF YORK FLORISTS.

Mr. T. E. Anney presided at the annual meeting of the members of the above Society at the "White Swan" Inn, Goodramgate, on Tuesday night, Feb. 13. The annual report, read by Mr. J. Lazenby, the Secretary, stated that the very satisfactory position the Society had attained at the close of 1886 as regarded its business matters was still maintained at the end of last year (1877.) The subscriptions for the past twelve months from members had reached £106, or an increase equivalent to thirty new members. The various shows, held as usual in the

Guildhall, had in the past season been accorded a very much increased attendance of visitors, and it could not be doubted that great good must have resulted from a horticultural point of view. The number of competitors had also increased, although in a pecuniary sense exhibitors had not benefited to any great extent, as the increased vote brought out upwards of forty competitors, amongst whom 1420 prizes were awarded. The Chrysanthemum show again resulted in a great success. The gross receipts were upwards of £200. The special prizes offered by the ex-Lord Mayor (Sir Joseph Terry), the ex-City Sheriff (Mr. Alderman Wright), the stewards, and Messrs. Backhouse & Son, Mr. Deverell, Mr. Morton, and Messrs. Wood & Son, constituted a feature of considerable attraction.

The financial statement showed that there was a balance in hand at the beginning of last year of £106 4s. 3½d., the annual subscriptions and donations amounted to £106; receipts of the three days of the Chrysanthemum show, £179 11s. 4½d., and including some other items of income the total was £415 18s. 2½d. The expenditure, including award of prizes, printing, advertising, music, judges' allowances, Secretary's salary, &c., amounted to £266 17s. 1½d., leaving a balance available of £149 11s. 1½d., being the largest sum the Society had ever had at disposal at the close of any season.

On the motion of Mr. Cowper, seconded by Mr. W. R. Robinson, the report and balance-sheet were adopted.

The officers were elected as follows:—President, His Grace the Archbishop of York; Senior Vice-President, the Lord Mayor (Mr. Alderman J. Sykes Rymer); Vice-Presidents, the City Sheriff (Mr. S. Border), and Mr. G. Cowper; Stewards, Mr. G. Lamb and Mr. Horsley; Junior Steward, Mr. W. C. Milburn; Treasurer, Mr. J. Fielden. Mr. Lazenby was unanimously re-appointed Secretary.

The following gentlemen were chosen as the committee:—Messrs. Folkard, Key, Moore, Pilmoor, Rodwell, Robinson, Simpson, Smith, Fieldhouse, Douglas, Hudson, and Richardson. Mr. Manton and Mr. G. Pilmoor were elected auditors. An alteration in Rule 8 was made: the annual meeting to be held on the second Tuesday in January, instead of the first Tuesday in February.

Votes of thanks were passed to the donors of special prizes and to the officers of the Society, and the meeting made a grant of £100 for the Chrysanthemum show of 1888, and £40 for the series of periodical exhibitions held in the Guildhall.

THE WEATHER.

Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees.—"Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending Feb. 13.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	5 below	0	56	+	3 + 8
1. SCOTLAND, E. ...	1 below	0	43	+	5 = 57
2. ENGLAND, N.E. ...	1 below	3	29	—	1 = 65
3. ENGLAND, E. ...	0 (aver.)	7	29	—	10 = 37
4. MIDLAND COS. ...	0 (aver.)	8	26	—	11 = 31
5. ENGLAND, S. ...	0 (aver.)	10	23	—	18 + 3
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 below	1	34	—	0 = 53
7. ENGLAND, N.W. ...	2 below	1	23	—	19 = 54
8. ENGLAND, S.W. ...	1 below	10	18	—	41 + 32
9. IRELAND, N. ...	2 below	1	26	+	3 = 58
10. IRELAND, S. ...	2 below	8	19	—	15 = 34
— CHANNEL ISLANDS	1 above	21	0	—	18 = 4

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	1 more	30	5.7	26	14
1. SCOTLAND, E. ...	3 less	21	2.8	25	25
2. ENGLAND, N.E. ...	3 less	17	1.2	52	21
3. ENGLAND, E. ...	0 (aver.)	17	1.4	31	25
4. MIDLAND COS. ...	1 less	16	1.1	33	22
5. ENGLAND, S. ...	2 more	16	1.8	15	18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 less	23	5.1	37	19
7. ENGLAND, N.W. ...	3 less	22	2.0	34	18
8. ENGLAND, S.W. ...	5 less	22	2.5	21	21
9. IRELAND, N. ...	1 less	22	3.4	18	17
10. IRELAND, S. ...	5 less	17	3.4	25	22
— CHANNEL ISLANDS	1 more	27	2.7	13	25

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING FEB. 25. (AVERAGE OF FORTY-FOUR YEARS.)

Feb. 19 ...	39°.2	Feb. 23 ...	39°.
„ 20 ...	39°.	„ 24 ...	39°.
„ 21 ...	39°.	„ 25 ...	40°.
„ 22 ...	39°.	Mean for the week ...	39°.

THE PAST WEEK.

The following summary record of the weather for the week ending, February 20, is furnished from the Meteorological Office:—

“The weather has been in an unsettled state generally, with frequent showers of snow or sleet. Over the western parts of the kingdom, however, the conditions were finer than elsewhere, and intervals of clear sky were experienced.

“The temperature has been considerably below the mean in all places, the deficit varying from 5° in ‘Ireland, N.’ to 7° or 8° in most other districts, to as much as 9° in ‘Scotland, N.’ and ‘England, S.’ and 10° in ‘England, S.W.’ Over the United Kingdom generally the average temperature for the week has been lower than any registered during the present season. The highest of the maxima, which were recorded on somewhat irregular dates, ranged from 41° in ‘Scotland, N.’ and ‘England, N.E.’ to 46° in the ‘Channel Islands,’ and 49° over Ireland. On most days the readings were lower than these figures, maxima of about 35° being very frequent. The absolute minima were lower over Ireland and Scotland than any previously recorded during the winter. On the 16th the thermometer fell to 1° in ‘Scotland, N.’ (at Lairg), to 4° in ‘Scotland, E.’ (at Braemar), and to 8° in ‘Ireland, W.’ (at Brookeborough). Over England, where the minima were recorded on irregular dates, they ranged from 8° in ‘England, N.W.’ (at Newton Reigny), to 18° in ‘England, S.W.’ and to 25° in ‘England, E.’

“The rainfall has been rather more than the mean in most of the ‘Wheat producing districts,’ but less in the ‘grazing districts.’

“Bright sunshine shows a decrease over the eastern and central parts of Great Britain, but a decided increase over all the western and southern counties, as well as in the west and north of Scotland.”

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MARCH 3. (AVERAGE OF FORTY-FOUR YEARS.)

Feb. 26 ...	40°.	Mar. 1 ...	40°.
„ 27 ...	40°.	„ 2 ...	40°.
„ 28 ...	40°.	„ 3 ...	40°.
„ 29 ...	40°.	Mean for the week ...	40°.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a “Day-degree” signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.			
	Above or below the Mean for the week ending Feb. 20.	Above 49° for the Week.	Below 49° for the Week.	ACCUMULATED.
		Day-deg.	Day-deg.	Day-deg.
Principal Wheat-producing Districts.				
0. SCOTLAND, N. ...	9 below	0	83	3 + 60
1. SCOTLAND, E. ...	7 below	0	80	3 — 10
2. ENGLAND, N.E. ...	6 below	0	60	13 — 28
3. ENGLAND, E. ...	7 below	0	62	27 + 2
4. MIDLAND COS. ...	8 below	0	69	29 + 19
5. ENGLAND, S. ...	9 below	0	61	39 + 52
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	8 below	0	68	14 — 6
7. ENGLAND, N.W. ...	8 below	0	66	33 — 4
8. ENGLAND, S.W. ...	10 below	0	60	67 + 87
9. IRELAND, N. ...	5 below	0	45	12 — 33
10. IRELAND, S. ...	7 below	0	44	38 — 0
— CHANNEL ISLANDS	7 below	0	24	49 + 30

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	2 less	35	6.3	20	17
1. SCOTLAND, E. ...	1 more	27	3.4	34	27
2. ENGLAND, N.E. ...	3 more	22	1.9	25	21
3. ENGLAND, E. ...	4 more	23	2.2	12	22
4. MIDLAND COS. ...	1 more	20	1.8	21	21
5. ENGLAND, S. ...	1 less	20	2.2	18	18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	7 less	25	5.3	50	24
7. ENGLAND, N.W. ...	5 less	26	2.2	41	21
8. ENGLAND, S.W. ...	8 less	26	2.9	47	25
9. IRELAND, N. ...	5 less	26	3.7	46	22
10. IRELAND, S. ...	6 less	21	3.7	42	26
— CHANNEL ISLANDS	2 less	33	3.2	18	24

NOTICES TO CORRESPONDENTS.

APPLES FOR NEW ZEALAND: P. H. G., Princeton, Ill., U.S.A. Thanks for your note, but it is too much like an advertisement to insert in its present form.

ACQUA CUTTINGS: Peto. If you have command of bottom-heat of 75°, and can get growth on the plants by putting them in a temperature of 55°, you may put in the cuttings in March. Strike also under hand-glasses in July and August, or when the young shoots begin to get firm.

BEETLE: F. G. A weevil, like the one that does so much mischief to vineries. Trap them with slices of Carrot, &c., and capture them at night.

CAMELLIA REMOVING FROM BORDER TO TUN: Albalena. If the plants are carefully taken up, they will transplant as well as Hollies, Laurels, &c. Care must be taken of all small roots and rootlets, and a certain amount of the ball of earth should be left undisturbed. Borders are often made long

and narrow, and as the plants in this case have remained in their place for many years their main roots may have extended laterally, so that considerable numbers of these may have to be sacrificed in putting the plants into the slate tubs. In case there is much need of amputation, a kind of balance must be maintained between roots and head by cutting out some branches in the latter. Defer transplantation till growth has begun; keep the plants rather close and shaded after the operation, and after giving one thorough watering. Mulch the surface of the soil with half-decayed leaves, moss, or cocoa fibre. Sprinkle the foliage by 6 A.M., and again at 5 P.M., and keep the floor moist, but do not treat them as if they were stove plants. Give a little more air in the third week, increasing it to full exposure as the season advances. Be careful not to water the roots freely before root-growth has taken place. The corridor named in your letter will suit them very well. They are not tender, but can endure several degrees of frost without injury.

COCKROACHES: C. F. C. See Notices to Correspondents at p. 184. Trap them with beer and treacle.

ECCHINIS BULBS: J. Carter. Your bulbs are, as you suppose, affected with the mite. Destroy by burning all those bulbs which are attacked.

FENNS: Both are very pretty crested forms of *Pteris serulata*. The dwarfed of the two is, as far as we know, not yet in commerce, and is as good a form as we have seen.

FORESTRY: Planter. *Arboriculture*. By John Grigor. (Edinburgh: Edmonston & Douglas.)

GARDENERS' ORPHAN FUND: W. Swan. The suggestion about collecting-boxes has already been mooted, and boxes are being made, which will be sent to any secretary of a society, head gardener, nurseryman, and other person, making application for the same.

INSECTS: W. S. and others. Several correspondents have sent us weevils or their grubs (see fig. 39), asking how best to get rid of the pest. At p. 292 in the year 1841 the instructions were as follows:—Strong infusions of tobacco-water, aloes, or quassia poured at the roots of plants when the larvæ are there are recommended. In order to capture the perfect weevil itself approach the tree or plants attacked and suddenly turn on a light, when the insects will fall down; a tray or cloth should have been previously placed on the ground to receive them. Destroy by applying boiling (not merely warm) water. As the creatures retire into walls, &c., during the daytime, it would be advisable to fill up all chinks and fissures with mortar or cement, &c.—*Rosclaf*. The work of a mining grub. (See Supplement to our issue for July 7, 1877.)

MANURE AS TOP-DRESSING TO BULBS: G. H. M. It will not have much effect after they have started — the foliage might be made of a darker colour,

NAMES OF PLANTS: J. S. & Co. Should consult some trade grower of *Epacris*. We cannot pretend to name them.—G. P. *Juniperus drupacea*. We do not know the Rat's-tail Fern.—J. F. *Acokanthera* (*Toxicophlax*) spectabile.—W. H. K. 1, *Epidendrum cochleatum*; 2, doubtful (see next week); 3, the Hornbeam (*Carpinus Betulus*).—P. W. *Oncidium superbiens* and *Schomburgkia undulata*.—T. Heaton. *Oncidium Schillerianum* probably, send old bulb and leaves; Croton No. 1, *trilobus*; Croton No. 2, *Mortii*?—T. Passey. *Epidendrum Candollei*.—J. Z. *Senecio Giesbreghtii*.—Argus. *Adiantum Capillus-veneris*.—Nash. *Dendrobium aureum* (*artocarpum*).—E. Best. Probably a *Schomburgkia*, or *Lælia superbiens*. A sudden fall of temperature may have produced this check; or too much water has been supplied, causing the plant to commence growing. Next year remove to a cooler house and keep tolerably dry.

ORCHID BLOOMS FROM AMERICA.—Prof. Reichenbach requests us to state that he has obtained “from an unnamed U.S.N.A. correspondent a wooden box, containing a card box, with German address and five 10-cent stamps, representing ladies. Contents—*Odontoglossum mulus*: tip-top.”

PERLANTONIUMS: J. B. No. You can do nothing more.

POST OF HEAD GARDENER: W. J. I. Can you not emigrate to Canada or the U.S.A.? Good men are wanted there.

PROTECTING PEAS AND BEANS FROM MICE: *A Subscriber.* The proportion of paraffin oil is one tea-spoonful to one quart of seed. Soaking the seeds in water for twenty-four hours, and then rolling them about in powdered red-lead, is as effectual, and much safer.

TABLE DECORATION: *Subscriber.* A work on the subject, by Wm. Low, is published by Messrs. Chapman & Hall, London. We do not know the price.

TREATMENT OF VARIOUS BULBOUS PLANTS: *J. MacGregor.* The *Dictionary of Gardening*, edited by G. Nicholson, published by Upcott Gill, 170, Strand, London, is the book that will afford you the best information; next to that is Johnson's *Gardeners' Dictionary*, published by Messrs. Bell & Sons, York Street, Covent Garden, London.

CATALOGUES RECEIVED.

LISTER KERSHAW, Commercial Buildings, Brighouse—Garden Seeds.

JOHN BOLAM, Market Place, Alnwick—Garden Seeds and Bullus.

WILLIAM SHAND, New Street, Lancaster—Garden Seeds.

JAMES YATES, 29, Little Underbank, Stockport—Vegetable and Flower Seeds.

SPECIALTY AND NOVELTY SEED COMPANY, Newton-le-Willows, Lancashire—Seeds.

J. GARDEN, 4, Rue Auber, Paris—Orchids.

W. ATLEE, BURPEE & Co. (of Philadelphia), 133, Cannon Street, London, E.C.—Vegetable and Flower Seeds.

JOHN WATKINS, Pomona Farm, Withington, near Ilkerton—Fruit Trees.

THOMAS INRIE & Sons, 137, High Street, Ayr—Garden Seeds.

WEBB & Sons, Wordsley, Stockbridge—Farm Seeds.

COMMUNICATIONS RECEIVED:—J. H.—J. A.—Astwood Horticultural Society.—C. E. P.—I. Hamilton.—J. Laing & Co.—B. R. (nothing but a list of Orchid names).—A. D.—W. B.—G. Pym.—Hugh Low & Co.—C. R.—E. J.—C. B. K.—F. W. B.—W. J. M.—Visitor.—W. H.—J. J. W.—J. C. C.—Caledonian.—W. S.—H. V.—W. R.—P. M.—U. D., Berlin.—A. A. B. (must excuse us, we have no personal acquaintance with the matter).—A. G.—R. W.—E. P.—W. L.—E. W., Copenhagen.—D. H.—W. S. M.—C. Joly, Paris.—J. S. B.—J. H. H.—H. N. R.—J. Watt (next week).

ENQUIRIES.

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

"SALTING" CULTIVATION.—*W. G.* would be glad of the names of any genera and species, whether British, foreign, or cultivated, likely to do well in alluvial and estuarine saltings, where there is occasional overflow. Seakale and Asparagus at once suggest themselves. Are not the Cruciferae generally tolerant of salt water? Are there any books or catalogues relating to the subject?

MARKETS.

COVENT GARDEN, February 23.

Good samples of Grapes are now coming shorter, and last week's advance has been well maintained. Trade steady. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 3-sieve ... 2 0-5 0	Pears, per dozen ... 3 0-8 0
Grapes, per lb. ... 3 0-5 0	Pine-apples, Eng., lb. 1 0-2 0
Kent Cobs, 100 lb. ... 60 0-0	—St. Michael, each 2 0-5 0
Lemons, per case ... 12 0-21 0	

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, p. doz. ... 8 0-0	Mustard and Cress, punnet ... 0 4-0
Beans, Kidney, lb. ... 1 6-0	Onions, per bushel ... 7 0-0
Beet, red, per dozen 1 0-2 0	Parsley, per bunch ... 0 6-0
Brus. Sprouts, lb. ... 0 4-0	Potatoes, per cwt. ... 4 0-5 0
Carrots, per bunch ... 0 6-0	—kidney, per cwt. ... 4 0-5 0
Cauliflowers, each ... 0 3-0	Rhubarb, per bundle 0 4-0
Celery, per bundle ... 1 6-2 8	Shakale, punnet ... 1 6-2 0
Cucumbers, each ... 1 0-2 6	Shallots, per lb. ... 0 6-0
Endive, per dozen ... 2 0-0	Spinach, per bushel ... 3 0-0
Green Mint, bunch ... 1 0-0	Spruce, per bundle ... 1 0-0
Herbs, per bunch ... 0 4-0	Tomatoes, per lb. ... 1 0-2 0
Leeks, per bunch ... 0 6-0	Turnips, per bunch ... 0 6-0
Lettuce, per dozen ... 1 6-0	
Mushrooms, punnet 1 0-1 0	

POTATOS.—Regents, 60s. to 60s.; to Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton; and heavy market.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-18 0	Ficus elastica, each 1 6-7 0
Azaleas, per dozen ... 24 0-36 0	Foliage plants, various, each ... 2 0-10 0
Bouvardias, per dozen 9 0-12 0	Genistas, dozen ... 9 0-15 0
Cinerarias, dozen ... 6 0-12 0	Hyacinths, doz. ... 8 0-10 0
Cyclamens, per dozen 12 0-24 0	Lily of the Valley, 12 pots ... 18 0-24 0
Cyperus, per dozen 4 0-12 0	Marguerites, doz. ... 9 0-12 0
Daffodils, dozen ... 9 0-12 0	Myrtles, per dozen ... 6 0-12 0
Dracena terminalis, per dozen ... 30 0-60 0	Palms, in var., each 2 6-21 0
—viridifolia, per doz. 9 0-24 0	Pelargoniums, scarlet, per dozen ... 3 0-6 0
Dielytras, dozen ... 12 0-15 0	Primula sinensis, per dozen ... 4 0-6 0
Epiphyllums, doz. ... 12 0-24 0	Solanums, per dozen 9 0-12 0
Ericas, various, doz. 9 0-18 0	Spireas, dozen ... 9 0-15 0
Euonymuses, in var., per dozen ... 6 0-18 0	Tulips (pots of), doz. 6 0-10 0
Ferns, in var., doz. 4 0-18 0	
Evergreens, in var., per dozen ... 6 0-24 0	

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Acacia, or Mimosa, per bunch ... 0 9-1 6	Narcissus, paperwhite, Fr., 12 bunches ... 1 0-2 0
Arum Lilies, 12 blms. 4 0-6 0	—Various, 12 bun. 1 6-4 0
Azaleas, 12 sprays ... 0 6-1 0	Pelargoniums, 12 spr. 1 0-1 6
Bouvardias, per bun. 0 6-1 0	—scarlet, 12 spr. ... 0 8-0 9
Camellias, 12 blms. 1 0-3 0	Primroses, 12 bun. ... 1 0-2 0
Carnations, 12 blms. 1 6-3 0	Primulas, double, 12 sprays ... 1 0-1 6
Chrysanth., 12 bun. 12 0-18 0	—single, 12 bun. ... 4 0-4 0
Cyclamens, 12 blms. 0 6-1 0	Roses, Tea, per doz. 3 0-4 0
Eucharis, per dozen 4 0-6 0	—coloured, dozen, 2 0-4 0
Gardenias, 12 blooms 12 0-18 0	—red, per dozen ... 4 0-9 0
Heliotropes, 12 spr. 0 6-1 0	—Saffron, dozen ... 1 6-3 0
Hyacinths, Roman, 12 sprays ... 0 6-1 0	Snowdrops, 12 bun. 1 0-4 0
Lilium longiflorum, 12 blooms ... 6 0-9 0	Tuberose, 12 blms. ... 1 6-2 0
Lily of Valley, 12 spr. 0 6-1 0	Tulips, 12 blooms ... 0 6-1 0
Marguerites, 12 bun. 3 0-6 0	Violets, 12 bunches ... 1 0-1 6
Mignonette, 12 bun. 3 0-6 0	—French, bunch ... 1 6-2 0
Poinsettias, 12 blms. 4 0-6 0	—Fr. Parme, bun. 3 6-4 6
	White Lilac, French, per bunch ... 5 0-7 0

SEEDS.

LONDON: February 22.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market thinly attended, with but little business doing. The prolonged wintry weather naturally checks the demand for the moment. Quotations all round are in consequence without important change. Meantime stocks are in narrow compass, and large consumptive wants have to be met. Of English Clover seed the supply in several counties is proving in excess of expectations. For spring Tares and Sanfoin there is a fair request at full rates. Scarlet Runner Beans are remarkably scarce, and have suddenly advanced several shillings per bushel. Hemp seed continues scarce. Other articles are without alteration.

FRUIT AND VEGETABLES.

COLUMBIA: February 22.—In greenstuffs there has been a dull demand for nearly all descriptions except those of the finest quality. Quotations:—Savoy, 4s. to 10s. per tally; Cauliflowers, 6s. to 12s. do.; Brussels Sprouts, 3s. to 4s. per sieve; Spinach, 2s. do.; Horseradish, 1s. to 1s. 4d. per bundle; English Onions, 10s. to 12s. per cwt.; foreign do., 7s. 6d. to 11s. per case; Turnip-tops, 2s. to 2s. 6d. per sieve; Greens, 3s. 6d. to 4s. 6d. per dozen bunches; Turnips, 2s. 6d. to 3s. 3d. do.; Carrots, 2s. to 3s. do.; Celery, 10d. to 1s. 6d. per bundle; Rhubarb, 4d. to 6d. do.; English Apples, 3s. 6d. to 7s. per bushel; American do., 11s. to 20s. per barrel; Beet-roots, 6d. to 8d. per dozen; Parsnips, 1s. per score.

STRATFORD: February 21.—Trade and supply were good at the following quotations:—Cabbages, 4s. to 6s. per tally; Savoy, 10s. to 12s. do.; Greens, 2s. to 4s. do.; Cauliflowers, 8s. to 11s. do.; Turnips, 2s. to 2s. 6d. per dozen bunches; Carrots (household), 3s. to 4s. per ton; do., cattle feeding, 2s. to 3s. do.; Parsnips, 4d. to 10d. per score; Mangels, 18s. to 22s. per ton; Swedes, 20s. to 22s. do.; Onions, Dutch, 9s. to 11s. per bag; Apples, English, 4s. to 6s. per bushel; do., foreign, 20s. to 30s. per drum; Watercress, 6d. per dozen bunches; Beet-roots, 4d. to 6d. per dozen; Rhubarb, 2s. 6d. to 3s. 6d. per dozen bundles; Brussels Sprouts, 3s. to 3s. 6d. per half sieve; herbs, 4s. per dozen bunches; salads, 2s. per dozen bunches; Carrots, 3s. per dozen bunches.

POTATOS.

COLUMBIA (East London): February 22.—Quotations:—Beauty of Hebron, 120s. to 140s.; Champions, 45s. to 60s.; Victorias, 50s. to 60s.; Regents, 60s. to 90s.; Magnums, 45s. to 70s. per ton.

STRATFORD: February 21.—Quotations:—Blacklands, 60s. to 55s.; Yorks, 55s. to 70s.; Lincolns, 60s. to 85s.; Scotch Regents, 70s. to 80s. per ton.

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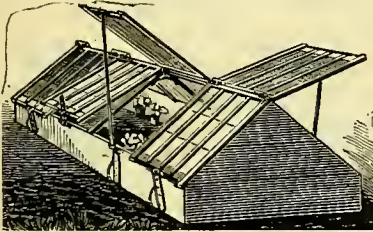
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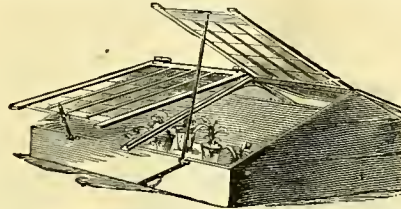
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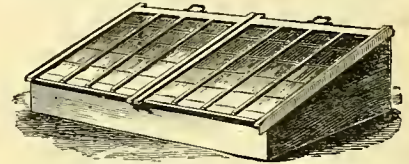


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3	" "	12 feet by 6 feet	...	6 5 0
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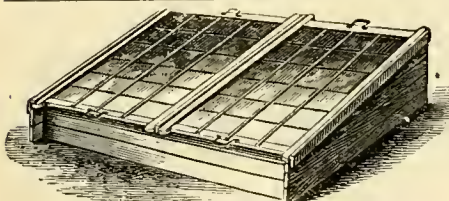
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CHEAPEST & BEST

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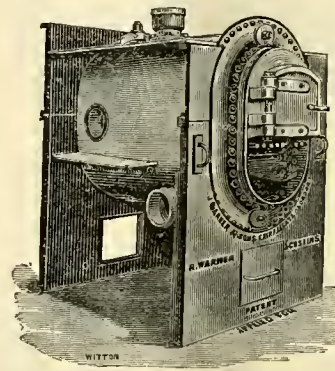
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For Greenhouses, Vineries, Conservatories, Forcing Houses, &c.



Advantages Equally applicable for Domestic or Warehouse Heating.

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Minimum Cost of Setting. Free Access to all Flues.

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No Night Watching required.

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Packages and packing free, and delivered to any London Station.

100 squares of Glass, quality guaranteed.

15 oz. 21 oz.
13½ by 8½ for 10/- for 14/- or 300 squares 15 ounce, 8 by 6, 12 " 9 " 11/- " 14/- or 250 squares 8½ by 6½, or 220 " 10 " 11/- " 15/6 " 19/- squares, 9½ by 6½, or 170 squares, 14 " 12 " 17/6 " 24/- 9 by 7½, or 150 squares, 10 by 8, 12 " 12 " 13/- " 20/- for 10s. Carriage paid for all orders 18 " 12 " 21/- " 31/- over £3. 20 " 12 " 24/- " 35/-

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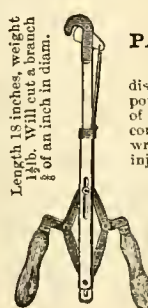
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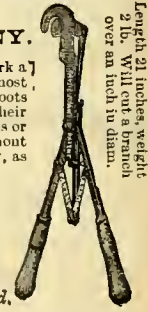
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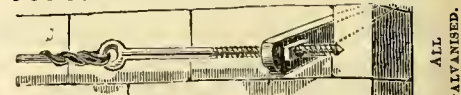
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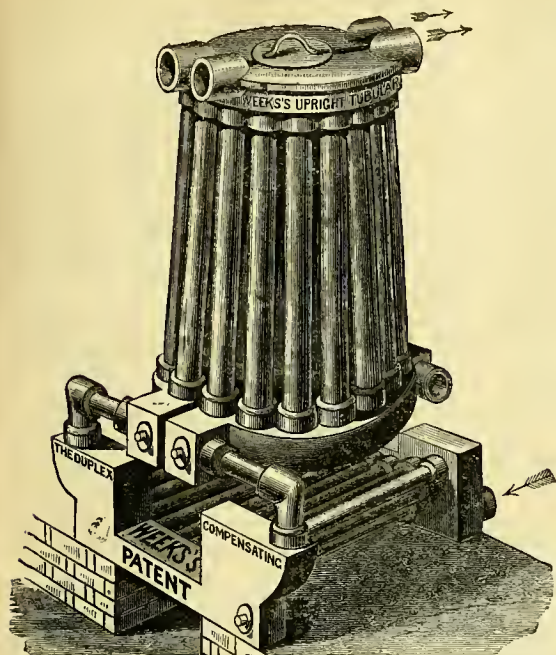
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Advertisements for the current week MUST reach the Office by
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Provide against them by Policy of the
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West End Office:—8, Grand Hotel Buildings, W.C.
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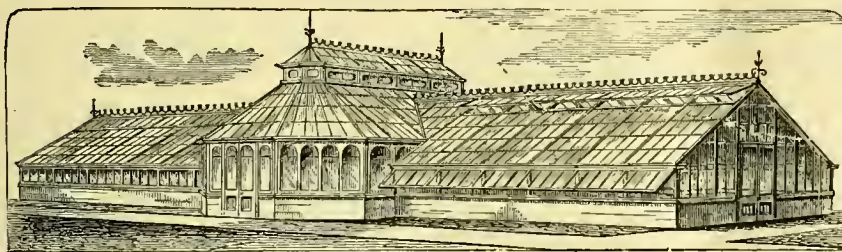
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Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the
perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work,
and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm,
from the smallest to the largest. Hot-water Heating Apparatus, with really reliable Boilers, erected, and success guaranteed
in all cases. Melon Frames, Sashes, Hotbed Boxes, &c., always in stock.

Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

USEFUL PRESENTS FROM IRELAND.

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Embroidered Handkerchiefs, from 1s. each.

Pretty FANCY BOXES, suitable for half-dozen or dozens of Handkerchiefs,
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Samples and Illustrated Price Lists, post-free.

FISH NAPKINS, 2s. 11d. per dozen. Dinner Napkins, 5s. 6d.
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of Germany,

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Best Quality Long Cloth, with 4 fold
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THE WORCESTER HERALD is the most effective organ for giving publicity to announcements of this class. It is the largest and leading Agricultural paper in the county, and circulates most extensively among Agriculturists in and around Worcestershire. Specimen copies free. Published Friday for Saturday, price 2d. Offices, 72, High Street, Worcester.

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LAND AGENTS, ESTATE MANAGERS, and all having Farms to Let, would do well to Advertise in **THE WORCESTER HERALD**, the Largest and Leading County Paper. Specially adapted for bringing such notices before Tenant Farmers. Large Circulation, moderate charge. Specimen free. Price 2d. Published Friday for Saturday. Offices, 72, High Street, Worcester.

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THE COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY REQUIRE an ASSISTANT SECRETARY. He would have to give the whole of his time to the Society and should possess a knowledge of Horticulture. Salary to commence at £200 per annum.—Applications should be sent in before March 6 to the SECRETARY, Royal Horticultural Society, South Kensington, S.W.

Gardeners.

WANTED, by a good Dutch Firm, respectable AGENTS for the SALE of HYACINTHS, TULIPS, and other FLOWER ROOTS to Private Persons in London, and all Towns of Great Britain. High commission. Good opportunity for energetic men who have some knowledge of Bulbs, &c.—Apply, in first instance by letter, with full particulars and references to B., 28, Great Tower Street, London, E.C.

WANTED, a steady Practical GARDENER (help given), for country residence in Cambridgeshire. Married, without encumbrance (or only one); not over 40. Must thoroughly understand his work, and have at least two years' reference from present employer. Wages £1 2s., with small lodge.—Apply by letter only, R., Kelly's Library, Vigo Street, Regent Street, London, W.

WANTED, a good all-round WORKING GARDENER. Man and boy kept. Wages 25s. and good house. First-class references required.—St. Thomas's Nursery, Exeter.

WANTED, a PROPAGATOR, well up in Cut Flower Business for Market.—EDWARD CARR, Nurseryman, Aughton Road, Birkdale, Southport.

Propagator Wanted (Indoor).

WANTED, a steady and industrious Man as PROPAGATOR in the Houses, and occasionally to act as Salesman. Must be a successful Grower of Clematis, Pot Roses, and Soft-wooded Stuff.—Apply, stating age, where last employed, wages expected, &c., to JNO. JEFFERIES and SONS, Cirencester.

WANTED, a WORKING FOREMAN, to take charge of Market Nursery—one who has made a study of producing Cucumbers and Tomatoes in quantity.—Apply, stating age, wages required, experience, and references, to A. M., Rosery, Ponder's End.

MR. BARHAM, Croxteth, Liverpool, is in WANT of TWO experienced active MEN, for Plant Department.—Apply with references, by letter only. Abstainers preferred.

MR. BARHAM, Croxteth, Liverpool, will be pleased to EXCHANGE a JOURNEYMAN with any Gardener in the South of England.—Apply for and with particulars.

WANTED, a young MAN, from a Market Nursery, who can Pot and Tie Plants for Market. Wages, 18s. per week.—T. PEATRIDGE, Park Road Nursery, Brentford, W.

WANTED, a young MAN, well up in Wreaths, Crosses, Bouquets, &c., and a General Plant Grower or Propagator, principally of Soft-wooded Stuff.—State wages and references to W. Troughton, Nurseryman and Florist, Preston.

WANTED, strong active LAD, from 17 to 20 years of age, to live in Rothy; willing to learn the General Routine of Gardening. Must be obliging and steady.—SLEIGHTHOLM, Gardener, Burntwood, Brierley, Barnsley.

WANTED, THREE APPRENTICES to the General Market Nursery Business on the 3, 5, or 7 years' system.—Terms and particulars to FLETCHER, SON AND CO., Nurserymen, Seedsmen, and Florists, Chesterfield.

WANTED, AT ONCE, for the season, or permanently, One or TWO GENERAL CLERKS. Men who have been accustomed to the general routine of a Provincial Nursery or Seed Office preferred.—Apply, giving particulars of engagements, where last employed, age, and wages expected, to T. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

Seed and Plant Trade.

WANTED, a JUNIOR COUNTER HAND. One who can attend to Customers when required. State wages and references.—WM. CLIBRAN and SON, Oldfield Nursery, Altrincham.

GARDENING APPOINTMENTS.

Mr. DAVID GIBSON, for the past four years under Mr. ALEX. BOWIE, Forester, Drumlochy Castle, Fordoun, N.B., has been appointed Forester and Land Steward to Lord GAMMELL, Countess Wells, Aberdeenshire.

Mr. ALFRED MYSON has been appointed as Head Gardener to Sir WILLIAM CLAYTON, Bart., Harlyford, Great Marlow.

Mr. R. TITTERINGTON, late Foreman at Dallam Tower Gardens, Milnthorpe, Westmoreland, has been appointed Head Gardener to H. T. WELSH, Esq., Leek Hall, Kirkby Lonsdale, in the same county, in room of Mr. F. B. BROOKES, deceased.

Mr. FREDERICK H. BENEY, late Foreman at Locko Park Gardens, near Derby, has been appointed Head Gardener to the Lady MARY CURRIE, Clewer Hill House, Windsor.

Mr. G. W. LUCAS, late Head Gardener to CHARLES LIDDELL, Esq., Peasmarsh Place, Sussex, has been appointed as Head Gardener to SYDNEY COURTAULD, Esq., Bocking Place, Braintree, Essex.

WANT PLACES.

NOTICE TO ADVERTISERS.—In many instances Remittances in Payment of Repeat Advertisements are received without name, address, or anything beyond the postmark on envelope by which to identify the sender; this in all cases causes a very great deal of trouble, and frequently the sender cannot be identified at all. Advertisers are requested when Remitting to give their Names and Addresses, and also a Reference to the Advertisement which they wish repeated.

Letters addressed "Poste Restante" to initials or to fictitious names are not forwarded, but are at once returned to the writers.

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N.B.—The best and safest means of Remitting is by POST-OFFICE ORDER.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be glad to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

WANTED, A GARDENER!!!—Having had long experience and an extensive connection we are in a position to RECOMMEND MEN thoroughly capable of filling with credit any situation in the Gardening World. On receipt of full particulars we will recommend a suitable Man. Correspondence invited.—R. B. LAIRD and SONS, Successors to Downie & Laird, Seed Merchants, Edinburgh.

To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS.

JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

SCOTCH GARDENERS.—JOHN DOWIE (of the late firm of Downie & Laird), Seedsmen, 144, Prince Street, Edinburgh, has at present on his List a number of SCOTCH GARDENERS, waiting engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

ORCHID GROWER and GARDENER (WORKING).—J. EARL will be pleased to recommend a man as above. Good experience and excellent character.—Nellestone, Ryde, Isle of Wight.

GARDENER (HEAD), where three or more are kept.—Age 28, married; twelve years' good practical experience. Three and a half years in present situation as Second.—F. WOODS, Hurstside, West Molesey, Surrey.

GARDENER (HEAD), where two or three are kept; age 34, married.—Mr. BIGGS, Garnstone, Webley, Herefordshire, will be pleased to recommend G. Messenger, as above.

GARDENER (HEAD).—Married, no family; thoroughly practical man. Used to Management of Large Gardens, extensive Houses, and Large Staff of Men. Can be highly recommended.—W. T., Failand Hill, near Clifton, Bristol.

GARDENER (HEAD).—Age 32; eighteen years' experience in Early and Late Forcing of Fruits, Flowers, and Vegetables; also Flower and Kitchen Gardens. Excellent character and testimonials. Charles Arthur Tolley.—Apply, Mr. CYFHER, Exotic Nursery, Cheltenham.

GARDENER (HEAD); age 35, Scotch.—J. McPHAIL, for the last ten years Head Gardener to Colonel Cooper, at Markree Castle, Callooney, will shortly be discharged. Highest testimonials, and Col. Cooper kindly allows reference.

GARDENER (HEAD), where two or three are kept; age 29, single.—J. AMYS, Gardener to the Hon. Mrs. Eliot York, Hamble Cliff, Southampton, can with confidence recommend his Foreman (G. Dovey) as above. Disengaged by the end of March.

GARDENER (HEAD); age 32.—W. T. SCARTH, Esq., Raby Castle, Darlington, Durham, will be glad to recommend James Tullett, who is at present Foreman at Raby Castle Gardens, to any Lady or Gentleman requiring a thoroughly practical good Gardener, first-class Fruit Grower and Plantsman.

GARDENER (HEAD); no incumbrance.—Mr. W. BISHOP, late Gardener to the late Sir E. Jodrell, Bart., and many years at Blytham Park, will be pleased to treat with any Lady or Gentleman requiring the services of a first-class all-round Gardener. HEAD GARDENER, The Grove, Teddington; or, HEAD GARDENER, Wesley Hall, Bury St. Edmunds.

GARDENER (HEAD); age 36, abstainer.—General NEWDEGATE, of Arbury Hall, Nuneaton, Warwickshire, will be pleased to recommend his Head Gardener, C. Marshall, to any Lady, Nobleman, or Gentleman requiring the services of a thoroughly practical man. Four years in present situation; six and a half years previous as Head. Leaving entirely owing to an alteration in the establishment.—Please address as above.

GARDENER (HEAD); age 33, married, no family.—W. J. IRELAND, late of Nostell Priory, and previously with the Marquis of Headfort, is open for re-engagement. Thoroughly conversant with all matters relative to Horticulture. Protestant. Strong and healthy, and not afraid of exerting himself. Left at own request. Testimonials of the highest order for character and ability.—14A, Upper Winchester Road, Catford, S.E.

GARDENER (HEAD WORKING).—Age 27, single; practical and experienced in all branches of Gardening. Good references. Abstainer.—H. RICHARDS, 11, Railway Cottages, Falmouth.

GARDENER (HEAD WORKING).—Age 36, married; twenty-three years' sound practical experience in every branch of the profession.—HAROLD, Mr. Myatt, Weston Heath, Newport, Salop.

GARDENER (HEAD WORKING).—Experienced in all branches. North or South. Six and a half years in present and nine in last situation.—GARDENER, The Manor House, Colliers Wood, Lower Tooting, S.W.

GARDENER (HEAD WORKING).—Age 26, single; would not object to a small place if comfortable. Good character, and steady man.—J. FORBES, 24, College Street, Putney, S.W.

GARDENER (HEAD WORKING).—Age 47, married, no family; thirty years' practical experience. Head Gardener twenty-two years. Three years' good character from present place. Lodge or cottage preferred.—W. B., Riverside, Palace Road, East Molesey.

GARDENER (HEAD WORKING).—Age 35, married; twenty years' practical experience in all branches of the profession in good establishments in England and Scotland. Five years' good character.—JOHN FINLAYSON, Farnham Royal, Slough, Bucks.

GARDENER (HEAD WORKING).—Age 31, married.—Mr. MITCHELL, Head Gardener to the Right Hon. Lord Wenlock, Eskrick Park, York, wishes to recommend his General Foreman, George Taylor, as above, to any Lady or Gentleman requiring the services of a thoroughly practical Gardener.

GARDENER (HEAD WORKING); age 28.—Mr. LINDSEY will be glad to recommend his Foreman, Frederick Kerr, as above; well experienced in Fruit Growing and Forcing, Plant Growing, Cut Flower Decoration, and the General Routine of good Outdoor Gardening. Four years' good character.—The Gardens, Hamtraye Park, Burnley, Lancs.

GARDENER (HEAD WORKING), where not less than three are kept; age 25.—G. GOLDSMITH, The Gardens, Flore House, Weedon, will be pleased to recommend Alfred Nightingale to any Lady or Gentleman requiring a thoroughly energetic man. Has lived with him two and a half years. Seven years' good character from present employer.

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HIS ROYAL HIGHNESS THE PRINCE OF WALES,
THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.



Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "Journal of Horticulture," of June 9, says:—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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SILENS MESSOR MOWER, with Improved Steel Chains and Handles.



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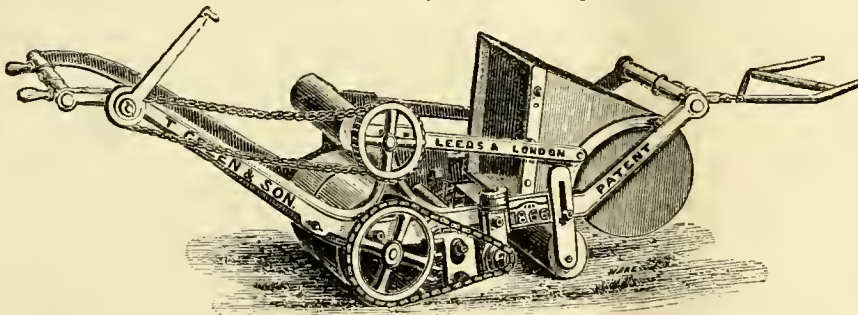
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To cut 6 in., can be worked by a Lady ...	£1 15 0
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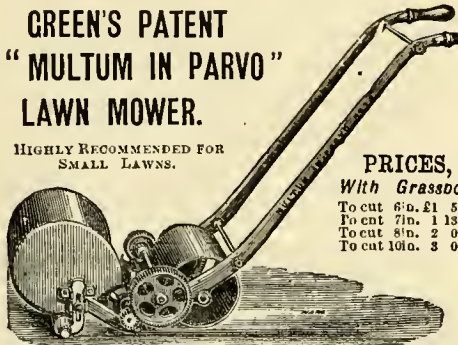
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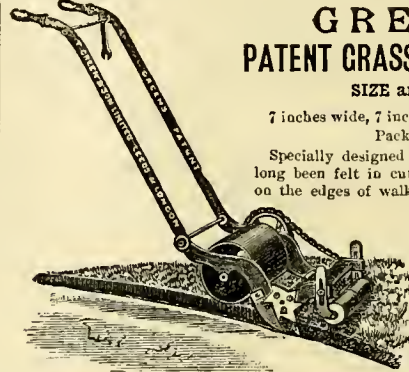
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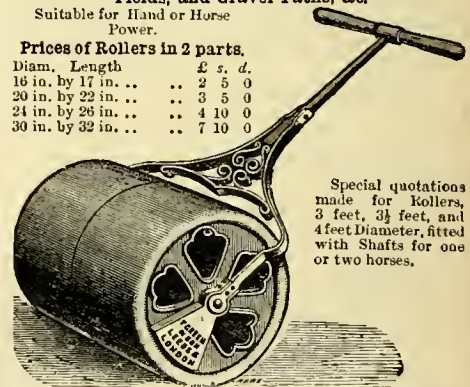
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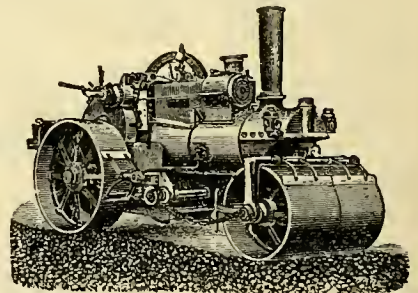


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The GARDENERS' CHRONICLE

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NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

CRYSTAL PALACE

HORTICULTURAL AND FLORICULTURAL SHOWS during 1888:—

EXHIBITION OF SPRING FLOWERS, SATURDAY, March 24.
GREAT SUMMER FLOWER SHOW, SATURDAY, May 12.
NATIONAL ROSE SOCIETY'S EXHIBITION, SATURDAY, July 7.
NATIONAL CO-OPERATIVE FLOWER SHOW, SATURDAY, August 18.
GREAT FRUIT EXHIBITION with the GRAND NATIONAL DAHLIA SOCIETY'S SHOW, FRIDAY and SATURDAY, September 7 and 8.
GREAT AUTUMN FRUIT SHOW, THURSDAY, FRIDAY, and SATURDAY, October 11 to 13.
GRAND CHRYSANTHEMUM EXHIBITION, FRIDAY, and SATURDAY, November 9 and 10.
Schedule of Prizes, Rules, and Regulations, and Entry Forms may be obtained on application to
Mr. W. G. HEAD, Superintendent of Gardens, Crystal Palace, S.E.
Entries for SPRING EXHIBITION OF PLANTS and FLOWERS Close on March 24.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of Manchester.
The FIRST SPRING FLOWER SHOW of the present year will be held in the Town Hall, Manchester, on TUESDAY, the 20th inst.
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Putney Park Lane, Putney; and 129 and 130, Stands, Covent Garden Market, W.C.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

SQUELCH AND BARNHAM, North Row, Covent Garden, W.C., are OPEN TO DISPOSE of any quantity of MUSCATS and BLACK GRAPES, TOMATOS, CUCUMBERS, FRENCH BEANS, STRAWBERRIES, CHOICE FLOWERS, &c. Highest Market Prices obtained. Account Sales daily; Cheques weekly or as preferred by Sender. Baskets and Labels supplied. References given.

W. G. T. GOULD, FLOWER COMMISSION AGENT, Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity, and to buy, cash to be sent with order. Highest Market Prices obtained. Remittances forwarded daily or weekly as desired.
23, Broad Court, Covent Garden, W.C.

WANTED, GERANIUM CUTTINGS, rooted or otherwise, in large or small quantities.—State sorts and price to **BARRACK'S Floral Depot**, Kendal.

WANTED, GERANIUM CUTTINGS of Vesuvius, May Queen, Flower of Spring, Jacoby, and Bronze. Send prices per 100 or 1000 to **BOURNE AND UNDERWOOD**, The Nurseries, Camden Road, London, N.W.

WANTED, Rough or Shabby ASPIDISTRA LURIDA VARIEGATA, for stock plants, in large or small quantities.—State lowest price to **J. W. SILVER**, Streatham and Norbury Nurseries, S.W.

WANTED, large or small Plants of ASPIDISTRA VARIEGATA IN EXCHANGE for SHOW PELARGONIUMS, or very fine CAMELLIA FIMBRATA, 9 feet high, and 5 feet through, in tub; or for cash.
TURNER BROS., Nurserymen, Greenhill Nursery, Allerton, Liverpool.

WANTED, a few Cwts. of 1-yr. pitted HAWES and HOLLY BERRIES. Also yearling PEAR, APPLE and PLUM STOCKS. Send Samples to **T. L. MAYOS**, Highfield Nurseries, Hereford.

SPECIAL CHEAP OFFER of THE GOLDEN-RAYED LILY.

DIRECT FROM THE JAPANESE LILY FARMS.

CARTERS' LAST CONSIGNMENTS of the GOLDEN-RAYED LILY of JAPAN, LILIUM AURATUM, have just arrived.

Selected Bulbs of this charming hardy Lily are obtainable at the following low prices, direct from the Importers, plump and sound as English-grown Roots. Prices, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen, carriage free.

Cases as imported, containing 100 choice Bulbs, price 40s.; sent free to any railway station in England and Wales, on receipt of cheque or P.O.O.

CARTERS', Royal Seedsman by Sealed Warrants, 237 and 238, HIGH HOLBORN, LONDON, W.C.

The Best Present for a Gardener. VINES and VINE CULTURE.

The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 6s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.
TREES and SHRUBS for the SEA COAST. CATALOGUE Free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

EUONYMUS.—20,000: all nice bushy well grown specimens, 9 to 30 inches, 15s. to 27 per 100; about 150 large ones, 3s. 6d. to 5s. each.
J. J. CLARK, Goldstone Farm, West Brighton.

GLADIOLUS.—The very best in cultivation, as well as the best leading varieties. Descriptive LIST Free on application.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

ADIANTUM CUNEATUM.—An immense stock of strong Plants, in thumbs and 5-inch pots, at 20s. and 50s. per 100 respectively, package included. Terms cash with order.
WM. MITCHELL, Broadlands, Enfield Highway.

Lælia Gouldiana.
GEO. MARRIOTT can supply nice Plants of this new and beautiful LÆLIA, at 21s. each; larger Plants, 42s. and 63s.
Exotic Nursery, Upper Edmonton.

Special Offer.
POTUGAL LAUREL, 1 to 2 feet, very bushy and stout. Price, per 100 or 1000, on application. Samples if required.
Apply to **GRAY AND SONS**, Brax Nursery, Chertsey.

CELOGYNE CRISTATA, with bloom-spikes; well grown, and very cheap.
TRUSTEES of the late **J. STEVENSON**, Timperley, Cheshire.

FOR SALE, Five very fine ORANGE TREES, in tubs. Apply
T. D. CLARKE, Estate Agent, 8, York Street, Bath.

VICTORIA PLUMS, fine Trained, 2s. each; Standards of sorts, from 10s. per dozen. Irish IVY, 3s. per dozen. Choicest Hardy FERNS, including Polystichum proliferum Henlyi, 4s. per dozen.
Apply, **T. L. MAYOS**, Highfield Nurseries, Hereford.

Vines.
PAUL AND SON, The "Old" Nurseries, Cheshunt, have still a fine stock of well-ripened Canes of extra quality. LIST on application.

W. H. LASCELLES AND CO., HORTICULTURAL BUILDERS, 121, BUNHILL ROW, LONDON, E.C. Plans and Estimates Free. See large Advertisement on p. 262.

SALES BY AUCTION.

Tuesday Next.

CAMELLIAS, AZALEAS, Standard and Dwarf ROSES, FRUIT TREES, Hardy EVERGREENS, PALMS, FERNS, LILIES, &c., in choice assortments.

MESSRS. PROTHEROE AND MORRIS will sell the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 6, at half-past 12 o'clock precisely.

Catalogues had at the Rooms: or of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

Wednesday Next.

6,000 LILIUM AURATUM, splendid Bulbs, from Japan. 35,000 SEEDS of COCOS WEDDELLIANA, from Brazil. These Seeds were to have been sold on Wednesday last, but did not arrive; they have now been received, and are in the best possible condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE at their Rooms, on WEDNESDAY NEXT, March 7.

On view morning of Sale, and Catalogues had.

Every Wednesday and Saturday.

SALES of STANDARD and DWARF ROSES, GREENHOUSE PLANTS, and PALMS; LILIUM AURATUM from Japan; an extensive assortment of ENGLISH-GROWN LILIES, including most of the principal varieties; TUBEROSES, SPIRÆAS, GLADIOLUS, HERBACEOUS PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at their Central Sale Room, 67 and 68, Cheapside, London, E.C., every WEDNESDAY and SATURDAY, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Upton.

BY ORDER OF THE MORTGAGEES.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Tokenhouse Yard, City, on THURSDAY, March 8, at 2 o'clock precisely, a compact Freehold MARKET NURSERY, known as the Boleyn Nursery, Boleyn Road, Upton, established for many years, containing an area of about three-quarters of an acre of Land, with eleven substantially built Greenhouses, all span-roof, efficiently heated with Hot-water, three Pits, Potting-shed, and Stabling; the whole in good working order, and ready for immediate occupation.

At the same time the adjoining LAND will be LET by AUCTION in Ten Lots, for the Erection of Shops. May be viewed. Particulars and Conditions of Sale may be had on the Premises, at The Mart, of Messrs. BOLTON, ROBERTS, BASKE, AND CO., Solicitors, 45, Lincoln's Inn Fields, W.C.; and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

Crouch End.—Short Notice.

CLEARANCE SALE, this portion of the land being sold for building. To Gentlemen, Builders, Gardeners, and others.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises, the Station Nursery, Crouch End, N., on FRIDAY, March 9, at 1 o'clock precisely, by order of Mr. G. Craig, without reserve, a large quantity of well grown NURSERY STOCK, consisting of Poplars of sorts, Chestnuts, Laurels, Evergreen and Deciduous Shrubs in variety, &c.

On view two days prior to Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ESTABLISHED AND IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 9, at half-past 12 o'clock precisely, a large quantity of imported DENDROBIUMS, in variety; specimen established plants of COELOGYNE CRISTATA, 300 established plants of ODONTOGLOSSUM ALEXANDRE, from a well-known private collection, and a choice assortment of well-grown Established ORCHIDS.

On view morning of Sale, and Catalogues had.

Sale of Nursery Stock, Greenhouse and Stove Plants, from Sample.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of the above will take place on WEDNESDAY, March 14, for which they will be glad to receive Entries by Wednesday next.

Established Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, March 16, at half-past 12 o'clock precisely, a very fine lot of ESTABLISHED ORCHIDS, containing plants in excellent health, among them many rare and fine species.

Oncidium incurvum album, with spike.
Coeologyne Dayana, splendid specimen.
Vanda Sanderiana, grand specimen.
Lælia Gouldiana, true.
*Cypripedium Arthuri*anum.
Odontoglossum Schroderianum.
Dendrobium nobile Cooksoni.
" *Leechianum*.
Trichopilia suavis alba.
" *lepidia*.
Ratemania Rutili.
Masdevallia hieroglyphica.
Cymbidium macrocarpum.
Zygopetalum Murrayanum.
" *crinitum* nigrum.
Lycaste macrospora, unique specimen.
" *Denningsiana*.
Angraecum Sandarionum.
" *Du Boyssoni*.
Cattleya Fearnleyana, new.
" *Matthewsiana*, new.
Masdevallia cupularis.
Cypripedium cardinale.
Masdevallia Gelingeanum.

The following *Cypripediums* are from the collection of Norman C. Cookson, Esq.:

Cypripedium albo purpureum
" *cantharus* superbum
" *plumosum*
" *Harrisianum* superbum
" *Cypripedium eurycandrum*
" *selligerum* majus
" *Schroderum*
" *microchilum*

And many other choice kinds.

On view morning of Sale, and Catalogues had.

Orchids in Flower, Tuesday, March 27.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in Flower will take place as above, for which they will be glad to RECEIVE NOTICE of ENTRIES in due course.

Wednesday Next.—(Sale No. 7632.)

Pyramid and Dwarf-trained FRUIT TREES to name; Hardy ORNAMENTAL SHRUBS and CONIFERS; CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, and other BORDER PLANTS; Dwarf ROSES, LILY of the VALLEY Clumps, SPIRÆA PALMATA, S. JAPONICA, home grown LILIES, GLADIOLI, &c.

MR. J. C. STEVENS will sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 7, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7633.)

400 fine Established ODONTOGLOSSUM ALEXANDRE and others, mostly strong unflowered Plants; also a small importation of O. CRISPUM of the finest forms, collected by Mr. G. Kalbreyer, of Bogota, to be sold on sticks, as imported.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 8, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7633.)

10,000 grand Bulbs of LILIUM AURATUM, from Japan; 3000 fine Pearl TUBEROSES, from America, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 8, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7633.)

ARUNDINA BAMBUSÆFOLIA.
ONCIDIUM CÆSIUM, true.
1000 BURMESE DENDROBES.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, March 8, at half-past 12 o'clock precisely, a splendid importation, just arrived, of the rare and beautiful ARUNDINA BAMBUSÆFOLIA; its large and brilliant blossoms are produced during the autumn months several together on a spike; sepals and petals magenta-rose, lip rich rose, with orange lines on each side of its white throat. Also a few plants will be offered of the scarce ONCIDIUM CÆSIUM in masses, with large and fine-looking bulbs, together with quantities of BURMESE DENDROBES, comprising, amongst others, D. Wardianum, D. thysiflorum, D. crassinode, D. devonianum, D. primum, D. giganteum, D. hedyasum, D. crystallinum, D. Falconeri, D. chrysotoxum; large masses of MEXICAN LÆLIAS, including L. autumnalis, L. majalis, L. anceps, white; EPIDENDRUMS, ONCIDIUMS, and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 15, at half-past 12 o'clock precisely, and he will be glad if gentlemen desirous of entering plants for this Sale will send list not later than Thursday next.

The Valuable Collection of Orchids formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest, the whole in the finest possible condition.

Dates and further particulars will be duly announced in future Advertisements.

Manchester.

IMPORTANT SALE of a large and grand collection of splendid EXHIBITION SPECIMEN PLANTS, which have taken prizes at the leading shows around Manchester for a number of years, comprising over 400 rare and Valuable Orchids, remarkably fine varieties of the respective sorts, purchased especially when in flower by the late Mr. Schloss, or collected by him on his travels, and includes one importation of 300 *Peristeria elata*, the lovely "Dove Plant;" eighty fine plants of *Sarracenia purpurea* and *Drummondii*; grand specimens of Palms, Cycads, and Anthuriums, from 3 to 12 feet each way. The Tree Ferns comprise some of the finest in the kingdom, beautiful symmetrical examples of *Dicksonia antarctica*, *D. fibrosa*, *D. squarrosa*; *Alsophila capensis*, *A. australis* Williams; *Cibotium princeps*, *C. regale*, with fine trunks, 2 to 6 feet, and well-furnished heads; *Gleichenia rupestris*, *G. r. glaucescens*, *G. Mendelii*, *G. spelunca*, *G. flabellata*, *G. dichotoma*, &c.; grand well-grown specimens, chiefly 6 to 8 feet across. Specimens for exhibition of Ornamental Foliage and Flowering Plants, Indian Azaleas, 4 to 6 feet each way; Greenhouse Rhododendrons, Ericas, Anthuriums, Eucharis, Bougainvilleas, &c.; also one Conservatory filled with Camellias, large double white and fimbriata, 6 to 9 feet specimens, with bushes of leading sorts, 3 to 6 feet; a number of good Official and Medicinal Plants, with the usual Bedding Plants, Garden Frames, Garden Tools and Pots, Large Glazed Pits for sewerage purposes, which form plant pedestals, &c.

MESSRS. ARTINGSTALL AND HIND respectfully announce the receipt of instructions from the Executors of Sigismund Schloss, Esq., deceased, to SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, March 7, 8, and 9, 1888, commencing each morning at 12 o'clock prompt, at Osborne Villa, St. Margaret's Road, Bowdon, Cheshire (14 minutes' walk from Altrincham Station, and 8 miles from Manchester; trains leave Oxford Road Station at 10.15 and 11.15, and Central Station at 10.30 and 11.35 A.M.) the entire COLLECTION of SPECIMEN and other VALUABLE PLANTS.

May be viewed from 10 to 4 o'clock on the Friday, Saturday, Monday, and Tuesday prior to Sale, when Catalogues may be had from the GARDENER; or now, together with further particulars, from the AUCTIONEERS, 45, Princess Street, Manchester.

Businesses for Sale by

MESSRS. PROTHEROE AND MORRIS.

London, E. To be LET or SOLD. Rent, £30. Small FREEHOLD NURSERY. Four Newly-built Greenhouses. Small Stock. (Folio 6572.)

London, W. Compact FLORIST'S BUSINESS. 1200 feet of Glass. Rent, £38. Lease, 12 years. Incoming about £350. (Folio 6574.)

London, W. Main Road. Good opening for beginners. Six GREENHOUSES, DWELLING-HOUSE. Rent only £53; reduced to £40 by reletting. Lease, 11 years. Incoming to immediate purchaser, £160. Splendid opportunity. (Folio 6573.)

Further particulars of either of above Businesses may be had of Messrs. PROTHEROE AND MORRIS, Estate Offices and Auction Rooms, 67 and 68, Cheapside, London, E.C. The folio should be mentioned in application.

FOR SALE, Small NURSERY, SEED and FLORIST'S BUSINESS, in first-rate jobbing locality. Price £100, but open to offer. Apply to E. D., 1, Minton Villas, Uxbridge Road, Ealing Dean.

TO BE SOLD, with Immediate Possession, the FREEHOLD of a Small, Compact, and Desirable Property, consisting of eight-roomed Dwelling in Grounds, five Plant-houses, Pits, &c., with Stock in and out, being an Old-established FLORIST'S BUSINESS. Within half an hour of Liverpool and Birkenhead Markets.

For full particulars apply Mr. ADE, Seedsman, Birkenhead.

Excellent Opening for Market Business.

TO LET or SELL, Immediate Possession, FAIRFIELD GARDENS, near Stockton-on-Tees. The Cottage, Glasshouses, and Garden contain nearly 9000 square yards.—Apply to LITTLE AND BALLANTYNE, Carlisle.

A Rare Opportunity.

TO BE LET, a good GARDEN, High Walls, well stocked with Fruit Trees and 7 Glasshouses. Guarantee required.

B. B., Mr. Brown, Seedsman, Chariot Street, Hull.

South of England.

LARGE GARDEN, 20 Acres, with Twenty Greenhouses and Vineries. £7000 has been spent on the property. Seven years' lease. Two cottages inclusive. £150 a year. ELDRIDGE, Portsmouth.

Florists and Seedsman, West Croydon.

TO BE LET, commanding corner PREMISES in main thoroughfare. Rent £100 per annum. For further particulars apply to ROBT. W. FULLER, MOON AND FULLER, Estate Agents, Croydon, S.E.

TO LET, near London, a HOUSE and about an Acre of LAND, with long Lease. First-class position for a Florist. About 1200 feet of Glass. Hot-water Apparatus, with Small Stock, at valuation or offer.—B. A., 5, Cross Street, Waterloo Road, London, S.E.

Enderby Strawberry Gardens near Leicester.

To Market Gardeners and Others.

TO BE LET, from Lady Day next, the above MARKET GARDENS, comprising good House with indoor Beer Licence, extensive Range of Greenhouse (30 yards long) in excellent repair, 13 acres of Orchards and Gardens well stocked with Fruit Trees of every description, and 10,000 Strawberry plants, &c. Enderby is about 5 miles from Leicester and within 1½ of Narborough Railway Station.

For further particulars apply to Mr. G. H. WADE, The Chace, near Loughborough.

TO LET, a Nobleman's fine Walled KITCHEN GARDEN, of 2 to 3 acres, with Four Vineries, Stove House, &c., and Gardener's Residence. Close to station and county town. About an hour from London, Brighton, and Portsmouth.

Address OWNER, care of Steel & Jones, Advertising Agents, Spring Gardens, S.W.

TO LET, in November next, 4 Acres of GARDEN, planted with Fruit Trees; five Greenhouses, with Hot-water; Grass Field, good House and Buildings.

G. ROE, or S. TAYLOR, Melton Road, Syston, Leicester.

SPITALFIELDS MARKET, NEW FLOWER MARKET.

To Growers.—A large building has just been completed in this Market for the Sale of Flowers, Tomatoes, and Grapes, &c. Growers can now choose their own Stands. The Market will be open all day. For particulars apply to

R. HORNER, Estate Office, Spitalfields Market.

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

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

THE ROCKS at BATTERSEA PARK,

said to be a true imitation of Nature but allowed to be overgrown, and the other so called good examples at HIGHNAM COURT and BEARWOOD.

recorded in this Journal recently, were all executed by

PULHAM AND SON,

BROXBORNE.

FOR SALE, Patents for England of "HYACINTH GLASSES, FLOWER POTS, STEEL RING for Wreaths.—Apply to J. C. SCHMIDT, Erfurt, Germany.

TO CAPITALISTS AND BUSINESS MEN.

The Advertiser (Potato merchant) requires the help of a good shrewd Business Man, with from £2000 to £5000 capital, to extend his present established Potato Trade. Minimum risk, as trade nearly all commission. Whole cargoes dealt with. Large profits. Particulars privately.

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

ORCHIDS.

LARGE IMPORTATIONS

ARE
CONSTANTLY BEING RECEIVED

BY

THE LIVERPOOL HORTICULTURAL CO.
(JOHN COWAN), Limited,

THE VINEYARD & NURSERIES,
GARSTON, near LIVERPOOL.

FULL PARTICULARS ON APPLICATION.

BLACKBERRIES—For Gardens—Fields—
Railway Banks, &c.—The most suitable variety for this
country is Vertegans' Best of All, 7s. per dozen; Wilson
Junior, 6s. per dozen. Home-grown; carriage and packing
free. For novelties not to be found in other Catalogues, see
Vertegans' Illustrated LIST of Specialties, post-free.

VERTEGANS, Chad Valley Nurseries, Birmingham.

SIMPLE INSTRUCTIONS by which anybody
anywhere may force and obtain a great quantity (lasting
until outdoor beds are in full bearing) of most excellent
ASPARAGUS at a very trifling expenditure of time or money.
Directions sent free to all applicants.

RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

STANDARD ACACIAS.—Common, fine trees,
good heads, clean stems, 6s., 9s., and 12s. per dozen.
RHODODENDRON and AZALEA PONTICA, well set with
buds, 1½ foot, bushy, 6s. per dozen.

IRISH IVIES, in pots, stalked, 5 to 6 feet, 9s. per dozen.
Package free for cash.

W. FROMOW AND SONS, Sutton Court Nursery, Chiswick, W.

500 BRILLIANT SCARLET GLADIOLI,
fine Bulbs, for Beds, Borders, or Massing for Autumn
Effect. Sent free on receipt of P.O.O. for 21s.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

Begonias a Specialty.

LAING'S BEGONIA SEED.—Awarded Four
Gold Medals. From Prize Plants. Unequalled quality.
Choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s.
per packet. Collections—Single, 12 named varieties, separate,
6s. 6d.; 6 ditto, 3s. Order direct from us, to procure the
genuine seed.

JOHN LAING AND SONS, Seedsmen, Forest Hill, S.E.

SEEDS.—RICHARD SMITH & Co., Worcester,
beg to draw attention to the Low Prices of individual
articles (Peas especially), and the liberality of the Collections
at Fixed Prices as set forth in their Illustrated SEED LIST,
which will be sent free on application. All Seeds, &c., are of
the best possible quality.

Wright's Prize Celeries. Sow Now.

WRIGHT'S GROVE RED, GROVE PINK,
GROVE WHITE, and GIANT WHITE CELERIES.
Per packet, 1s. (the 4 varieties, 3s.)

W. WRIGHT, Seedsmen, Retford, Notts.

OWEN'S "IMPERIAL" BEGONIAS.—New
and distinct strain. Awarded many Certificates and
Prizes. The finest strain in the world, possessing a greater
variety of colour than any other strain, the result of fifteen
years' labour. Dwarf vigorous habit, flower-stems erect,
blooms of great size and substance with every shade of colour
found in Begonias. Tubers, single, extra for pots, 6s., 9s., 12s.,
18s., and 24s. per dozen; Double, 12s., 18s., 24s., and 30s. per
dozen. Mixed Singles, 4s., 6s., and 9s. per dozen. Extra large
tubers, for specimens, 12s., 15s., and 20s. per dozen. Seed,
Single or Double, 1s., 1s. 6d., and 2s. 6d. per packet. In
separate colours, same prices as above.

RORT. OWEN, Floral Nurseries, Maidenhead.

CREEPERS FOR WALLS.—By planting
what is suitable, an ugly object may easily be made
beautiful. Descriptive LIST and advice free.

RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

To the Trade

SEED POTATOS.

H. AND F. SHARPE will be pleased to make
special offers of their carefully selected stocks of
SEED POTATOS, raised on their own farms expressly for seed
purposes. Seed Growing Establishment, Wisbech.

GRAPE VINES, most excellent Canes, best
varieties, 3s. 6d., 5s., 7s. 6d. Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

CORNER'S SWEDE.—For Sale, about 250
Bushels, 1887 growth. Noted prize-taker, and the finest
early Swede in cultivation, both as regards quality and quantity.
The stock offered has been carefully selected for many years by
advertiser.

Address SWEDE SEED, 6, Victoria Street, Bristol.

PRIMROSES.—Twelve distinct varieties of
Double Primroses, one flowering plant of each, Carriage
free for 8s.

The common varieties of Double Lilac, Double White, and
Double Yellow, 2s. per dozen.

PRIMULAS.—Fifty distinct varieties of
Primula, one flowering plant of each, for 25s.

Catalogues of names free on application.

MORRISON BROTHERS, Nurseries, Aberdeen.

THE FINEST MAIN CROP POTATO.

**SHARPE'S
DUKE OF ALBANY.**

A WHITE BEAUTY OF HEBRON.

2s. 6d. per Stone.

A REMARKABLY HEAVY CROPPER.

HANDSOME, ROUNDISH, ROUGH-SKINNED TUBER.
COOKS DRY and FLOURY.

FLESH, WHITE; SHAPE, PERFECT; EYES, FLAT.
SEASON from JULY to MARCH.

CHARLES SHARPE & CO., SLEAFORD.

CATALOGUES POST-FREE.

ORCHIDS.

An Immense Stock of recently imported plants compels a
sale of the established plants to make room. These have not
yet flowered, but are all flowering plants, and must be sold at
a great sacrifice. Very valuable varieties are certainly to be
obtained and great bargains. See public Journals for high
prices recently obtained. The Special Offer affords a paying
investment to anyone with glass at command, which should
not be overlooked; such plants may never again be offered to
the public and the trade.

Lilium auratum.—Eighth arrival of 10,000 Bulbs, the best
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THE FIRST ELECTION OF SIX CHIL-
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Allowance of Five Shillings per Week (subject to the conditions
stated in Rule XIII.), will take place on FRIDAY, July 13
next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form,
copies of which may be obtained gratis of the Hon. Secretary,
or of any of the Local Secretaries. Such form must be correctly
filled up, duly signed, and returned to this Office not later than
Monday, 23rd day of April next. A. F. BARRON, Hon. Sec.,
Royal Horticultural Society's Gardens, Chiswick.

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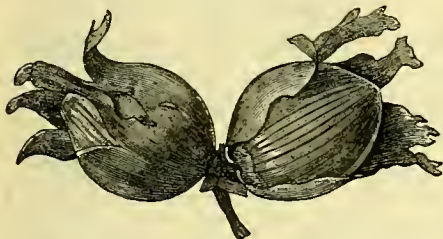
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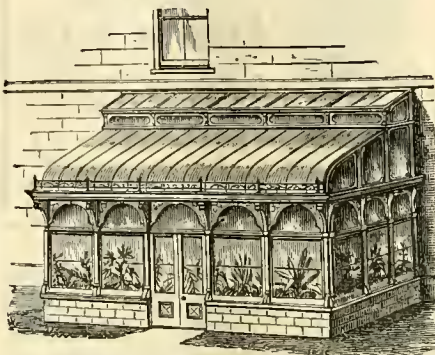
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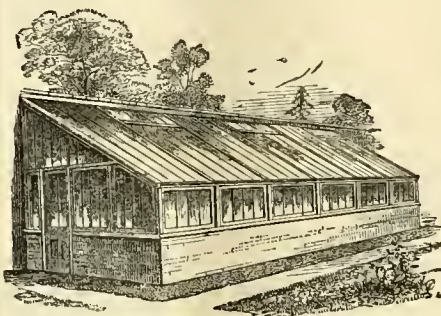
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The present season's edition of this Catalogue has been prepared with an unusual amount of care, and contains almost every known Hardy Perennial of really sterling worth, either as a plant adapted specially for cutting, or as a decorative subject in pots, in the borders, or in beds, and must certainly be admitted to be the most complete Catalogue of Perennials ever published. It is embellished with a number of thoroughly well executed engravings representing many of the specially meritorious and new plants: several of the engravings have been expressly prepared for the work in question. It also contains very complete collections of

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GAILLARDIAS, SUNFLOWERS,
POPPIES, IRIS, LILIES,
BAMBOOS, ETC.,
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are grown at Tottenham upon a most extensive scale. My sales of this section reach prodigious proportions. Large quantities of Ampelopsis, Jasmines, Clematis, Wistarias, &c., are grown.

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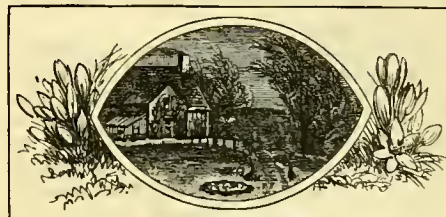
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 3, 1888.

WINDOW GARDENING.

THERE are probably no small gardens that afford the same amount of pleasure as the several sorts of window garden, from the single pot with its one Pelargonium, or the Hyacinth in a blacking-bottle—for we have seen such things in courts and alleys—or the plain deal box full of hardy plants, to the most costly Fern case and window greenhouse. A garden of some sort or other, from one pot upwards, as observed just now, has found a site in every street in our great metropolis, not excepting those in the humblest quarters.

In fact window gardening has made great advances in recent years, and flower shows for the exhibition of plants grown in such gardens have been greatly encouraged in all parts of the country. One of the best known of exhibitions of this kind was that held annually in the College Garden at Westminster, where its founder, the late Dean Stanley, or the late philanthropic Lord Shaftesbury, or some other friend of the poor, used to distribute the numerous prizes. But there are other shows in London which owe their annual display solely to an assemblage of plants which are grown by humble folk in gardens frequently not exceeding 2 feet wide, and which are situated, in many cases, several storeys above the ground. Another fact connected with window gardens is that their great extension in recent years has multiplied the number of readers of garden literature a hundred-fold, so that a class of papers which were at one time only read in the country are now largely in demand in towns as well.

The kind of house decoration we desire to recommend has, in fact, become universal, not only in England, but throughout Europe and the United States. The windows of Paris present, probably, such a show of foliage plants and flowers as no other city can exhibit; chosen and arranged, too, with such good taste as no other nation but the French possesses. In his capital book on *Domestic Floriculture*, Mr. Burbidge has mentioned among the favourites for window

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gardening in Paris and in the towns on the other side of the Rhine as well, Palms, Dracænas, Cyperus, Myoporum, Cobæa scandens, Ferns, Selaginellas, Ficus, Virginian Creeper, the common Oleander, and Ivy. The list might be enlarged, of course, tenfold without exhausting the resources of the windows of Paris, or those of our own West End squares, or of such thoroughfares as Piccadilly and Park Lane. It seems desirable to mention the names of a few, at least, of the most desirable window garden plants, because everyone is liable to forget the component parts of a beautiful array of plants, though the general effect may be still pictured in the memory; but I would not recommend beginners to commence with elaborate window gardening, or with the cultivation of difficult subjects.

In an old farmhouse half hidden by its creepers—Ivy, Roses, Jasmine, Wistaria, and others—two parlour windows are noted in the neighbourhood for their very pretty display of flowers. The climbers are a sufficient ornament outside the windows as the flowers are within. The pots are placed level with the window-sill, 2 feet from the floor, in a wire trough, supported by wire legs—the whole forming an ornamental stand, painted green. The flowers are changed occasionally throughout the year, and they include among the summer favourites Mignonette, Musk, Mimulus, Pelargoniums, Fuchsias, Violets, Tropæolums, Cyclamens, and Balsams. Two common Arums (Richardias) of uncommon size, 5 feet high, and producing numerous large flowers, stand on the floor. I must not forget the Ferns. There is a fernery in the garden filled with the native sorts of Surrey, including the Moonwort from the neighbouring downs; various small Trichomanes, Wall Rue, and big plants of well-grown specimens of Scolopendrium vulgare, Polypody, and others, and some of these are always to be found indoors. I do not know any other dozen and a half of plants that are better grown, or that give more pleasure to those who tend them and watch their progress than those in the windows of this bright home in Surrey.

A word as to the plants just named. It must be understood that all these plants, except such indoor specimens as the Cyclamens, Pelargoniums, and Balsams, are always on the spot, growing to perfection in the very pretty flower garden hard by. There is always the garden to select from, and the favourites are brought on in pots and taken to the windows as required. With a garden in the background, therefore, this kind of window gardening is very much a matter of careful tending of well-grown specimens in pots, with saucers. Provided the colours of adjacent flowers are in harmony, you may remove to the window almost any plant you may fancy. This is perhaps the simplest form of window gardening. *H. E.*

NEW OR NOTEWORTHY PLANTS.

RODRIGUEZIA BUNGEROTHII, n. sp.*

This is a near ally of the old and well-known *Rodriguezia secunda*, H. B., Kth. It may be a little larger in all its parts, at least the abundant specimens provided make me think so. It has a very

* *Rodriguezia Bungerothii*, n. sp.—*Omnia Rodriguezie secundæ*, H. B. Kth., excepto racemo densiori; bracteæ densis bipectinatis; ovariis pedicellatis ascendentibus verrucosis; labelli dentibus lateralibus bene evolutis, lamina mediana cuneato obovato emarginata, baud multum dilatata, calcaris triangulo carnosio solido in basi, antice excavato, lamellis sensim-membranaceis a basi in medium utriusque uno pari altero anteposito; columna calva (11) utrinque bidentata. In Venezuela detexit egregius collector Bungeroth. *H. G. Rehb. f.*

dense inflorescence, with well-developed triangular bracts disposed in a bipectinate manner. The flowers are on one side of the inflorescence, and remind one of those of the just-named species. The stalked ovaries are verrucose! This is quite novel. The sepals and petals are the same as in *R. secunda*. Lip cuneate, with one tooth in front of the base on each side, cuneate, obovate, bilobed, with three membranaceous lamellæ on each side, one in front of the other. All those parts are purple in colour. The lip has a rather well-developed, solid, triangular descending spur, hollowed in front. Column quite naked (whereas it is very hairy in *Rodriguezia secunda* and *R. carnea*, and a little so in *Rodriguezia Stangeana*), white, with two teeth on each side of the top. It is a Venezuelan discovery of Mr. Bungeroth, introduced by Messrs. Linden (L'horticulture Internationale), of Brussels. *H. G. Rehb. f.*

CYPRIPEDIUM CALIGAREX n., *hyb.*, hort. Drewett.

Take a flower of *Cypripedium Dayanum*, give it the leaves of *Cypripedium venustum*, and you have nearly the plant raised by Mr. Drewett, Riding Mill-on-Tyne, Northumberland, between the dark *Cypripedium Dayanum* as the pollen giver, and *Cypripedium venustum*. The median sepal is that of *Cypripedium Dayanum*, whitish, with twenty-five green nerves. The lateral petals are shorter than the lip, narrow, whitish, with eleven nerves. Petals ligulate acute, bent down, ciliate, white, with a very few green nerves on the lower side, the same on the upper side at the very base. The greater part of the upper part is purple-mauve, with darker nerves. A very dark nerve separates the two halves. There are a few black spots at the base of the dark midnerve, and some (six) larger ones on the upper border towards the base. The plump lip is cinnamon coloured with an ochre border around the mouth. The involute side lobes of the nugsis have shining brown warts, and the area between them is covered with light brown spots. The staminode has two roundish side partitions and a small apiculus in the anterior sinus between them. There is an upright reticulation on it, but without any distinct colour. The bract is half as long as the green-stalked hairy ovary, with some rows of small dark spots. The peduncle is reddish-green, with very short hairs. The leaf is nearly like that of *Cypripedium venustum*, as already stated. *H. G. Rehb. f.*

ÆRANTHUS TRICHOPECTRON, n. sp.*

An exceedingly delicate *Æranthus*, introduced by Messrs. H. Low & Co., no doubt from Madagascar and which has just flowered. It is a very delicate, thing, as Mr. Hugh Low observes. The leaves are not rigid, but soft, linear, contracted at the apex, where it is bidentate, 5 inches long by $\frac{1}{2}$ inch in breadth. The solitary white flower has appeared in the axil of a median leaf. It has lanceolate-acute sepals, linear-acuminate petals, a broad lip, nearly cochoid at the base, acuminate at the top, with a long filiform spur, surpassing the length of the ovary five times. The flower, including the spur, is nearly 5 inches. *H. G. Rehb. f.*

CYPRIPEDIUM PATONINUM x, n. *hyb.*, hort. Drewett.

You might rack your brains at the sight of this flower, in considering the affinity with *Cypripedium venustum*, *pardianum*, and others. Do not do so. Look to the leaves. They are a span long, unequally bilobed at the top, nearly 2 inches broad, and at the base they have underneath a great number of small red spots and stripes, the remainder being simply green. The median sepal is oblong, blunt, light greenish, with a white border. The nerves are beautiful sepia-brown. There are transverse oblique sepia-brown nervilli at the top between three nerves, and

* *Æranthus trichoplectron*, n. sp.—*Tenuis*, caule humili; "ad quatuor pollices alto" (etiam altiore), foliis distichis linearibus apice contractis minute bidentatis mollibus; pedunculo unifloro (semper 2); sepalis basi acuminatis; tepalibus linearibus acutis, labello a latiori basi acuminato, calcaris filiformi ovarium pælicellatum quinque superante, pollinarii *Æranthi* sinceris *H. G. Rehb. f.*

some sepia-blackish round blotches at the very base on a yellow area. The lateral sepals form an oblong-acute whitish body, shorter than the lip, with two rows of a few brown spots. Petals ligulate, blunt-acute, broader at the top, a very little undulated on the upper border towards the base, a little ciliate, divided in two halves by a median longitudinal brown line. The upper part (on the developed flower as it stands) is of an elegant brown with a certain hue of purple; from the apex towards the middle the basilar part is light sulphur-coloured, with some larger and some smaller brown spots. The lower part is nearly of the same colour, but much lighter, and the inner part has fewer spots. The outside is very curious in the possession of a wide greenish-yellow disc and brown margins. The lip is rather slender, and comes near that of *C. venustum*, but the nerves are not prominent. It has an ochre-coloured inferior part where there is an ochre margin around the mouth. The whole flower looks as if varnished, and is beautiful. The staminode is very broad, with two teeth at the superior base in the middle, and three teeth in front. The outer teeth are forcipate, antrorse, and the median one is straight. The colour is ochre, with some green nervation. The green bract, with brown-purple spots at the base, is somewhat shorter than the stalked ovary, with stiff reddish hairs. The peduncle is greenish-ochre-coloured, with red hairs.

The pollen parent is *Cypripedium venustum* out of *Cypripedium Boxallii*. It was raised by Mr. Drewett O. Drewett, Riding Mill-on-Tyne, Northumberland. *H. G. Rehb. f.*

PONTHIEVA GRANDIFLORA, n. sp.*

Of the two or three species of *Ponthieva* in cultivation, *P. maculata*, Lindl., is the only one at all commonly seen, and that is more quaint than beautiful. But Mr. Lehmann, whose discoveries in the Andes of Columbia and Ecuador are well enough known to all Orchid growers, sends a beautiful coloured sketch and a specimen of a *Ponthieva* which is, without doubt, the finest known. On seeing the specimen I at once remembered that it was not new to me, and on looking in the British Museum collection I found that it had been obtained in Ecuador by Spruce, but it had never been named or described. It is, Mr. Lehmann tells us, an epiphyte on trees at 2600–2700 metres altitude in the Western Andes of Ecuador. One large leaf, broad ovate and acute, arises from a short stem, like that of a Lily of the Valley, but dull green, and, like the rest of the plant, it is covered with hairs; from the base of this rises the scape about 9 inches in length, bearing a raceme of from eight to ten large flowers, not only very curious in structure but beautifully coloured. The two lateral sepals are connate for most of their length, and form a bifid organ 1 inch long and three-quarters of an inch broad. It is white with a green patch at the base. The dorsal sepal is narrow and lanceolate. The petals, which, as in the rest of the genus, are so far adnate to the column, that they appear to arise from the top, are halbert-shaped, and curiously twisted, yellow, with Indian-red stripes. The lip is very small and fleshy, and also appears to be adnate to the column; it is also red.

We may hope ere long to have plants of this curious and beautiful species alive in Europe, and I feel sure it will be welcomed by those Orchid lovers who can admire an exquisite plant even if it is not

* *Ponthieva grandiflora*, n. sp.—Epiphytica: folium erectum ovatum acutum hispidum sex uncias longum, $1\frac{1}{2}$ unciam latum, inferae 2–3; vaginæ rufescentes hispidæ. Scape teres 9 uncialis, hispidus vagina singula supra folium. Racemus laxus 8–10 florus. Flores in genere maximi pulchri. Bractæ ovate quam pedicellis breviores $\frac{1}{2}$ unciales. Ovarium gracile hispidum unciale. Sepala lateralia pro majore parte connata, apicibus excurvis alba, basis viridia, late oblonga, unciam longa $1\frac{1}{2}$ unciam lata, minute pubescentia. Sepalum posticum lanceolatum lineare angustum, $\frac{1}{2}$ unciam longum. Petala columna basi adnata unguiculata, lamina longe triangulari basi auriculata, convoluta $\frac{1}{2}$ uncialia angusta rufa. Labelium basi columnæ adnatum lamina brevissima carnosia acuta longiformis, rufa. Columna basi tereti, clinandrio profundo. Pollinifera laete flava longe pyriformis.—Andes of Ecuador. Lehmann! Spruce! *H. N. Ridley.*

so showy as a *Cattleya Mossiae*. By the way, the same letter that brings this mentions the existence of an *Utricularia* far finer than anything Mr. Lehmann has yet seen. We shall look for this with much anxiety. *H. N. Ridley.*

BEGONIA PRINCESS CLEMENTINE X.

Our illustration (fig. 41) is taken from a photograph sent us by M. Bruant, of Poitiers. It is said to be the result of a cross between *Begonia Rex* fertilised by the pollen of *B. diadema*. The leaves are on long scaly stalks, large, deflexed, of good substance, cordate at the base, roundish-ovate, and dividing at the margin into several sharply pointed lobes. The plant as seen by us at Messrs. Laing's nursery, Forest Hill, has leaves of a bronzy-green above, with a greenish-white irregular band traversing the surface at an average distance of 1 inch from the margin. The under-surface is rose-coloured, with deeper



FIG. 41.—BEGONIA CLEMENTINE X.

coloured ribs, the spaces corresponding to the spots on the under-surface being green, flushed with rose.

We have not seen a large specimen of the plant itself, but, judging from what we have seen and from the photograph, this must be a valuable addition to the list of *Begonias* suitable for the decoration of conservatories and ferneries. We suggest to M. Bruant that, as it is not a species, but an artificially raised hybrid, he should call it by the vernacular name of *Clementine*, and not by the Latin appellation, *Clementine*, which would be calculated to lead to a misapprehension as to its actual nature.

ACACIAS.—Baron Von Mueller's *Iconography of Australian Acacias* proceeds apace. These plants are, as most of our readers know, of great beauty and singularity of form; others are valuable for their timber or for tanning purposes. In Australia they are very numerous, and very difficult of determination, on which account Baron Von Mueller's plates will be the more valuable.

HARDY FERNS IN POTS.

THE cultivation of hardy Ferns in pots never seems to have attained as much popularity in the South of England as in the North, and why this should be so appears to me almost inexplicable. It may be that they do not receive sufficient encouragement at the horticultural shows, and as a consequence few opportunities are given to the public of seeing them at their best; be that as it may, they are a class of plants deserving every attention, and capable of affording interest and pleasure to persons having a love for plants in general.

A REPRESENTATIVE COLLECTION

should consist not only of British species and varieties, but should contain a goodly number of hardy exotics; amongst the latter are some of the most beautiful forms, North America furnishing many of

duced other plants, these in their turn throwing out other fronds, and reproducing themselves in like manner, hence the popular name. Of native species there are many none less pretty or remarkable than the foregoing, amongst which may be named *Osmunda regalis* var. *cristata*, *Polystichum lonchitis* (Holly Fern), *Ceterach officinarum*, "rusty back," and innumerable crested varieties of *Athyriums*, *Lastreas*, *Scolopendriums*, and others. Although these plants can be grown in the open air and in frames that kind of treatment is not advocated. To have them in the best possible condition they should be grown in a cool greenhouse, that is to say, one having a north aspect, and not heated by artificial means. The internal arrangements should vary somewhat from those adopted in an ordinary kind of greenhouse, but only in a limited way, and simply to the extent of excluding as much moisture-absorbing material as possible, such as wooden staging and trellises for paths. It would be an additional advantage if the roof were glazed with rolled plate glass of, say, 3-16ths quality, but this is not absolutely necessary, and ordinary glass will do; it is merely a question in the latter case of more shading. The beds, back and front, should be 3 feet 6 inches above the ground level, and surfaced with 2 inches of shingle, the same sort of material being used for the paths, the object being to secure a moist atmosphere in the growing season, and sufficient evaporation to render overhead syringing unnecessary.

POTTING AND COMPOST.

The plants should be looked over annually, the first potting to take place before the young fronds have made much growth, say, at the end of February or early in March. Old established plants should only receive this one potting in the course of the year. Disentangle the roots with a pointed stick, reduce the balls, and place in the same size pots again; the latter as well as the pots should be perfectly clean, and be supplied with good drainage, over which a layer of moss should be placed. Young plants will require a second, and in some instances a third shift into larger pots, and this should be done before they become pot-bound. Before using new pots take the precaution of soaking them in water. The best compost consists of two parts fibrous loam, one of good peat, one of leaf-mould, and one of coarse silver-sand, with a few broken pieces of charcoal and sandstone added thereto, and which should be prepared and placed under cover a few days previous to use, so that it may not be in too moist a condition. In potting make the soil moderately firm, and water with a rose waterpot once a week. Two or three genera, such as *Hymenophyllum*, *Todea*, and *Trichomanes*, will require different treatment from the general collection. These should be grown in pans and covered with a bell-glass; the compost must also vary to the extent of having all fine soil sifted out, and an extra quantity of broken pieces of stone, cinders, or charcoal added, with increased drainage to prevent stagnation and sourness of soil.

WATERING.

At no period of the year, whether in active growth or in a semi-dormant state, ought these plants to be allowed to get dry. There are few plants that show the ill effects of dryness at the roots more quickly than do Ferns, and they are intensely susceptible to injury from this cause just before the young fronds become fully developed; neglect at this stage of their growth frequently results in irreparable damage. They should therefore, to be on the safe side, be looked over daily—once at the least, and in hot weather twice.

SUMMER TREATMENT.

Next in importance to watering comes that of shading, to a certain extent. Bright sunshine is at all times injurious to the majority of Ferns, and particularly so in the early stages of growth, and when a dry atmosphere prevails inside the house; from March to October they should be closely

the most handsome species. We shall not attempt to give a list, information of this nature being readily obtainable from trade growers who make a specialty of these plants; nevertheless, a few kinds merit special notice. What could be more striking in appearance than that hardy exotic, *Osmunda Claytoniana* (syn. *interrupta*), with its barren fronds, of a rich velvety-green, upwards of 2 feet in length, whilst the fertile fronds are both peculiar and remarkable, owing to the spores being produced between the sterile pinnae attached to the rachis, and which, with age, change in colour from light green to dark brown; or, again, *O. cinnamomea*, which throws up early in the season a cluster of erect-growing fertile fronds, forming a pleasing contrast with the long drooping sterile ones. There is also the "Ostrich-feather Fern," *Struthiopteris germanica*, worthy of a place in the choicest collections. Then we have the appropriately named "Walking Leaf Fern," *Camptosorus rhizophyllus*, a species which forms a crown, and produces long, narrow fronds, from the points of which are pro-

attended to in this respect. Syriaging overhead should be discouraged and avoided at all times if possible; atmospheric moisture is necessary, but it ought to be brought about by damping the walls, beds, and paths only, and should be done each day as often as may be required. They should also receive an abundance of air at all times.

WINTER TREATMENT.

When severe weather begins to be experienced the pots should be plunged to the rims in cocoa-nut fibre refuse. The more tender kinds, including all the oriental species, should have their crowns protected either with dry hay or bracken; and from none of the deciduous sorts should the old fronds be cut off before the young ones have made a start.

INSECTS.

Scale is, perhaps, the most troublesome if allowed to get a firm hold. It should be rubbed off with a small stick and the leaf sponged with soapy-water afterwards. Thrips and aphids are more easily dealt with, and may be destroyed by fumigating, but this must be done with care and it will be found much better to fumigate three times on alternate nights, rather than to give one strong dose. *J. Horsfield.*

PLANT NOTES.

CALLIANDRAS.

Two beautiful species of this large genus are now flowering at Kew, the better one being *C. Tweediei*, which flowered at this time last year, again in the autumn, and now once more it is bearing numerous brilliant heads. It is a shrub 5 feet high, with numerous twiggy branches furnished with graceful leaves like those of *Acacia lophantha*, but smaller. The flower-heads are on stalks an inch long, each head being composed of about twenty sessile flowers which are only a quarter of an inch long, the beauty being in the numerous stamens, of which there are forty in each flower; they are $1\frac{1}{2}$ inch long, perfectly straight, threadlike, and brilliant in colour. The flowers are freely produced. Certainly this species deserves to become popular as a flowering plant for the stove in winter. *C. caracasana* is a more robust shrub than the preceding, and it has large oblique leaflets from a half to 1 inch long. The inflorescence is similar in form and size to the above, but the filaments are 2 inches long, white below and rosy-red above. Both species may be seen in the Palm-house. *W.*

RHODODENDRON ARGENTEUM.

This is the first of the Himalayan species to open its flowers in the temperate-house at Kew, and it is one of the largest and most attractive of all. The soft flesh colour of the expanded flowers and deeper tint of the buds give the heads a perfect bouquet-like appearance. [We have a lovely head of *R. Madeni* before us.]

BILLBERGIA DECORA.

This handsome winter-flowering Bromeliad deserves to be more extensively grown. It is indeed, as Mr. Baker remarks, when describing it in the *Botanical Magazine*, t. 6337, "one of the very finest for horticultural purposes." Its rather long and strap-shaped leaves are arranged in the usual rosette manner, and are beautifully marked with scattered, transverse, mealy bands on the back. The chief attraction of the plant, however, lies in the bracts, which are produced along the pendulous stalk of the inflorescence. They are of a beautiful rosy-red colour, in shape oblong, and tapering to both ends; the largest ones are nearly 2 inches wide by 5 long; the lower or bottom ones, longer and narrower, clasping the stem for nearly their entire length—giving it the appearance of being coloured. The large bracts are clustered together towards the base of the spike where the flowers spring, and all but completely envelops them. The flowers cannot by any means be called showy, yet the three

petals comport themselves in a rather curious manner. They are over 2 inches long, sharp-pointed, and green, curling up spirally soon after they expand. The curling is similar to what takes place in the flower-stalk of a Dandelion if it be split. The plant is a free grower, requiring the most commonplace treatment. In fact, any pit or house where there is a fair degree of heat and moisture maintained, is nearly all that it required to enable the plant to make a fresh growth annually, which will flower during the winter. It lasts about six weeks in perfection, and is an object of great beauty during December and January, and the early part of February. *F. Ross.*

BEAUMONTIA GRANDIFLORA.

This is now flowering in the gardens of H. S. Brown, Esq., Digswell House, Welwyn, Herts, in a pot, and carries upwards of 450 flowers, which are bell-shaped, 4 or 5 inches long, thick in texture, and pure white, borne in terminal and axillary corymbs. Such a magnificent plant should be more generally grown than it is at the present time. *John Auning.* (See *Gardeners' Chronicle*, vol. xxv., p. 593.)

FOREIGN CORRESPONDENCE.

L. SPÄTH'S NURSERY, RIXDORF, BERLIN.

NOTWITHSTANDING the fact that this is one of the largest nurseries in the world in regard both to its area and contents, it is comparatively unknown in the United Kingdom. It will, therefore, be of interest to our readers to have some authentic information concerning it, obtained by our representative in Berlin.

Herr L. Späth is descended from an old family of gardeners resident in Berlin, which, so long ago as 1690, possessed a garden in the southern district, on the site of which the Johannes Kirche now stands. In 1758 the business was transferred to the Kopnicker Strasse, No. 154, and where at the present day there are some small old-fashioned glasshouses, and a small nursery, founded in 1861.

In the year 1861 H. Späth purchased at Rixdorf a piece of land having an area of 17 morgen (= 10,787 acres), and commenced to lay out a nursery, which has in the course of not quite twenty-five years become one of the largest and best arranged. The extent of land at present under nursery crops is 333.6 acres, that is, considerably more than half an English square mile.

The area of this large nursery has been long known to Berlin botanists under the name of the Rudower Wiesen, and was of such a swampy nature that even in the month of May it was scarcely firm enough to walk on, but which, owing to the numbers of species of native Orchises that were to be found there, always exercised an attraction to collectors.

By means of open ditches cut in all directions the ground water has been sunk more than 2 feet deeper, and is drawn off and conducted to a brook, and thence to the Treptower Park, a short distance away, where it forms a large lake, the overflow finding its way into the River Spree. And now the shrubs and trees grown in the nursery are as attractive to the botanical student as were formerly the indigenous plants; and the drained sandy soil is found exactly to suit the requirements of the former, and conduce to their perfect development, so that the carefully tended stock cannot be excelled by any others, even in the most favoured climates. The relative perfection of the whole of H. Späth's varieties of fruits, nuts, ornamental trees and shrubs, forest trees, and Conifers, which the climatic conditions permit of cultivation, is due to the fact that in almost all instances the gardeners employed are specialists in some particular branch of nursery work.

The nursery is divided into nine plantations, and each plantation is under the direction of a foreman (*obergärtner*), who works under the supreme directions of the proprietor, and on a certain plan. Each is responsible for his work, and is provided with a permanent staff of trained workmen, over whom he has

the fullest control. With a view to encourage the production of first-class nursery stock, and without undue cost, a commission to each foreman is allowed on the sale of trees, shrubs, &c., from his own plantation. The scale of pay for work performed by the workmen is commensurate with the character of the work to be done. There are on an average 300 to 350 persons employed, and any changes would be as unpleasant for any one of them as for the proprietor, for the majority of the *employés* have been in the business many years—several since its commencement. As a result of these well-conceived arrangements the nursery is enabled to produce more cheaply than are smaller ones, which are not in the position to train, maintain, and find employment for a large body of workmen.

On approaching the nursery a powerful "wind motor" is observed, which pumps the water required for nursery uses. It is of historical interest, it being the first of its kind erected in North Germany, and came from America. H. Späth had seen a similar machine at Count von Moltke's place in Silesia, and, recognising its immense worth to a nurseryman, lost no time in obtaining one. The water finds its way all over the nursery by means of pipes to numerous basins, which, by a simple arrangement needing no supervision, are kept constantly filled. In the neighbourhood of the motor, are two houses, two and three storeys high, for the nursery office staff, the summer dwelling of the proprietor, a steam-boiler house, barns, bulb loft for Hyacinths, and other outbuildings. The before-mentioned steam-boiler generates steam for the heating of five propagating and grafting-houses, having an area of glass of 445 square metres; thirty-seven hotbeds and double frames of 1000 square metres, two laying-in sheds for Roses, Peaches, Apricots, and pot fruit trees, tender seedlings, &c., of 650 square metres; and lastly, two shutter-roofed stages of about 3000 square metres.

An arboretum surrounds H. Späth's dwelling, containing an unrivalled collection, viz., 4176 deciduous shrubs, 667 various Conifers, and 1367 varieties and species of the Rose. Besides these there are numerous trees planted by persons of celebrity who have visited the nursery at various times. Adjoining the arboretum is a piece of land devoted to the cultivation of trained fruit trees. The whole area of the nursery is enclosed by a galvanised iron wire fence, and well tended hedges of Whitethorn, *Crataegus prunifolia*, *Carpinus Betulus*, *Ligustrum vulgare*, *Caragana arborescens*, and *Thuja occidentalis*, 1.50 to 2 metres ($4\frac{1}{2}$ to 6 feet) in height, and very thick. The most striking of the hedges was one composed of *Picea excelsa* (Spruce), 3 metres high, and 0.40 (9 feet by 1 foot 4 inches) broad. Very neat low hedges are formed of *Buxus arborea*, *B. suffruticosa*, *B. aquifolium*, *B. vulgaris atropurpurea*, *Cydonia japonica*, *Ribes alpinum*, *Spiraea hypericifolia*, and *S. thalictrifolia*.

In conclusion, we append a few data which will afford some idea of the amount of business done in the packing-shed, and which may be of interest. There are packed daily in the season about 130 bundles for the railways, and twenty-five post packets (parcel post); and further, two men, with the help of a packing-machine, constructed by the proprietor some twenty years ago, pack daily ten to twelve packages of from 3 cwt. to 4 cwt. The consumption of straw in one year amounts to 21,000 bundles, 18,000 bundles of Rushes, 60 cwt. of packing cord, 1500 baskets of different sizes, 50 to 60 waggon-loads of moss, 2000 Russian mats, 20 cwt. of canvas, 10,000 Willow bands for smaller parcels, and 800 boxes and cases. Fifteen horses are employed in transporting goods to the railway stations.

The contents of the nursery at the present time are 200,000 saleable standard fruit trees; 150,000 one-year trained fruit trees; 100,000 grafted ornamental plants, 1,000,000 from seeds; 3,000,000 fruit tree cuttings; 40,000 standard Roses; 150,000 dwarf Roses; 5,000,000 wilding stocks; 10,000,000 seedlings of deciduous bushes; 20,000 standard bush fruits;

35,000 dwarf bushes; 100,000 Conifers from seed, 15,000 grafted.

Of ornamental shrubs worked in the winter there are 20,000 avenue trees; 10,000 one or more years' worked; and 200,000 fit for sale. The quantity of shrub, forest, and fruit tree seed amounts in one year to 300 cwt.

Of great interest is the Pomologen Weg (Pomological Road), of 2000 metres in length, which is planted on either hand with over 5000 kinds of fruit trees. The first row is composed of pyramids, one on the Quince and the other on the Doucin stock; behind these are pyramids on the wilding stocks. The same mode of planting stone and small fruits is observed wherever planted by the sides of roads. A very fine view is obtained from the Pomological Road over the larger part of the nursery. The 914 quarters are nearly all of the same dimensions, and are respectively either of 1000 or 2000 square metres, and each is furnished with an alley, a cart-road, and on two sides there are ditches. By means of the cart-road the quarters are easily approached, and field railways renders easy the transport of trees, manure, &c.

Later we intend to return to this subject, and afford our readers information about some of the special features of the nursery. *Rerlin Correspondent.*

PLANT DISEASES.

PYTHIUM IN IMPATIENS SULTANI.

A FEW weeks ago I noticed that one or two cuttings of *Impatiens Sultani* in an intermediate-house were very weak in the stem a short distance above the soil, and falling over of their own weight. Being aware that Cress seedlings, which showed similar weakness in their stems, were usually affected with the fungus called *Pythium Baryanum*, it occurred to me that the weakness in the Balsam might be due to a like cause. On examination this proved to be the case; the stem at the weak point was very soft and disintegrated, and simply swarming with the *Pythium*, whose mycelium, especially when stained, was readily seen ramifying through the tissues. Whether it is identical with *P. De Baryanum* I cannot, without cultivation, say with certainty; but it seems to agree very closely with undoubted specimens of that species obtained from Cress. The oospores were exceedingly numerous, and in most cases apparently detached from the mycelium, many in the segmented stage figured by Professor H. Marshall Ward (*Quart. Jour. Microsc. Science*, vol. iii., n.s., pl. 13). He states that, unlike some other species, which are very particular as to their hosts, *P. Baryanum* will grow on *Pelargoniums* and other greenhouse plants, as well as Cress; but, so far as my memory serves me, *Impatiens* is not mentioned; moreover, I think all the plants he quotes were artificially infected, whereas it has appeared spontaneously in the Balsam, for there has been no Cress growing in the house for two or three years.

Nurserymen who grow *Impatiens Sultani* largely for trade purposes might, I think, take the hint and eliminate all weakened individuals, as *Pythium* is very infectious, especially in the neighbourhood of water, or in the moist atmosphere of a propagating pit. *Greenwood Pim, M.A., F.L.S.*

ORANGE BLIGHT.

The malady first shows itself in the form of small brown spots on the skin of the fruit, which later on become larger and black; if these are numerous they penetrate and blacken the entire fruit, which is then of an unpleasant black colour. Different species of Oranges are attacked differently. The Sweet Orange, the Lemon, Lime and Mandarin Orange, are most liable; the bitter Orange, the Pampelmouse, and the Chinottier less so. After many observations I arrive at the following conclusions:—

1. The malady is sporadic, and it does not attack uniformly all the plants in a plantation.

2. The evil commences according to the maturity of the different species.

3. A wet season favours the development of the blight, a good season stops its ravages.

I have cultivated the bacteria and inoculated and reproduced the disease. I have taken the bacteria from one species and inoculated another species, and obtained identical results. The bacteria of the black rot of Vines have also been inoculated into Oranges, with exactly the same results. The results from these experiments have been submitted for examination to the Naples Naturalists' Society. *L. Savastano, Portici.*

ACHIMENES AND GESNERAS.

THE many beautiful plants brought together under this heading deserve to be better known amongst gardeners. Almost all are remarkable on account of the great freedom with which they produce their beautiful flowers, their ornamental foliage, and the fact that they flower during the dull winter months. All of the species require exotic treatment, and to this is to be attributed the fact that they are not the most popular amongst cultivated plants. By far the largest number of species have been introduced from South America and the West Indies, where they are found growing in marshy districts. Although a humid atmosphere is most natural to them, they do not flourish under conditions where the foliage is often made moist with the syringe or water-can. When under cultivation, warm, humid surroundings, with immunity, however, from actual overhead wettings, are necessary; but regarding the culture of these plants, it will be best treated of in sections. Large or entire tuberous species, such as *Gesnera Donkelaari*, *Gloxinias*, &c., must be treated differently from those having resting scaly roots, such as *Tydeas*, *Achimenes*, &c. After resting, the stock of either section should be repotted at different periods, commencing about the month of May, and proceeding with intervals of about four weeks between each succession; by this means a number of winter-blooming plants is assured. To follow out this plan, however, a season or two must be occupied in starting them later and later by degrees, so as to bring on this late blooming, particularly in connection with certain early-blooming species, the natural blooming period of which is during the months of June, July, and August. This system of retarding will even be necessary in *Gesnera zebrina*, which otherwise will flower during the month of September.

The proper compost for these plants is a rich porous one, and should be made up of equal parts of turfy peat, fibrous loam, and partially rotten leaf-mould, a moderate quantity of silver-sand being added, and the whole well mixed together. The scaly tubers are best placed several together in a moderate-sized pot, the soil in which should be pressed rather firm, and kept moist.

To make a good start, it is always best to plunge the pots containing them up to the rim in a hot-bed. By this means a good start will be made, and will be continued if conditions favourable to it are maintained. As soon as the young plants have formed two pairs of leaves it will be necessary to pot off each one singly, using large 60's and the same kind of soil as before. The young plants require careful handling so as not to detach the tuber from any one. They are easiest taken out of the first pots by using a short blunt stick. Press the compost down evenly and with moderate firmness, then make a hole in the centre of the compost, and neatly place each plant therein in such manner as to bury the young footstalk about an inch in depth. By this means the latter will push forth more roots than it could do if elevated unduly in the soil. Make firm by moderate pressure, and add a little soil around the plant, and immediately put in a stick for future support.

From this time onward until the blooming stage success will depend on maintaining heat up to a maximum of 80°, with sufficient attendant humidity, bottom-heat up to 90° being likewise an important aid, with fresh air occasionally, and as much light as

possible short of full sunshine, which, if powerful, is injurious.

Tydeas and *Negelias*, *Eucodonia* and *Gesneras* of the *zebrina* type, require a somewhat deep soil, and should therefore, if single, be bloomed in 32's, but three or five plants may be bloomed in a 24. On the other hand, *Plectopomas*, *Achimenes*, *Chiritas*, *Cyrtodeiras*, and *Stenogastres* are best grown in pans, a shallow soil suiting them best. Whether pans or pots be used, it is important to give good drainage, and for this reason, that they delight in waterings frequently given whilst growing, but are nevertheless injured by a waterlogged soil. Though general suggestions concerning potting this section have been given it may be well to add, that the five last, excepting *Chiritas*, will succeed better when double the amount of leaf-mould is used in the compost, and the soil pressed much less firmly than is desirable for those previously noted.

Tuberous *Gesneras*, of which *G. Cooperi*, with its unusually large tubers, is a type, succeed best when they are potted firmly into a compost consisting of three parts peat, one part good yellow loam, with about a sixth part of each of the following materials—leaf-mould, burnt earth, and silver-sand. It is important, moreover, not to use pots of too large a size, but to give the plants two shifts instead of one at the time of starting into growth, and the other when the first two pairs of leaves are forming, and growth is active. To the application of moderate bottom-heat during the active growth much success is due. As the roots are not numerous it is a good plan to stand the pots upon a board placed immediately over hot-water pipes; this tends to cause the production of more roots, and to maintain the soil when frequently watered—which under such conditions is necessary—in an excellent condition. Artificial heat in any form is desirable, though if the pots be plunged in damp materials the invigorating action of frequent watering of the soil cannot be afforded the plants.

The propagation of these plants, though easy and simple enough as regards *Achimenes* and similarly rooted *Gesneras*, is more difficult in some others. All will strike more or less readily from moderately matured young shoots dibbled into very sandy soil and properly attended to. *Gloxinias* strike freely enough both from young shoots and from matured leaves put into sandy soil, soon forming tubers.

An important item of culture does not receive the amount of attention it deserves—I refer to the proper maturing of the tubers after flowering. At such a time it is a common practice to put the plants on one side and take little heed of them, whereas well developed tubers that will reproduce robust plants in the future can only be secured by attending to the matter of watering, airing, &c., for so long a period as the foliage remains green. The contrary practice results in miserably small tubers. When the plants have matured, and have died down, although it is desirable to keep the soil in the pots moderately dry subsequently, care must be taken not to place them too near to flues or hot-water pipes, &c.; indeed any position in a warm greenhouse or stove the farthest removed from the means of heating is the best.

The following are the best varieties for ordinary gardens:—

Tuberous-rooted Gesneras.—*Donkelaari*, bright vermilion colour; *Duvallii*, dark red; *macrantha*, purplish-red; *magnifica*, bright crimson; *Cooperi*, bright scarlet.

Deciduous Herbaceous Gesneras (with scaly tubers).—*Cinnabarina*, cinnabar-red, light throat; *exoniensis*, orange-scarlet, yellow throat; *refulgens*, vermilion-crimson; *zebrina*, scarlet-yellow spotted; *z. splendens*, bright scarlet and spotted; *Leopoldi* (nine varieties), various coloured; *regalis*, vermilion; *Hon. Mrs. Fox Strangeways*, nankeen with red; *Lindleyi*, rosy-pink, yellow and red; *chromatella*, rich yellow; *Barlowi*, salmon-spotted.

Hybrid Gesneras = *Negelias*.—A beautiful divergence from previous types, yet retaining therewith all that is desirable in foliage and flowers, and requiring

treatment midway between what is suitable for Achimenes and Gloxinias, especially in the matter of potting compost, or the moderate free use of leaf-mould. N. de Prodigue, rosy-purple and salmon, fringed; N. Mont Blanc, lovely white; N. pyramidal, rosy-purple, yellow throat; N. Madame Heine, rich purple-shaded rose, &c.; N. Madame Jehenne, violet colour, Achimenes shape.

Other varieties, such as G. n. Raphael, Chardin, Monsieur David, Claude Lorraine, and Fabiola, existing in our nurseries, afford fine additions, to which may now be added some forty other varieties in the hands of Continental growers, the finest of which, it is to be hoped, will be shortly distributed here.

PLECTOPOMA.

In hybrid Plectopomas we have another extremely interesting and beautiful class. Unlike plants of the Nægelia type of hybrids, with their bold pyramidal spikes, Plectopomas produce mainly single blooms only, placed on compact stalks issuing from the axils of the leaves, the flowers, Gloxinia-shaped, being very large, showy, and beautifully marked. Some varieties of Plectopoma and Nægelia display beautiful foliage, for which alone they are worth growing. Continental growers have named between twenty to thirty desirable varieties, and among them P. nægelioides candida, white, pale yellow throat; P. Alfred Lasere, bright rose; P. bicolor, citron, spotted yellow; P. triumphans, lilac, freckled with amaranth; P. corallinum, coral-red, yellow blotch; P. Great Eastern, bright rose and carmine.

EUCODONIAS.

This is another attractive class, in form midway between Gloxinias and Tydeas. The following varieties are desirable:—E. Ehrenbergii, blue, white throat; E. nægelioides, rose, citron-yellow throat; E. Houttei, carmine and white; E. n. lilacina, marbled lilac; E. nana multiflora, amaranth and gold.

Achimenes and Gloxinias are too well known to require lists of varieties in this place, though the newer varieties of the latter introduced during the last two years should be in the hands of all growers, as they are such a great advance on older forms. Two new forms of Gloxinia, named respectively G. insignis, bluish-lilac coloured, winter blooming, and G. maculatum sceptum, producing terminal inflorescence some 18 inches in length, upon which individual lilac-coloured blooms are well displayed.

Gesnerworts are not, however, exhausted; there are the pretty foliaged Hypocyrtia, Köhleria, Kollikeria, Drymonia, and the botanically singular one-leaved Streptocarpus, not to speak of flowering forms, such as Locheria, Scheeria, Sciadocalyx, Columnea, and the fragrant-flowered Dolichodeira—all of which are found here and there, and afford much interest in stoves and other plant-houses. *William Earley, Ilford.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM WARDIANUM LOWII.

A FEW weeks ago a writer, having observed a plant in flower of this lovely Orchid during the month of November, spoke of it as a creditable achievement; and once or twice recently this species, with D. nobile and one or two others, have been recommended as being quite amenable to a course of treatment by which flowers may be obtained on several batches of plants during the winter and early spring months. Certainly this is a most desirable end to have in view, and if in any way our methods and management can be so adapted, and the plants so comfort themselves to our treatment, that they can safely be obtained—that is, perfectly satisfactory results in point of flowering, without loss of vigour to the plants themselves—by all means let the method be put in practice. But if it be remarked that this species is not sufficiently free to bloom, the flowers lacking size and colour when blooming early, and also

that there is a lessening of vigour, with a prospect of the loss of the plant, then I think it would be better not to attempt so much with this fine form, and that it is much more advisable to wait a couple of months at least, so that by the middle or end of February—which is quite early enough—stout bulbs may produce finely-formed flowers, which I venture to say will be quite as welcome as the generally colourless flowers which are likely to be produced before Christmas. "Oh! but," the answer comes, "we have batches of a score which we so manage that they mature and ripen their bulbs early in the autumn, and then are put into a cool house, and afterwards gradually brought into heat, and so flower early; the other batches are also thus successively treated, and thus the blooming period is made to last four or five months—say from December to April or May." Now I should much like to know whether there are half-a-dozen Orchid establishments in the United Kingdom where there are a dozen or a score plants now in flower, or just about to burst their blooms, that have been treated to a course of culture by which these special dozen or score have always finished their growth, shown flower, and bloomed first, and to-day have their flowering bulbs in all respects as stout and satisfactory as those that were made the first season after the plants were imported. I would not be too severe, but I question whether there are six such collections that have year after year done so, or that have for six, or five, or even four years managed thus with this species. If it were so we should sometimes see much finer plants, always increasing in size; instead of this we too often meet with weak attenuated growths, which are gradually getting less.

That D. nobile may be managed in this manner I quite admit, or small plants in baskets are grown and planted year after year for long periods, and gradually increase in size and vigour. Even D. crassinode can be managed in this manner; though not flowering so early as D. nobile, still it can be kept and shown in June.

But D. Wardianum would seem to resent this treatment, and though perfectly satisfactory results can be secured by good growth and good rest in a general way, too much hastening or retarding assuredly will work harm and bring about loss. Probably more plants of this species have been lost during the last twelve years through bad management than any other Orchid, with the exception of Epidendrum vitellinum majus. The numbers of this latter, imported and grown in a couple of years, then dwindling away, and ultimately lost, has been surprisingly great.

When D. nobile has made its growth and is put by to rest, it will remain dormant, so far as growth is concerned, for weeks and months; but there would seem to be a disposition in D. Wardianum to start again into growth almost before the last bulb has perfectly developed its growths. In this respect I have often been struck by the probable fact that D. Wardianum is a natural hybrid, having D. chrysanthum originally as one of its parents, with perhaps D. nobile as the other. If the flower is carefully looked at, the characteristics of each assumed parent are present—the shiny appearance of the flower, the purple spots in the lips, &c. I know the flowers of D. Wardianum are much finer than those of either of those mentioned, but then it is characteristic of hybrids to develop finer proportions than the parents. Look again at the growth of D. chrysanthum and D. Wardianum—I mean the manner in which the new growths push away from the old ones, the single stem running along, rather than the base of the bulbs assuming a mass or clump of bulbs. In this respect it would seem much to resemble D. chrysanthum; and then again the latter, flowering naturally in August and September, is ready to recommence growth by November or December, as we find it will do. This may only be conjecture now, but some day we may see whether such a result can be brought about, for in fertilising and raising Dendrobiums there is quite as large a field for experiments as it has already been discovered there is with Cypripediums.

However, I would advise those who have a fair stock of D. Wardianum not to be in too great a hurry to push them into flower; the days are short, the light is insufficient, and but few flowers will reward their efforts. But where the plants are comparatively dormant, keep them dry and cool for some weeks yet, then they may be gradually placed in heat and moisture, and a more effective display will be made, but not over so long a period.

I remember once seeing some large and well grown plants of this Dendrobium at F. Yates, Esq., Feniscowles, near Blackburn. A number of these were disposed of, one large plant going to a famous collection in Cheshire. This identical plant was shown once afterwards at Old Trafford, Manchester; but then its showing days ceased, and I doubt much if it, or any portion of it, has the vigour it possessed when it passed from Lancashire into Cheshire. *Vanda.*

CATTELEYA WALKERIANA.

This species, also known as C. bulbosa, is noteworthy on account of the unusual manner in which it produces its flowers. Instead of bearing them, like other Cattleyas, from the apex of its ordinary pseudobulb, the latter remains barren, and a small leafless offshoot from its base is devoted to that purpose. This floriferous growth does not show itself until the pseudobulb proper has completed its growth, and usually consists of little more than a few elongated scales. The flower, which is of good substance, measures 3 or 4 inches across, and is of a bright rose colour, the lip being of a deeper shade, and having a dull yellowish patch on the centre. A plant is now flowering in the Kew collection. The variety dolosa, a plant of which has also lately flowered at Kew, differs considerably from the type, and, until the publication of Messrs. Veitch's *Manual*, ranked as a species. Its flowers are produced from fully developed pseudobulbs, and in colour more nearly approach magenta. It is marked also by the greater development of the side lobes of the lip, which meet over the column. A good portrait of this variety is given in the *Gardeners' Chronicle* of April 1, 1876. Neither of these Orchids are free-flowering, and more especially is this the case with C. dolosa. The two plants mentioned above were kept during their last resting period with the cool Odontoglossums. In this position it was possible to keep them from shrivelling with much less water than in ordinary Cattleya-house temperature, and it is probable that the more complete rest thus obtained had much to do with their subsequent flowering.

ODONTOGLOSSUM URO-SKINNERI.

Sepals and petals oblong, rosy-purple spotted; lip cordate, transversely oblong, white, thickly beset with rosy-pink markings. *Lindenia*, t. 122.

CYPRIPEDIUM ARTHURIANUM VAR. PALLIDUM.

A cross between C. insigne and Fairreanum. Upper sepal broadly ovate acute, white, with purplish-red stripes; petals deflexed, white, with reddish veins; lip pocket-shaped, purplish, shining. *Lindenia*, t. 121.

FRUITING OF BRUGMANSIA LUTEA.

THE Daturas (Brugmansias) of the perennial section are seldom found to bear fruits under cultivation in this country, the conditions probably under which they are grown, or the absence of the particular insect or small bird which aids the fertilisation, being absent. Mr. O. Thomas, of Chatsworth Gardens, Chesterfield, says, in the note accompanying the pod now figured (see p. 269), that he had not previously observed the plant in seed, but this year it bore several seed-pods which ripened perfectly. The pods contain numerous seeds of a wedge-like form, dark brown in colour, rough, with minute granular bodies on the surface. Brugmansia lutea is a yellow-flowered greenhouse shrub, attaining, when planted out, a height of 20 feet. A showy plant when in flower in September.

CULTURAL MEMORANDA.

CALADIUMS.

THESE are easily-managed plants, and from their fine habit and beautifully variegated and richly-spotted leaves, are great favourites both for effect in

growths that are sent up from the crown of the bulbs when they commence to grow about this time of year. These growths, when 3 or 4 inches long, emit roots from their bases, and at this point they should be detached by a clean cut, potted singly into 3-inch pots in a mixture of good fibry loam and sifted manure from an old hotbed, with a good dash of

perature of 65°, and 15° or 20° higher by sun-heat, and they should be kept well supplied with water while growing.

GARDENIAS.

Plants in pots, which are now swelling their flower-buds, will be benefited by being top-dressed with a little of Beeson's manure, followed by a mixture of sandy loam and leaf-soil about one part of the latter to three of the former, with the result that finer blooms than could otherwise be obtained will be secured. The plants should have a night temperature of from 65° to 70° and a humid atmosphere, running the temperature up to 85° or 90° with sun-heat at closing time, early in the afternoon, syringing the plants well overhead with water of the same temperature as that of the house at the same time.

BEGONIA REX AND ITS ALLIES.

These fine-foliaged Begonias are not so extensively cultivated as they were some twenty years ago. A stock of plants is easily worked by cutting the leaves into pieces a couple of inches square and inserting them edgewise in small pots filled with light mould, with a little sand on the top. Give a little water through a fine rose, place in heat, and in due time the young plants will appear, when they should be potted singly into small 60-size pots in a mixture of light loam and leaf-mould, with a sprinkling of sharp sand added, put back into heat and watered, afterwards shifting the plants into 4½ inch and 6 inch pots. Plants may also be readily raised by laying the entire leaf flat on the surface of the sand with the inch of stem attached inserted therein, and making a slight cut at junctures of veins in the leaf, and placing a few small stones on them to keep the leaves in contact with the sand. Propagation may also be secured by division.

BOUVARDIAS.

If the old plants which have been at rest during the last couple of months be now cut back pretty hard and put into a forcing-house they will soon push into growth. The young growths, having a couple of joints each, should be taken off and put into small pots filled with a mixture of three parts light loam and one of leaf-mould and sand, watered and placed in heat, when they will soon root, and should be potted off singly in small pots, put back in heat, and watered. Afterwards they should have the shoots pinched, giving them more room at the roots in due time, and admitting more air to them as the plants increase; and as the weather becomes warmer, keep them well supplied with water. H. W. Ward.

COLONIAL NOTES.

NOVA SCOTIA.

MR. PETER JACK, cashier of the People's Bank of Halifax, Nova Scotia, who passed away on February 8, at the age of sixty-two, was an ardent horticulturist, and known to many plant growers and botanists in Britain as well as in Nova Scotia. Born at Leven, in Fife, and educated at the Dundee Academy, he entered the service of the National Bank of Scotland at an early age. He was for some years in the chief office in St. Andrew's Square, Edinburgh, under the direction of the late Mr. Anderson, father of the late well-known botanist, Dr. Thomas Anderson, who was for some time superintendent of the Calcutta Botanic Garden, and of Dr. John Anderson, who has long occupied prominent scientific positions in India. Mr. Jack dated his first interest in plants to a commission entrusted to him when in the bank at Glasgow to procure an "old man" Cactus for his young friend, Tom Anderson, then at school in Edinburgh; this must have been about forty years ago. The plant with a flat stick in the pot bearing the ominous inscription, "Cactus senilis," was purchased at the Glasgow Botanic Garden for 6d., and duly forwarded by rail to Edinburgh.

When in Glasgow Mr. Jack attended college classes, devoting his attention chiefly to metaphysics.



FIG. 42.—POD OF BRUGMANSIA LUTEA, WITH SEED. (SEE P. 268.)

the stove and for furnishing purposes during the summer and autumn months. The old *C. argyrifolius* is still—although there are about 300 varieties of the Caladium cultivated at the present time—the most dwarfly growing and useful plant of its class for decorative purposes, namely, for the edging of groups and stages in plant-houses, intermixed with small plants of Maidenhair Fern and *Isolepis gracilis*. The Caladium is increased by division of the young

sand added; place in a propagating pit or hotbed, water, and shade from sunshine until the roots have pushed into the soil, when they should be gradually inured to light, and be placed on a shelf near the glass in a stove or forcing-house, afterwards shifting them into larger pots as they require them; 4½ and 6-inch pots will be large enough for plants specially intended for furnishing purposes. The plants grow freely in a moist atmosphere, and a night tem-

After spending several years at the Bank's branches in Oban and Glasgow he transferred his services to the Bank of British North America, and was sent out to Montreal, at or about the same time as Mr. King, now in London, who afterwards became manager of the Bank of Montreal, the greatest financial institution of the country. Mr. Jack was soon promoted to the position of accountant of the Halifax branch of the Bank of British North America, and removing to Halifax, he occupied this position till 1864, when the People's Bank of Halifax was proposed. He was invited to organise and take office as cashier of the new institution. He continued to discharge his duties in the People's Bank for nearly twenty-four years, until December last, when overtaken by his fatal illness.

Mr. Jack was a keen horticulturist and Fern grower, and spent his leisure hours in summer time in planting and improving the picturesque grounds around "Bellahill," his summer residence, 12 miles from the city of Halifax. At this beautiful place he was ever ready to receive his friends, and many officers of Her Majesty's Navy, who have been on the West India station (the ships spend the summer season at Halifax), and other strangers, have pleasant reminiscences of the delightful spot and its surroundings in the Sackville Valley. A series of very fine photographic views taken there by Lieut. Gladstone, R.N., was exhibited by Mr. Jack at the recent Indian and Colonial Exhibition in London.

Mr. Jack's ornamental grounds at Bellahill were formed without much labour or expense, simply by preserving the native trees, thinning out and pruning where required, cutting brush, levelling and laying out paths where opportunity offered; trees of kinds not already on the ground were planted in open spaces, or where shelter was needed, especially Conifers, of which he had a fine collection. The principal native trees in his grounds are evergreen Conifers, the Sugar Maple, Birches, American Beech, American Ash, with smaller bush trees, such as Thorns, Amelanchier, and Alder. The native Conifers are chiefly the White Pine (*Pinus Strobus*), Hemlock Spruce, Balsam Fir (a short-lived tree), and the two glaucous Spruces, *Picea nigra* and *P. alba*. Of the latter there were many fine specimens in the grounds—native trees that had for years been encouraged to growth simply by removal of contiguous trees, and other judicious care. The planted trees and shrubs were numerous—Austrian Pines, Cedars, *Retinosporas*, Maples, Weeping Caraganas, Willows, Ash, &c. One Camperdown Elm is just about the shape and size of the original tree at Camperdown House.

The following return of the condition of the trees on his property was furnished by Mr. Jack last spring for the Government crop report, indicating the peculiar effects of the previous winter:—

"Trees that had stood many previous winters, succumbed to the severity of last. A fine tree of *Retinospora pisifera*, which had scarcely ever been touched for the previous ten years, was nearly destroyed. *R. plumosa* and *var. aurea* were also very much injured. *Pinus ponderosa*, which had thriven for several winters, was cut down to its lowest branches. *Picea Menziesii* was cut down to the snow line, and so were other trees from the Pacific slope of the Rocky Mountains. The spring was cold. There were several severe frosts in June—one in particular on the night of the 14th and 15th, which destroyed the leaves of *Magnolia acuminata*, those of the native Ash and Oak, and the fronds of many of our native Ferns, whilst the foliage of the European Ash (*Fraxinus excelsior*) was untouched. The Irish Juniper and *Cupressus nutkaensis* stood the winter very well indeed. *Yucca filamentosa* is again in flower in my garden, the second time it has flowered in Nova Scotia, although it flowers freely in England. *Pinus Strobus var. albens*, a new variety found in the woods, is thriving."

Mr. Jack was very successful as a Rose grower. His flower-garden lawns were kept with the greatest neatness. He had also large borders of herbaceous plants, his collections receiving valuable additions of late years from correspondents in England, including

Mr. Harmer, of Cringleford (Norfolk), whose acquaintance he made accidentally on Montreal Mountain, when they met botanically at the time of the Montreal meeting of the British Association. Mr. Jack's collection of Ferns embraced all the hardy species that could be obtained, and included most of the British species, some of which, however, such as *Lastrea feniscei*, from Arran, did not stand our climate, although the allied but quite distinct species with which it was long confounded, *dilatata* and *spinulosa*, are as hardy as possible. Some years ago, Mr. Jack found *Lastrea Goldiana* and *Scopelodendrium vulgare* at Woodstock in New Brunswick; they had not been known before in the maritime provinces of Canada.

Mr. Jack was President of the Game and Island Fisheries Protection Society, a member of the Board of Governors of Dalhousie University, and Chairman of the Finance Committee of that Institution. He took interest in the other literary, scientific, and benevolent institutions of the city and province, and especially in the public garden of Halifax, a garden not excelled for beauty in North America, and fairly large for the size of the city. *G. L., Halifax.*

JAMAICA.

The last number of the *Bulletin* of the Botanical Department of Jamaica contains a list of timber and shade trees cultivated in the gardens and available for planting in tropical countries generally. Mr. Labonadière's treatise on Coffee planting is continued; a Government proclamation is issued forbidding the importation into Jamaica of "seeds or plants or any description of earth or soil, or any article packed therein that may have come either directly or indirectly from either of the following countries:—Natal, South India, Ceylon, Java, and Fiji." This probably is intended to prevent the importation of the Coffee fungus (*Hemileia*).

TRINIDAD.

The January *Bulletin* of the Botanical Department contains an interesting article on the Central American Rubber (*Castilloa elastica*), which has been introduced into Trinidad, and gives promise of being a valuable source of revenue. In Honduras Mr. Morris speaks of the tree as yielding a safe and sure return as a caoutchouc producer, in addition to being a valuable nurse-tree, and useful for shade and shelter. Mr. Hart adds some particulars as to the best method of planting the tree: a moist climate and an equable warm temperature are requisite.

PLANTS AND THEIR CULTURE.

Ferns.—Whether for cutting purposes or as decorative subjects a plentiful supply of the kinds required should be maintained. The quickest and easiest method of keeping up the supply is to make periodical sowings of "spores." These, if their few wants be attended to, soon germinate, and in many instances new forms are produced. Collect from the old plants fronds which have plenty of fruit (sori) on them, lay them out thinly on a piece of paper, and put them in a warm dry place. This will cause the fruit cases (sori) to burst open, liberating the spores. As the spores are very minute and extremely light the least puff of air would scatter them. Therefore, do not bring any strong growing species near to where the spores are being collected, as in all probability they would become mixed, and as the stronger growing sorts would likely be the first to germinate, they would thus, having possession of the soil, prevent the weaker spores from developing, and the resulting crop of plants would be something different from what was expected. Having obtained the spores, fill either pots or pans three quarters with drainage, which cover with a thin layer of sphagnum moss or peat fibre, filling up to about half an inch below the rim with rather fine peat and sand in equal proportions, and finish by giving a thorough watering with boiling water. This usually kills any spores of fungi or other plants already in the soil. After the soil has become sufficiently cooled sow the spores, and plunge them in a close propagating frame, taking care not to water them overhead until the prothallia are well up. Should a convenient frame be not at hand cover the pots with pieces of glass, and stand them in saucers filled with water. These, if placed

on a shelf where a temperature of not less than 60° is kept up, will do equally as well as those placed in a frame. It is essential that, although they are not to be watered overhead, they must never be permitted to become in the least degree dry, nor should any more shading be used than is actually required to prevent the sun from scorching them, and in every stage they must be kept as near to the glass as possible. The spores usually germinate in from three to five weeks, and as soon as they are large enough to be moved in little clumps they should be transferred to shallow pans filled with soil similar to that recommended for sowing the spores. See that the soil used, as well as the soil about the seedlings, is fairly moist as it is injurious to resort to heavy waterings until the young plants have shown signs of making a frond, which will be a signal that they have passed the first stage of their existence, and are now young Ferns. Should watering be required, do so very lightly (of course it may be frequently) with the finest spray possible with a syringe.

Clivias and Cyrtanthus.—These useful spring-flowering plants are easily forced into flower, and where a sufficient number of plants are grown they may be easily had in flower from December to May by introducing a few from time to time into a little higher temperature than that the stock is kept in. They are splendid subjects for conservatory decoration; their warm-coloured flowers and graceful foliage rendering them very effective. Should any of them want potting, or if it be desired to increase the stock, it may be done previously to starting them. They delight in a rich loamy soil, of a fairly retentive character—indeed, *Cyrtanthus* rarely make much progress unless the soil is of this nature. It is all the better if some crushed bones or ground coprolites be added to the compost, especially the latter, as there are some valuable elements of plant food in these which are not found in some other manures. Drain the pots well, as the plants require abundance of water during the growing season. Of *Clivias* there are now many beautiful hybrids of the *miniata* type, producing large heads of flowers; they vary in colour between orange-flame and orange-scarlet. *Clivia cyrtanthiflora*, *Gardenii*, and *nobilis* are the best. In *Cyrtanthus* there is more diversity of colour, *C. lutescens* being yellow, *Macowani* reddish-scarlet, *C. Mackenii* white; and there are some new hybrids which bid fair to become useful decorative plants.

Cuttings.—The present is a good time to put in cuttings of many of the winter-flowering plants, such as *Libonias floribunda* and *perthosiensis*, *Sericographis* of sorts, *Centropogon Lycanurus*, the handsome *Callicarpa purpurea*, and similar things. Select stout and goodly-sized cuttings in all cases; indeed, with *Libonias* the best results are attained by putting in nice bushy pieces, which require but little subsequent pinching to make dense bushy plants.

Seeds of stove and greenhouse plants should now be sown, such as *Abutilons*, *Acacias*, *Grevillea robusta*, *Fatsia* (*Aralia*) *japonica*, and *P. papyrifera* (the Rice-paper plant), *Mimosa pudica*, and *Desmodium gyrans* are always objects of interest in a collection of plants. Such pretty trailing plants as *Thunbergia alata*, *Clitoria ternata*, and *Maurandya Barclayana* should not be forgotten; they come in handy for twining round pillars, or as large basket plants. A good sowing of *Gomphrena globosa* put in at the present time will come in for decorative work during summer. In the earlier stages of the plants' growth a genial warmth is necessary, and nothing suits them better than a hot damped. As soon as the seedlings are fit to handle, prick them out in pans, using a light, rich soil; return them to their former quarters, and when about 3 or 4 inches high they should then be potted into their flowering pots. If single plants are to be grown 4½s will be large enough, but large specimens may be made by putting three plants into large 32s or 24s, and as the days lengthen gradually disperse with fire-heat; but a moderate temperature should be kept up until such time as the flowers are showing. Cockscombs require pretty much the same kind of treatment, but it is better not to use rich soil till after the flowerheads are set, after which it cannot well be too rich. I have seen plants sown at this time of year develop to 36 inches by 18 inches by the autumn. The pots must be of a good size if large specimens are desired.

Rondeletia speciosa major.—Plants which were pruned back during winter will now be breaking, and may be treated in the same manner as *Franciscas*, but a little peat or leaf-mould added to the potting compost is beneficial. This plant makes a handsome

specimen when furnished with growths to the base. For shape, the round-headed or cone is much liked, when well furnished.

THE FLOWER GARDEN.

PROPAGATION.—The next two months will be a busy time in this department, and before beginning an approximate calculation should be made of the numbers required of each kind of plant. To ensure the quick rooting of cuttings they should be clean, healthy, and thrifty, and, broadly speaking, preference should be given for those of medium strength. It is also essential that after they are inserted in the pots they should not flag from any cause, as to permit this to happen means courting failure, or at best only partial success. The matters of drainage and temperature are also of importance. Most of the soft-wooded bedding-out plants root freely in a temperature of 70°, with a heat beneath them 10° higher. When 6-inch pots are employed they may be made up as follows:—Place an inverted thumb-pot over the hole, fill to the same level with small potsherds, over which put a layer of moss, then fill in with sandy compost to within half an inch of the rims, and a thin layer of sharp sand on the top, and press down moderately firm. This plan, although the one in general practice, is not, in my opinion, the best or most economical in the long run, owing to the subsequent potting or boxing off that is necessary. My own practice is to make use of shallow boxes, 20 by 14 inches, and 4 inches deep; in these the cuttings remain until planting-out time arrives, and are made up with such a compost as will ensure continuous growths up to that period. A layer of 2 inches is put at the bottom of rough pieces of turfy loam and well decayed manure in equal proportions, over this 1 inch of finely sifted compost, a thin layer of sand finishing off the surface. The cuttings are put in thinly—100 in a box—watered with tepid water, covered with panes of glass, and placed on the hot-water pipes in a vinery at work, care being taken to allow sufficient ventilation for the evaporated moisture to escape during the first few days, and to shade with paper when it is necessary. As soon as they are rooted they are gradually introduced to air and light, moved to another part of the house, after a time to a colder one, and finally to cold frames to get hardened off. When properly attended to in this way, the losses do not amount to more than 5 per cent. Most of the subjects employed to fill the summer beds will do fairly well under this treatment in hotbeds, but more care and watchfulness will be required in ventilating and shading *Gnaphalium*, *Verbenas*, *Ageratum*, *Königs*, and *Tropeolum*, and *vice versa*, when a propagating-house constructed on proper principles is employed. *Cannas*, *Lobelia cardinalis*, and *Dahlias*, are best propagated by division of the old roots after growth has begun. The last named may also be easily increased by cuttings inserted singly in thumb-pots and plunged in bottom-heat. The general collections of these may now be placed in a temperature of 55° to 60°. Examine the tubers and cut out all decayed parts. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

PINES.—Any of the winter-started Pines which are showing colour should be kept dry. It is no uncommon thing for Pines when they approach the colouring stage to lose their roots. Most of the plants which were specially treated in the beginning of January will now have bloomed, and should receive a good syringing of tepid water to clean the foliage. It will be necessary to support the fruit; this should be done in good time, ere the weight of the fruit sways the footstalk off the perpendicular. For this purpose two sticks are necessary. Use good Hazel rods; if they have been cut twelve months previously so much the better. When inserting these in the ball be careful not to run them down between the pot and the ball, as nearly all the roots are coiled round the outside of the ball, and serious injury would result. A tie to each stick below and above the fruit will be requisite to maintain the fruit upright. Let the night temperature read from 70° to 75° according to the state of the weather. If very stormy a drop to 65° will be better than a violent heat;

when the temperature rises to 85° with sun-heat let a little air be admitted and gradually increased till mid-day, when it should be reduced by degrees, shutting up in time to secure a temperature of 90°—95°. Well damp the surface of the bed, paths, and walls. Examine the plants weekly, and give as much weak guano-water at the same temperature as the plunging bed, and moisten the whole ball, taking care at the same time not to splash it over the foliage. Another selection of the most forward stock may now be made for a third succession; choose those which have well filled their pots with roots, and subject them to a temperature of 90° at the root and 65°—70° at night; see they are not over-dry at the root at the time of plunging, else they will throw up weak fruit. The late stormy weather will have prevented the shifting of the general stock, but no time should now be lost. Any plants which were shifted at the beginning of last month may now be watered, but caution is requisite at this early season just to give what is necessary and no more. The sun, when it does shine this month, is generally very bright, and it may be necessary to place some light shading over newly potted plants and rootless suckers during the brightest part of the day. Plants which were placed in their fruiting pots last September and October should be encouraged to make a rapid growth now with the view of resting them during the month of May, when they will be easily started into fruit during the following month; take advantage of bright days to push those forward, shutting up in good time to secure all the solar heat possible. Maintain a night temperature of 65° to 70°. Do not syringe overhead at present as the water lodges in the axils of the leaves and is productive of suckers; damp all available surfaces, and keep the vapour trays constantly full of weak guano-water.

Vines.—Pot Vines which were started in November, and are now in the second swelling should receive abundance of weak manure-water; when they begin to colour this should be discontinued, else the flavour will be deteriorated. Do not pinch the lateral shoots more than can be helped; rather encourage leaf development, as it will improve the size and colour of the fruit. If red-spider make its appearance, resort must be had to hand-sponging, as the slightest injury to the foliage will check the swelling of the fruit. Take advantage of bright sunny days to forward the crop, but do not insist on too high a night temperature, and during cold nights be content with 65°, but during mild weather 10° higher may be given. Thin all free-setting Vines as soon as possible, and attend to pinching, bearing in mind that good healthy main leaves are preferable to any lateral growth. As soon as the bunches are all thinned, if the border is at all dry, let a thorough soaking of weak guano-water be given at a temperature of 85°, and mulch the border with a few inches of horse-droppings to prevent a sodden surface from frequent sprinkling of the borders; place a little soot and guano in the vapour troughs once a week and fill the same up with water daily. Admit a little fresh air on all favourable nights more or less according to the state of the weather; where there is no hurry in ripening the crop 60° for most varieties, and 65° for Muscats will be sufficient as a night temperature. Disbud succession-houses as soon as the shoots are 1 inch in length, and discontinue syringing the Vines. Keep the shoots clear of the glass as growth proceeds. Do not trouble about getting the shoots into position, as this often results in their dropping off altogether. When the Vines are in blossom you may twist the shoots any way you choose without much fear of injury, meantime be content by keeping them off the glass. It is now time that all late houses were started. In order to give the Vines time to mature their wood and finish their fruit by September shut up the houses and syringe, merely giving as much fireheat as will prevent stagnation of the atmosphere. Any late vineries which have not done so well as they might, and which have an outside and an inside border may have the roots in the inside or outside, as may be deemed most expedient, lifted. Have in readiness a sufficient quantity of turfy loam, and to every six loads add one of old plaster-mortar; if the soil be of a stiff nature, two loads of charred wood and earth, 2 cwt. half-inch crushed bones, and 4 cwt. of Thomson's Vine manure. Turn the heap over several times at an interval of a few days. Proceed to lift the roots, taking care to injure them as little as possible. Regulate and clear the drainage, replace with the compost, lay in the roots about 1 foot or 15 inches from

the surface, giving them a good dusting with Vine manure, and some of the finer portions of the compost. Place 15 to 18 inches of warm leaves on the top of the border when finished; the remaining portion can be done in the autumn, or next spring. Preparations should now be made for planting young Vines; but it is time enough for a couple of months yet to place the Vines in the border. A compost similar to the above should be got in readiness, and 6 feet inside and 6 feet outside made up, but inside leave 9 inches of soil to be put on when the Vines are planted. Prepare rafts for the young Vines by tying Hazel rods crossways; on these place turves grassy side down; place them on the floor of the late vinery. Wash out the whole of the soil from the roots of the pot Vines, disentangling them at the same time; lay these on the turves, sprinkle them with Vine manure and a nice sharp compost, to the thickness of 4 to 5 inches, should be laid on the top; give a good watering with water at 85°. When they have made a growth of 18 inches to 2 feet they can be removed to their destination, the ties cut, and the rods removed; cover over with the compost to the requisite height. Two years ago I planted two vineries, one in the ordinary way in the middle of March, the other in May, with Vines prepared as now recommended; but although six weeks later in being planted, it took the lead, and now looks a year the older. *W. M. Baillie.*

THE KITCHEN GARDEN.

MISCELLANEOUS WORK.—The recent severe weather will have delayed operations considerably in this department, and if it should continue very little can be done outside. A little delay in the work at this time of the year will not do much harm, and can be utilised in various ways indoors and out. Tomatos for outside growth, sown as previously advised, will now be ready for potting off singly into 60's, using a good proportion of leaf-mould in the soil this time; afterwards they should be placed on a hotbed for a time, where a good growing temperature is maintained. Potatos, Carrots, Turnips, &c., in frames must have plenty of air afforded them on all favourable occasions, to prevent spindling. Cauliflowers and Lettuce in frames will also require attention in giving air whenever possible, and stirring the soil amongst them occasionally. Some White Cos Lettuce should now be sown in a gentle heat and hardened off, to succeed the Brown Cos, sown in September. In fine weather the soil should be stirred in the beds of Cabbage with the Canterbury hoe, and any vacancies among the plants should be filled up; the same remarks apply to Lettuces which were planted in October. During weather unfavourable for work outside, the roots in store should be examined, stakes for Peas and Beans got ready for use, labels prepared in readiness for seed-sowing, sheds cleaned and made tidy, and late Potato sets spread out thinly, the larger ones being now cut ready for the planting later; and as soon as fine weather returns any work remaining uncompleted should be undertaken without further loss of time.

The Onion Beds.—When the ground becomes dry enough that it can be trodden on, preparations should be made for seed sowing, and no opportunity should be neglected to get in the crop, as in some seasons this means a loss of two or three weeks. If the ground cannot be raked down fine, it should be worked over with steel forks when dry until it is in good condition. To grow good bulbs it is essential that the soil should be made of moderate firmness and in light sandy soils this is very necessary, it is well therefore in such cases if the ground is dry enough to tread it well, and also to pass a light roller over it both before and after sowing; but heavy and adhesive soils will be best without either rolling or treading. The ground having been well raked over shallow drills should be drawn at 1 foot apart just deep enough to cover the seed, which should then be evenly sown, and lightly raked; in strong heavy soils it is well to have some old potting soil sifted, and strewn up the drills for the purpose of covering the seed. Many gardeners make a practice of sowing Lettuce among the Onions, and I have also seen Parsley growing amongst them: this is, however, bad practice, for however good the last two crops may be among the Onions they can be grown equally good by themselves under similar conditions, and the Onions will be much better without them. *W. H. Divers, Kelton Hall.*

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THE GARDENERS' CHRONICLE,
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W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY,	MAR. 8—	Edinburgh Botanic Society.
SATURDAY,	MAR. 10	Royal Botanic Society (General Meeting).
SALES.		
TUESDAY,	MAR. 6	Roses and other Plants, at the City Auction Rooms, Gracechurch Street, by Messrs. Protheroe & Morris.
WEDNESDAY,	MAR. 7	Lilies, Cocos Seeds, Plants, &c., at Protheroe & Morris' Rooms.
		Fruit Trees, Shrubs, Roses, Border Plants, and Bulbs, at Stevens' Rooms.
THURSDAY,	MAR. 9	Imported Orchids from Mr. F. Sander, 10,000 Lillium auratum from Japan, 3000 American Pearl Tuberoses, &c., at Stevens' Rooms.
FRIDAY,	MAR. 9	Imported and Established Orchids, at Protheroe & Morris' Rooms.
		Clearance of Nursery Stock, at Crouch End, by Messrs. Protheroe & Morris.
SATURDAY,	MAR. 10	Roses and other Plants, at Protheroe & Morris' Rooms.

Everybody's Vinery.
 MANY years have gone by since the late Mr. RIVERS, of Sawbridgeworth, amongst other useful lessons taught in his nursery, showed us how cheaply—that was the word that had most worth in his estimate—Grapes could be grown in this country if we would but follow his example. This example was the outcome of what he had seen in his Continental excursions, as in all probability he had come upon many similar constructions in France and Germany.

The main factors in good Grape growing in this country, as well as in the northern parts of the two countries mentioned, are heat and full exposure to sunlight; and as both are not overabundant in these islands, their effects on the Vine in the open air are not such as the Grape Vine requires to bring its fruits to perfection. Even the earliest ripening varieties, as Sweetwaters and Miller's Burgundy, find our summer all too short; recourse must therefore be had to glass structures, to intensify their ripening effects on the plant. RIVERS would have made Grape culture more popular than it is even now, and his method would have recommended itself to a class of people whose means do not allow of the erection of fine vineries, expensive boilers, pipes, and the whole of the paraphernalia

which, after all, are but a means to an end—the utilisation or supplementing of sun-heat. Sawbridgeworth has a sandy loam for its staple, and this kind of soil is that which is just suited to the Grape Vine, and therefore in making his "ground vineries" he had not to give much, if, indeed, he gave any, consideration to the border in which the Vines were to grow. It was enough for him to dig out a square hole with inward-sloping sides, to prevent earth-slips, and which was deep enough to allow of a man to walk beneath the Vines without disturbing the bunches. The ends were either closed with boards, or with tarred felt nailed on battens and whitewashed, or one was closed in that way while the earth formed the barrier at the other. A glazed roof at an angle of 35°—45°, as simple as it could be made, was placed over this hole saddle-fashion, and supported on quartering fixed to short posts at the two opposite sides of the excavation; a board or a turf wall closed whatever space existed between the eaves and the soil. Ventilation in sufficient quantity was obtained by simple contrivances—a little door in the upper angle of the ends of the structure, or by making a few panes to open outwards here and there in the roof. Bottom, or, as it is usually called, front, ventilation there was none, if we except that which was afforded by the ill-fitting turf wall or boards.

It will be seen from the above that Mr. RIVERS treated the Vine as a hardy plant that required a little assistance in our climate, and nothing more. It was not a hothouse plant hailing from a Brazilian swamp, or a West Indian Island, that needed for its well-doing that every breath of fresh air should be shut out and let into the house only at the gardener's goodwill, but a plant at home on the mountain side, less than a day's journey from London. By this rough help good Grapes were grown at Sawbridgeworth then, as they are also now, but in somewhat more expensive structures. The Vines grow in the staple soil, slightly enriched certainly, but without any expense being incurred in making drained borders or providing shutters to cover them.

There must be many parts of England where equally good facilities can be found to grow palatable presentable fruit with as little and as cheap aids as these. Many would-be growers are deterred from making the attempt by reason of their being tenants of house and grounds on yearly terms or short leases: for these the ground vinery is peculiarly suited, as no part of it can, by any argument, be made an untransferable fixture. In planting it would be found advisable to wait till May and to purchase growing Vines. These on arriving at home should be placed in the house itself for six days to inure them to the change, as when brought from the nursery the roots and foliage are tender from the great heat employed there in forcing-on the canes. When planting, take out a hole sufficiently large to accommodate the roots coiled round the ball, or that can be disentangled without the disturbance of the entire ball, and plant 6 inches away from the front wall, using a little good soil at the operation, and inserting the stem through a hole made in the turves or board, which can afterwards be closed with moss or clay. A little water may be given with a rose water-can to settle the soil about the roots. In these houses Hazel-rods, wire or string, can be employed to fasten the young Vines to, but these should not be nearer to the roof-glass than 1 foot.

The after-management would be that of a cool vinery, excepting that syringing in the morning

would not be necessary, owing to the moisture arising from the soil; and but very light syringings suffice on the afternoons of bright days, even these being dispensed with on cloudy days. Some of the Vine-houses of the Sawbridgeworth pomologist were provided with primitive but efficient means of heating; if we remember aright, there were combinations of the flue and the boiler with hot-water pipes: some were entirely flue-heated, and others with small stoves standing within the house itself.

There were various reasons for heating a ground vinery, such as the long season and greater heat required by some varieties, or that some were more liable to mildew than others, and needed a somewhat drier atmosphere in the pre-ripening period; and in other instances artificial heat was employed to bring on early crops. There is hardly a variety of Grape worth eating that cannot be well grown in these makeshift houses where ordinary gardening intelligence is brought to bear. In them red-spider and mealy-bug are unknown, so that these sources of trouble and vexation are avoided by the cultivator.

In some parts of the Continent houses of this kind are slightly improved, that is, the bare soil inside of the hole is lined with rough boards, leaving a cavity or pit all round, as in our pigeon-holed dung-pits. This pit serves as the receptacle for horsedung and leaves, as a means of itself, or as an aid to an old-fashioned earthenware flue, to obtain the required heat for early forced Vines. Early Peaches, Nectarines, and Pine-apples, are cultivated very successfully in sunken earth pits; and further it may be remarked that the hot-bed perched on the ground-level, as often seen here, is unknown, the hotbed being always made below-ground; and by this simple means the heat is largely conserved—the leading idea in the "ground vinery." A somewhat similar Vinery is given in fig. 44, p. 275.

A RAILWAY THROUGH A PLANTATION OF PALMS.—A railway through a Palm grove is a novelty to most gardeners, we therefore avail ourselves of Mr. C. B. CLARKE'S kindness by giving an illustration taken from a photograph made by that botanist, who also kindly furnishes the following particulars:—This view (fig. 43) is from a photograph of the railway near Theria Ghat, in the Khasi Terai, in East Bengal. The Palm is *Areca Catechu*, which is largely cultivated at the foot of the Khasi Hills, where it grows as luxuriantly as in the islands at the mouth of the Megna, and attains 80 feet in height. It is the Palm which supplies the Betel-nut chewed throughout South-East Asia and Malaya; and from its exact erectness is likened by the Sanskrit writers to an arrow shot down from heaven. The railway depicted is worked, at the foot of the hill, by a locomotive; it ascends the face of the Khasi Hills 3000 feet at an angle varying from 3° to 45°, and is there worked by a wire rope. This route through Theria Ghat has always been the chief approach from the plains to Khasia; and it was this route which Sir J. D. HOOKER traversed and described in the second volume of his *Himalayan Journal*.

THE ROYAL HORTICULTURAL SOCIETY.—Judging from the letters received, a healthful interest is springing up, and all our correspondents unite in wishing that the Society may be again brought into a prosperous condition. In spite of the numerous defects in its organisation, it has done excellent work in these later times, as witness the several Congresses, and the valuable reports connected with them. The proposal of an exhibition at Chiswick in co-operation with, but not in subordination to the local societies of Richmond, Ealing, Chiswick, has been received with favour by our correspondents, and several of our City friends have expressed their



FIG. 43.—RAILWAY THROUGH A PLANTATION OF ARECA CATECHU, IN THE KHASI TERAI. (SEE P. 272.)

satisfaction at the prospect of City exhibitions. In some cases their payments as Fellows are made contingent on the carrying out of this scheme.

PROCEEDINGS OF COUNCIL. — We are requested to announce that a meeting of the Council of the Society was held on Tuesday, February 29, at which power was given to the President, Sir TREVOR LAWRENCE, Bart., M.P., to sign the agreement for the occupation of the Society's new premises, at 111,

Victoria Street, S.W., for offices, &c. [for three years], and the Drill-hall of the London Scottish Rifle Volunteers in James Street, Westminster, for exhibitions and shows [for one year]. The Society will enter into possession on the 25th inst. Both premises are conveniently situated midway between Victoria and St. James' Park Stations on the Underground Railway. The Council also drew up and adopted a scheme for the admission of Fellows paying £1 1s. subscription, and determined to admit

as Associates *bona fide* gardeners or employes at any nursery, market garden, or seed establishment, at a subscription of 10s. 6d. a year. The following committees were appointed:—*Finance*: Baron Schröder, Messrs. T. B. Haywood, E. G. Loder, H. J. Veitch, with the President, Secretary (Rev. W. Wilks), and Treasurer (Mr. D. Morris). *Chiswick Gardens*: Colonel Beddome, Dr. Hogg, Mr. G. Paul, Mr. Woodbridge, with the President, Secretary, and Treasurer. For

revising the bye-laws: Messrs. T. B. Haywood, A. H. Smea, G. F. Wilson, with the President, Secretary, and Treasurer, coupled with a request that Messrs. Deal, Pearson, and Marshall, members of the Fellows' Committee would be kind enough to confer with them. The Trustees of the Lindley Library had an interview with the Council, and it was determined to remove their Library to the Society's new rooms at 111, Victoria Street, Westminster [the Trustees agreeing to pay 1s. per annum rental]. The next meeting of the Council is fixed for Tuesday, March 6.

THE WORK OF THE SOCIETY.—In our last issue, as in the present, we read of the highly satisfactory proceedings of certain special societies, some connected with floriculture, some with various branches of horticulture, or with the commercial questions affecting the business community at large. We learn that the hospitality of the Horticultural Club—an association founded for social purposes—has been extended to various of these societies. We ask ourselves how it is that the Royal Horticultural Society hitherto has not gathered all these bodies into her own fold, and accorded them the recognition to which they are entitled? Is it a mere Utopian dream to look forward to a time when the national horticultural society shall be an Imperial Institute, according to each department its own autonomy, but as a thoroughly representative body, having the ability to speak and act with authority on all relevant public matters. Who is to blame for the miserable process of disintegration that has gone on we do not know; suffice it to say that it is time it was stopped, and it is more than time that the Royal Horticultural Society ceased to interest itself only in one or two departments, and rose to the full level of its manifold duties and responsibilities, not only to its own immediate constituency but to the nation at large.

THE NEW PREMISES.—The oftener we see them the better we like them. Of course there is plenty of room for grumblers, who do not know the circumstances, but, on the whole, we do not think the Society could have done better, and if a change be needed it can soon be effected, as the offices and Council-room at 111, Victoria Street are to be taken for three years only, and the Drill Hall, with its numerous conveniences for committee rooms, luncheon-room, storage, and exhibition purposes, for a year only. It was a matter of urgent necessity to find new offices before March 25, for to go to Chiswick would, in the general opinion, have been fatal to the prospects of the Society.

THE FINANCES.—We all know in what an unsatisfactory state these are, but it is hardly worth while to make them out worse than they are; but, on the other hand, it is worth while to remember that they have been much worse, and specially it is incumbent on us all to do our best to improve them. The *Journal of Horticulture* last week, of course by inadvertence, stated that the Fellows' committee had recommended an outlay of £700, the real sum being £220 per annum. Against this, too, it must be remembered that the Kensington expenses come to an end after March 25 next, and that the corresponding outlay in Victoria Street will be materially less. The Assistant-Secretary's salary also is, by oversight, given twice over in our contemporary's balance sheet.

THE NEW TREASURER.—One of the first duties of the new Treasurer, Mr. D. MORRIS, has been to sign a receipt for 1s., being the annual amount of the rental, to be paid in future by the Trustees of the Lindley Library for the deposit of their books in the new reading-room! This "pepper-corn" rental is rendered desirable, in order that there may be no question as to the proprietorship of the books and pictures. The *Journal* may be re-assured at this prospect of an assured annual income!

LOCAL SECRETARIES AND REPRESENTATIVES.—The new Council has plenty of work before it, but we hope one of the first things it will do is to organise a thorough system of affiliation and representation in the counties, as before indicated by us.

THE PICTURES.—It has been with a feeling of sadness and indignation that we have thought of the ignominious fate of the portraits of the worthies who did so much for horticulture in the past—BANKS, DICKSON, LINDLEY, VEITCH, RIVERS, STANDISH, SKINNER. Owing to the several exhibitions, Colonial and other, the indulgent landlords required all the space at command, and the pictures had to be relegated to a place of safety, whence they will soon emerge to occupy posts of honour in the new premises. The older portraits belong to the Society, the newer ones to the Trustees. The pictures as a whole are not remarkable as works of art, but the enumeration above given will show of what interest they are to horticulturists.

THE STATUES.—Since we last wrote we have had an opportunity of inspecting them. One of them might perhaps be kept in memory of Royal favour once extended to the Society; but as to the rest, now that the Society has no ornamental garden or conservatory to maintain, they might well be sold. At any rate the matter is worth the consideration of the new Council.

ASSOCIATESHIPS.—Where is the honour if the recipients have to pay for it? The letters F.R.H.S. do not, as some suppose, indicate any particular honour, they simply show that the individual who bears them is sufficiently interested in horticulture and in the Society to be willing to pay his subscription. The real honours will be, we hope, considered to be the election as local secretary—or as an honorary associate in consequence of eminence in the practice or the theory of gardening.

THE PROGRAMME.—We have great pleasure in inserting this note from one of our leading gardeners:—"I read with pleasure your editorial notes in last week's issue, because I fancy that, through them, I can discern emerging from 'the dark cloud' traces of 'the silver lining.' The Council has only to declare itself in favour of a purely horticultural policy to gain the sympathy and monetary aid of every practical gardener in the kingdom that is in a position to subscribe. I have myself been a guinea subscriber for many years, but getting disgusted with the "shilly-shally" policy that for the past two or three years has been in vogue, I have withheld my subscription for the last two years, but I shall pay up the moment the Council decide on the new subscription rates, which in the interest of the Society ought to be decided at the first meeting of the new Council [Charter! charter!], and if they are as low as you say they are likely to be, I feel certain that many working gardeners will join the Society; at any rate, whether the Society appoint local secretaries or not (a capital idea of yours) I shall constitute myself one, and ask all gardeners with whom I come in contact, and whom I know are able, to become subscribers. The tail, 'F.R.H.S.' or 'A.R.H.S.', will draw the cash out of some."

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.—On May 18 next the twenty-first annual national horticultural exhibition will open. It will be a "coming of age" celebration, and the Council is anxious to make it one of the most remarkable horticultural displays ever seen. Exhibitors are aware that during the past twenty years many grand floral displays have been held in the above Society's gardens, and the Council has taken this opportunity of expressing its indebtedness to all who have contributed to make the exhibitions of the past successful, and it now ventures to make an earnest appeal to all who have it in their power, not only to compete for the prizes offered in the schedule, but to send anything they may have suitable for exhibition not named therein. The attention of the judges will be drawn to any extra exhibits of this kind. The Society is now in possession of buildings for exhibition purposes not surpassed in Europe. They have what was known as the "Grand Avenue," in connection with the recent Royal Jubilee Exhibition,

also with the entire structure of the building forming the continuation thereof up to the southerly boundary of the gardens—a total length of 600 feet. The announcement of the fact will, it is hoped, inspire the confidence of exhibitors, inasmuch as tender plants will be protected.

MANCHESTER WHITSUNTIDE EXHIBITION.—The schedule for this exhibition is now issued. The leading class in the amateur's division—in which liberal prizes of £25, £20, and £15 are offered—is for the best collection of Orchids, Ferns, Palms, and other decorative plants grouped for effect. There are also classes for twelve Orchids, six ditto, and for ten *bona fide* specimens, not made up plants; also for ten Cattleyas, and for three Vandas. In the nurserymen's division prizes of the same value are offered for similar groups of Orchids and other plants. Unequalled as the display of Orchids has for many years been at Manchester it may be expected to be even still finer on the forthcoming occasion. In both the amateurs' and the nurserymen's sections there are, as heretofore, tempting prizes for the ordinary miscellaneous groups of plants, and likewise for flowering stove and greenhouse plants, Azaleas, Ericas, fine-foliage plants, Roses, Pitcher-plants, hardy herbaceous plants, and other popular subjects. Altogether there are sixty classes for plants and twelve for fruit, for which also good prizes are given. This is the twenty-first year of these great displays at Old Trafford, and the schedule has been prepared with a view to this year's display being still ahead of those that have preceded it.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—A meeting of the acting directors of this Society was held on Tuesday evening, the 21st ult., in the Secretary's office, Bridge Street, Aberdeen, Town Councillor LYON presiding. The dates for the grand floral *fête* were fixed for August 23, 24, and 25, in the Duthie Public Park, Aberdeen. The prize schedule was finally revised, and ordered to be printed and circulated among the members. Efforts are to be made to get a railway station, or platform, erected at the park previous to the *fête* being held.

THE GARDENERS' ORPHAN FUND.—The monthly meeting of the Executive Committee took place at the Caledonian Hotel on February 24, Mr. GEORGE DEAL in the chair. Mr. FELIX PYNÆERT, of Ghent, was present also, upon the introduction of Mr. J. LAING; and Mr. G. W. COMBINS, the Grange Gardens, Wellington, one of the local secretaries, also joined the committee. The Hon. Sec. reported that there was a balance of £175 at the bank, and that another £500 would be invested in Consols previous to the election. The donations since the last meeting amounted to £46 11s. 6d., and the subscriptions to £18 16s. The wisdom of appointing local secretaries was shown from the fact that one had sent £18 and another £16. The activity shown by Mr. JOHN LYNE, Belvedere, Wimbledon, was particularly gratifying to the committee. The total sum subscribed since the establishment of the Fund is £1449 14s., and the amount actually received £1108 2s. 6d. Of this sum £1119 2s. 6d. is in the form of donations, of which £914 has been paid, and £230 11s. 6d. as subscriptions, of which £194 2s. 6d. has been received. Subscribers and donors will greatly assist the work of the committee by at once sending in the amounts promised. The form of nomination-paper was approved, and Mr. BARNON announced that an advertisement relating to the coming election had been inserted in the gardening papers, as well as in Ireland and Scotland, free of charge. A sample contribution-box was submitted by Mr. BATES; applications for boxes were also received from Messrs. ARNHEIM and WILDSMITH, and a suggestion that collecting-cards should be provided came from Mr. R. GILBERT, Burghley. The provision of boxes and cards was deferred until the next meeting. Mr. HUSSEY, Haines Hill, Twyford, Berks, was requested to act as local secretary for that district. The sub-com-

mittee appointed at the last meeting to consider the advisability of holding something in the way of a popular *fête* during the present year, made a report to the effect that they had well considered the matter in every respect, and being anxious to avail themselves of the opportunity afforded by the election to the Fund on July 13 for the local secretaries and subscribers to visit London on that date, and giving them a hearty welcome, they recommended that a popular dinner be arranged at a moderate cost, so that it should be within the means of all, the dinner to take place at the close of the election. It was therefore moved by Mr. BATES, and carried unanimously: That the report of the sub-committee be received and adopted. It was further resolved, on the motion of Mr. J. WRIGHT, that the election take place on July 13, from 2 P.M. to 4 P.M., and the dinner at 5 o'clock. A sub-committee to carry out the arrangements of the election and dinner was appointed consisting of Messrs. RICHARDS, DEAN, HERNST, WYNNE, ROUFFEL, WRIGHT, with the Chairman and Hon. Secretary.

ORCHIDS AT MESSRS. LAING & SONS.—The plants at this nursery make a nice display in several of the houses that have risen from the ashes of the late fire, many recent importations having flowered that present in some cases improvements on type forms. *Dendrobium Wardianum* (Low's variety) and *D. primulinum giganteum* have robust stems, with numerous flowers. Established plants of *Cattleya Trianae* were many, as are likewise the opened and unopened flowers of the same; some large-frilled, highly-coloured flowers were observed. *C. T. alba*, still thought much of by growers, and scarce, was found in several flowering examples. The following may be mentioned as being more or less in flower at the time of our visit:—*Cypripediums* Boxalli, insigne, heterocarpum, infundibulum; *Dendrochilum glumaceum*, *Laelia albidia*, *harpophylla*, several *Masdevallias*, *Odontoglossums* *Alexandre*, *crispum*, *Sanderianum*, *Rossi majus*; *Oncidium barbatum*, *crispum*, *unculatum*, *Pilamnia fragrans*.

THE SEED CROP OF 1887.—Messrs. Hogo & Wood, in their annual report on the probable supplies of farm seeds for the current year, appear to be of opinion that there is the prospect of all sorts being abundant and low in price, with, perhaps, the one exception of Italian Rye-grass seed. Of Clovers, Rye-grasses, and permanent pasture seeds they have secured good supplies of excellent quality. Timothy, Cocksfoot, and other natural grasses are stated to be in fair supply, and, with one or two exceptions, at prices similar to those of the past season. Cocksfoot, Timothy, and Meadow Fescue are in increased demand for two and three years' pasture, along with the usual mixture. Of Tares large Scotch and foreign, an abundant crop of excellent quality is warehoused, and rates will be lower than in 1887. Of Turnips and Mangels the crop of seed was a fair one of nearly all sorts, the yellow varieties being those only of which there is a short supply, and prices will probably rule higher than last year.

EDINBURGH CHAIR OF BOTANY.—Professor I. BAYLEY BALFOUR of Oxford has been elected to the Chair of Botany in the University of Edinburgh, vacant by the death of Dr. A. DICKSON. Mr. BALFOUR is a son of Dr. J. HUTTON BALFOUR, who filled the same chair for so many years prior to Dr. DICKSON, and his appointment leaves a vacancy in the Botanical Chair at Oxford.

MELON PEAR AND TREE TOMATO.—We have received from Mr. D. MORRIS, Assistant-Director, Kew, the following communication concerning the above-named plants:—"We have neither seeds nor plants of the Melon Pear. I tried it two years ago when first introduced, and am satisfied that it has no merit whatever. I do not believe it is now grown to any extent anywhere, as it is really unworthy of cultivation. I am glad to hear of your success with the Tree Tomato (*Cyphomandra betacea*) in India and Ceylon. It is only in such climates that it

would be any good; it would never do for our northern latitudes, as it is no use the first season, and would be required to be protected by glass during our winters, which would be troublesome and expensive. PETER HENDERSON, *New York*."

ANOTHER PRETTY THING.—A very pretty floral piece, says an American exchange, made by the Cincinnati Floral Company, was decidedly original:—"Upon an easel of cat's-tails a velvet plaque rested. The latter was decorated with a cluster of Roses, and at one side, resting upon a branch of Holly, was a little owl made of Violets, and natural enough looking to fly away. Beneath was a nest full of eggs."

"COMPENDIUM FLORÆ ATLANTICÆ."—The second volume of this important publication, devoted to the enumeration and description of the plants of the Barbary States—Algiers, Tunis, and Morocco—has just been published. Its author is M. COSSON, whose name is a guarantee of thoroughness and care. As this second volume only extends to the Cruciferae, it is obvious that this generation cannot hope to see the completion of this work. The Arabic names are given as well as the Latin.

"GARDEN AND FOREST."—We are glad to learn that Professor CHARLES S. SARGENT is steadily recovering from the illness which attacked him several weeks ago. He is not yet able, however, to give active personal attention to the new American journal of horticulture, landscape art, and forestry, which he is to conduct, and it is thought advisable to defer publication until he can do so. It is, therefore, not probable that the first number of *Garden and Forest* will appear for a week or two.



FIG. 44.—A BELGIAN MARKET VINERY (SEE P. 272).

BAILLON'S "HISTOIRE DES PLANTES."—This work proceeds steadily. The last part contains the history of the Droseras, Tamarisks, Willows, Podostemaceae, Platanaceae, Solanaceae, and Scrophulariaceae—an odd association. The woodcuts are excellent, and the annotations very useful, but the indices to each volume are defective.

NATIONAL CO-OPERATIVE FLOWER SHOW.—The managers of this enterprise, which is affiliated with the Royal Horticultural Society and the Agricultural and Horticultural Association, Limited, announce in a schedule of prizes just issued, that a show will be held at the Crystal Palace on August 18. It may be interesting to note that whereas last year a sum of £60 was offered in prizes, this year the sum will amount to £320, besides several promises of further subscriptions. If the entries are in anything like the proportion they were last year, the show will be one of the largest collections of *bona fide* cottagers' produce ever held.

GOVERNMENT ORDER FOR TREES IN THE ISLE OF MAN.—Last week we noted the fact of MESSRS. KENNEDY obtaining a large order for the above, but have since ascertained that the order was divided between them, Messrs. LITTLE & BALLANTYNE of Carlisle, and another firm. The trees ordered are small seedlings intended to be grown in a nursery under the superintendence of a forester sent by Messrs. LITTLE & BALLANTYNE.

"BRIDES."—"Mr. EVANS is said to have the best Brides in the market." Frenchmen engaged in writing books on American manners and customs please note.

THE WEATHER AND THE FLOWERS IN SOUTH IRELAND.—Even in this favoured nook cold winds

prevail. Daffodils have made but little progress. Mr. HARTLAND's bed of Leda Daffodils, 150 feet long by 3 feet, white, will be a fine sight. *Prunus Pissardi* is in flower out-of-doors. Heliobores have been very fine, and are growing in popular estimation both as outdoor plants and for cool-house decoration after Chrysanthemums.

BOOK NOTICE.

LES SERRES VERGERS: Traité complet de la Culture Forcée et Artificielle des arbres Fruitières. Par M. PYNÆRT. Fourth Edition. (Ghent: Librairie Générale de Ad. Hoste.)

We have here the fourth edition of a very full and exhaustive treatise on the cultivation of fruit trees under glass, by one of the most talented and able writers on horticulture, viz., M. Pynaert. The mere fact of its going through so many editions is ample proof of the estimation in which the work is held by those conversant with the French language. The edition now before us is swollen to a bulky volume of 468 pages, with numerous illustrations, a great amount of fresh matter having been introduced. Beyond the cultural and other details, which are given by M. Pynaert in his usual vigorous and well-reasoned style, and which are altogether excellent, we are furnished with numerous notices of the practices of other countries, and the various methods adopted in the forcing and cultivation of the different fruits under notice, copious extracts being made from the principal writers on similar subjects. All this is extremely interesting, showing us how we stand in comparison with our neighbours. We in England are believed to lead in the matter of Grape growing under glass, and it may be news to some to learn to what an extent Grapes are grown for market in Belgium. We copy here an illustration (fig. 44) of the style of vinery in use at Hooylaert, near Brussels, which, for simplicity, is equal to any erection we have seen.

We are told by M. Pynaert that Grapes are grown to an enormous extent around Hooylaert; that there are already over forty establishments, some of which cover several acres of ground, all devoted to the cultivation of fruit, but specially Grapes. The whole district seems to be a field of glass. A sort of wild craze seems to have possessed the good folks of Brussels to go in for this sort of thing, following the example of one or two successful cultivators, the result being that, started without any knowledge of the business, &c., the greater part is an utter failure. Amongst the successful ones M. Pynaert mentions that of MM. Sohie Frères, who cut during the month of April last 4000 lb. of ripe Grapes.

Full credit is given to horticultural intelligence and culture in this country, the author quoting largely both in matter and illustrations from the most of our best writers on these subjects, such as Thomson's *Handy-Book of Fruit Culture under Glass*, Barron's *Vines and Vine Culture* (unfortunately reproducing the bad illustration of a bunch of Grapes after thinning that appeared in the first edition of that excellent work). Frequent reference is made to Lindley's *Theory of Horticulture*, to Rivers' *Orchard House*, *The Fruit Manual*, &c., and our own columns. But why M. Pynaert should go back to McIntosh's *Book of the Garden* and *The Practical Gardener*, and give these as authorities, we can hardly understand. Relying on these obsolete works—the list of fruits given, Plums and Cherries specially, as grown under glass or for forcing in this country are about as bad as could be. Who in this country would recommend the Morello Cherry for culture under glass, or that of the old Catherine Peach—a clingstone variety discarded and forgotten years ago? The newer and finer varieties of these fruits that are now cultivated in this country are entirely overlooked, and seem to be unknown. It is a pity M. Pynaert should not have given this greater attention, and made it more in accordance with the present time.

DROPPERS.

SOME time since we gave a figure of some bulbs of *Scilla sibirica*, exhibited before the Scientific Committee by Dr. Lowe (see *Gardeners' Chronicle*, October 15, 1887, p. 475). At that time there was in the bulbs we examined (perhaps half a dozen) only a single bulbil visible at the extreme base of the dropper. Some of these bulbs have remained on our table in a tin box till the present time, when, observing that the bulbs had not only shrivelled somewhat, but were showing signs of a renewal of growth at the top, we cut one open, when, to our surprise, we found in the interior two or three bulbils, one above another, in addition to one at the base, the new comers coming from the sides of the tube, this tube being, as we take it, a cylindrical leaf-sheath. On examining other bulbs, six or seven in number, we found in all of them a varying number of young bulbils, as shown in fig. 45. Some of these were developing roots which were penetrating the original sheath, as may be seen close to the figure 2 in our illustration. We repeat the original illustration (fig. 46) for the sake of comparison. It is, of course, possible that these supernumerary bulbils were present though unobserved in October, but the fact remains, that all the bulbs then cut open had apparently but one bud, and that one at the base, while, now, all the bulbs cut open, show several bulbils (from 2 to 5), originating, as it would seem, not as axillary productions, but from the inner surface of the leaf-sheath. The figures 2, 3, 4, 5, show these supplementary bulbils *in situ*, as seen when the bulb is cut open; A, n, c, show the appearance of sections made obliquely across the bulb at the spots indicated. No trace of flower could be seen, so that here we have an increased production of vegetative organs, (bulbils), at the expense of flowers. This circumstance affords a clue to the cause of a phenomenon which sometimes excites surprise, viz., the apparent absence of plants in some seasons and in some situations where they might have been expected to appear. They are not really absent in such cases, but they either produce leaves only, or, as is the case with some of the terrestrial Orchids, they develop and multiply their tubers beneath the surface, till circumstances alter and the plants become once more conspicuous by their bloom.

HOME CORRESPONDENCE.

ILLUSTRATING CATALOGUES.—Is it not time that an active protest should be made against the present style of illustration as applied to advertising in horticultural catalogues, not only in the interests of truth (which has now apparently severed all connection with these productions), but also in those of the producers themselves of these barefaced insults to common sense? For is not an illustration which is palpably absurd and impossible much more likely to disgust than to attract? I am pleased to see that one of your contemporaries has taken up this subject, and hope your own influence will be brought to bear upon it, until advertisers vie with each other in their search after truth, instead of seeing who can leave her farthest in the rear in their race after sensation. *Chas. E. Pearson.*

JUNCTIONS OF PATH AT RIGHT ANGLES.—Just thirty-five years ago I was employed by the late eminent landscape gardener, Mr. W. B. Page, of Southampton, to superintend the laying-out of a new garden near that town, and I well remember, not only that in every case were paths sometimes made on the plan at right angles, but that Mr. Page frequently impressed upon me his detestation of paths sometimes at acute angles. Remembering that, I have been interested in reading Mr. Kemp's remarks, because he seems to have followed in the footsteps of my old employer. Mr. Page had very emphatic methods of denouncing objectionable ideas, and particularly did he deride any other method of entering

one path into another than at right angles. To do otherwise was to him the rankest heresy. He would reason in this way: If you make your paths at right angles, you compel any one walking on them to go clean off from one path to the other, but in the case of acute or pointed junctions, the narrow margin of turf, or whatever may be between the paths, presents a temptation to tread upon or across it, and that would be the height of absurdity in path planning. But most of all, it was Mr. Page's belief, that the gardening mania demanded the right angle junction, no matter what course a path might take after it had left the other. I confess to having the same belief, always feeling instinctively annoyed when I see very acute points marking the junction of paths. This may be a small matter, but it is one to which the new generation of gardeners may well apply their minds beneficially. *A. Dean.*

GARDENER EMIGRANTS.—In reply to "Emigrant," in your last week's issue (p. 243), it may be advantageous to many gardeners seeking a situation to hear that we have standing personal instructions from one of the largest nurserymen in the United States to send any really deserving man to him, and he will immediately give him employment. Efficient gardeners are in request, and as soon as they become conversant with the difference in climate, and can prepare for the seasons accordingly, good places are, as a rule, quickly found. *H. Cannell & Sons, Swanley, Kent.*

MUSHROOM GROWING AT LYTHER HILL, HASLEMERE.—Mushrooms form an article of diet much relished here, and their cultivation is carried on extensively, and it may be said with much success. The contrivances employed to grow Mushrooms differ from those found in other private establishments. The Mushroom-house proper is in two divisions, and is fitted up with shelves standing three deep on each side the path. Another structure is a cellar made of concrete 40 feet long by 20 feet wide, beds being made on the floor on either side of the path. These beds are made deeper and more slanting on the surface than those in the house. The produce at this moment is enormous, the beds in bearing being literally covered with large and small examples of the best qualities, some of the former measured 6 inches across. Beside these places where Mushrooms are grown is a span-roofed shed, which is unheated, and from which Mushrooms are gathered from February onwards to the summer-time. The shed is in a northern aspect, sheltered from the sun, so that it is cool even in warm weather, and fine fleshy Mushrooms are grown in it when those in the Mushroom-house are uneatable. Mr. Evans, the head gardener, is an enthusiast in Mushroom growing, and experience has taught him that the beds should be at about 75°, not higher, when the spawn is inserted; this temperature he considers necessary to produce Mushrooms for a lengthy supply. *Visitor.*

AGERATUM ADA BOWMAN.—As the season when arrangements must be made for the summer bedding display is now upon us, it may be well to call attention to this *Ageratum*, which will be found one of the most satisfactory introductions of the season. It is of a charming shade of colour, 9½ inches in height, and bearing large trusses of flowers. It has a fine stiff bushy habit, which requires no pegging down, and blooms in profusion from May until cut down by the frosts. It may almost be called a perpetual blooming *Ageratum*, for when propagated in the autumn, at the time when other bedding-plants are struck, it flowers with the greatest freedom right on into January, and consequently makes a very useful plant for greenhouse decoration. *W. H.*

STRAWBERRIES.—In an article on the above subject by Mr. W. Lovel in your issue of the week before last, p. 135, I note the remark that the season of Strawberries is somewhat brief, and further, that the early varieties do not produce large berries. On these two points I am compelled to differ from Mr. Lovel. In the first place the season can be made a comparatively long one with careful management; and with regard to the size of the berries, I find that that excellent variety, Sir Joseph Paxton, will yield very large fruit at the commencement of the season, quite as large as they are at a later period. I have grown several varieties of Strawberries for early fruiting, but have discarded them all in favour of the

Sir Joseph. Gathering begins usually from June 14 to 20, and the supply is kept up from that date till the middle of September. It may interest some of your readers if I give a brief description of the method by which the supply is maintained over so long a period. As stated before, I grow the Sir J. Paxton for early work, also for the successional crops, and the Oxonian for mid-season and late supply, Keen's Seedling being grown merely for preserving purposes [too dark in colour]. I grow all the plants on borders under walls having different aspects. Those plants from which the earliest berries are gathered are growing on a border facing due south and in front of a high wall, and the fruit of these are generally ready for gathering from June 14 to 20. The successional plants are likewise planted on borders facing respectively south-west, west, and north, and these are all of the Sir J. Paxton variety; by this means the supply is extended to the end of July. Then follows Oxonian, planted on a south-west border, and these generally last from ten days to a fortnight, after which time the same variety begins to bear on north borders, and usually the supply of dessert fruit is kept up till the second week in September, unless the season be an unusually hot one, like the last, when the plants will continue to bear fruits till the first week in September. To achieve these results, the sites of the Strawberries on the borders are often changed, the plants being destroyed after the third crop is taken. If left till the fourth year the crop produced might be greater in quantity, but the berries would be very small in size, so that a point is made of breaking up a certain quantity yearly, immediately after all the fruit is gathered. The ground is then manured, trenched, and allowed to settle down, after which it is firmly trod, and is frequently replanted with Strawberries as before, with plants layered in 60-sized pots. The plants grow away, and make fine crowns by the winter, which invariably produce a good crop of fine fruit the next season. During dry weather the plants always receive liberal supplies of water, and that frequently. *A. Ward.*

TO KILL COCKROACHES.—I have found the following method very effectual:—Finely crumble stale bread; add to the crumbs dry plaster of Paris, and place this mixture about their haunts. *C. L.*

—A good recipe for killing cockroaches is Chase's beetle-paste (not the powder). If the balls of paste are placed where the insects come at night, say, once a week, it will certainly kill them, and if they reappear a few more balls will be necessary. *O. Orpet, Cirencester.*

—The "Arcanum" beetle-trap is one of the best. It is simple; you merely place under the trap a gallipot, thoroughly clean, about a quarter full of sour beer and sugar, and place it where the beetles are numerous. The outside is rough, like sand-paper, and a ring of metal is at the top, where the beetles slip down, and which must be kept bright. I have only used six traps in four years, and have quite exterminated the cockroaches, and almost so the crickets. The traps—1d. and 2d. each—are sold by Rolfe & Co., 54, Holborn Viaduct, London, E.C. *H. Birch, Castle Ashby Gardens.*

—Hester's magic paste, to be procured from the makers, Rosebery Cottage, Mayfield Road, Dalston, N.E., will rid any houses of cockroaches most effectually in a night or two. *W. E. G.*

—Until a short time ago our stove and Orchid-houses were infested with these pests. I tried the usual remedy—beer, in bell glasses—and caught numbers of them; but as they continued to plague me, I procured some arsenic, and mixing a small quantity with some brown sugar, distributed it in sancers about the houses. In less than a week there was not a live cockroach to be found. We were also greatly troubled by ants, and these also entirely disappeared. *R. W. I.*

—In reply to your correspondent, Mr. W. Watson, co. Down, I would recommend him and any one troubled with cockroaches and beetles to purchase of any ironmonger one of the "Demon Beetle Traps." I have recently used them in the house and garden, and have caught hundreds every night. They can be bought for 1s. each, and are most efficacious. I find also crickets get into them. *H. J. Buchan, Wilton House, Southampton.*

EXTRA EARLY VERMONT POTATO.—What has become of it? Many seed firms have sent me their catalogues, and I have turned them over to see if any still retain this once so much run-on favourite, and only in Mr. Cannell's, of Swanley, do I find it; yet

twenty, or even forty-two years ago all had it. This is another illustration, proving conclusively that certain varieties reach the zenith of their fame, then decline, and ultimately get lost, or, as some assert—I think not accurately—are frequently issued under a new name. This was a capital Potato for early work, rather dark and rough in the skin, but a heavy cropper, and of excellent quality. It liked a loose, warm, friable loam, such as is easily found in Kent, so I am not surprised Messrs. Cannell still have it. I have known many hundred varieties within the past thirty years, but few could exceed this in quantity or quality. It is I believe of American origin. *W. J. Murphy, Clonmel.*

THE RECONSTRUCTION OF THE ROYAL HORTICULTURAL SOCIETY.—Already I note two rocks ahead, and may espy some more, but these are the chief—dual secretaryship and emasculated fellowships. The Secretary advertises for an Assistant-Secretary at a salary of £200. Why Assistant or Vice-Secretary? and what is the use of his superior, or a Honorary-Secretary over him? Surely one head of the Society—under the Council—is enough. Under the dual secretaryship either the head becomes a dummy or a hindrance. Who ever heard of a honorary station-master or business manager? Pay a secretary, manager, or curator well, by all means; give him his head, and let him do the actual work of the Society without a curbing bit in his mouth, or being reined-in by an Honorary Secretary above him, or one or more semi-independent clerks below him. Emasculated Fellowships will prove a far greater mistake. I fail to see the honour or the benefit of admitting gardeners to a sort of mongrel Fellowship or Associateship at 10s. a head, such lower grade Fellows to have no share in the government of the Society. No, we cannot consent thus to stoop to conquer, what?—I had almost answered, nothing. I relinquished all the privileges of a Forty Guineas Life Fellowship twenty years ago—a legal document that I still hold—when it was attempted to emasculate it of all powers of modifying and improving the policy of the Society. And I can see no inducement for gardeners to purchase any sort of Fellowship stamped with the seal of inferiority, either of power or of status as to privileges, or how much is to be given for the money that may justly be apportioned as the rates of subscription. But as to the fact that all Fellows must be equal if the Society is to gather into its Fellowship the best class of practical gardeners—the Society has nothing to fear from those, as they are never likely to form a preponderating majority of its Council; and if they did it is certain that no dozen practical gardeners could have blundered more egregiously than have a succession of aristocratic and close corporation Councils, the last of which taking credit for the marvellous feat of marching out of Kensington and leaving in round numbers £80,000 sterling of the money of the Royal Horticultural Society behind it. No Council of practical gardeners would have sanctioned such wholesale blundering, whether by Royal Commissioners, Royal Heads or Government. *D. T. Fish.*

"SALTING" CULTIVATION.—In reply to "W. G.'s" inquiry, I have seen Pampas-grass grow luxuriantly where the tide overflows at times. No doubt he would find Celery grow well in the situation to which he refers, as it grows strongly on the banks of tidal rivers. *E. Sandford.*

—In answer to "W. G.'s" query (p. 249), I think the following would be likely to do well, viz.:—Celery, Asparagus, Thrift, *Althæa officinalis*, *Aster tripolium*, common Beet. *Cochlearia officinalis*, *C. armorica*, Horseradish: *Cakile maritima*, *Carex divisa*, Senkale, *Frankenia laevis*, *Glaux maritima*, *Gastidium lendigerum*, *Ianula crithmoides*, *Peucedanum officinale* (Hog's Fennel), *P. palustre*, *Polypogon littoralis*, *Rumex maritimus*, *Statice limonium* (Sea Lavender), *Salicornia herbacea*, *Suaeda fruticosa*, *S. maritima*, *Salsola Kali*, *Samolus valerandi*, *Tamarix gallica*, and *Zostera nana*; *Osmunda regalis* amongst Ferns. If your correspondent will consult Bentham's *British Flora*—a veritable goldmine of botanical literature—he will find therein a mass of information relative to maritime plants in general, and might possibly select many other genera and species that would be likely to suit his purpose. *J. H.*

GOOSEBERRY CATERpillARS.—In answer to the frequent question, how to destroy these, a correspondent wrote in the *Gardeners' Chronicle* four or five years ago, advising the syringing of the bushes

with a mixture of 4 oz. of alum to 1 gallon of water. This practice I have carried out every season since, and have found it a thorough cure. I use the mixture warm, for when used cold the leaves of the Gooseberry bushes become warped. Besides this, however, I also go over the bushes early in the morning, and kill the moth that breeds the cater-

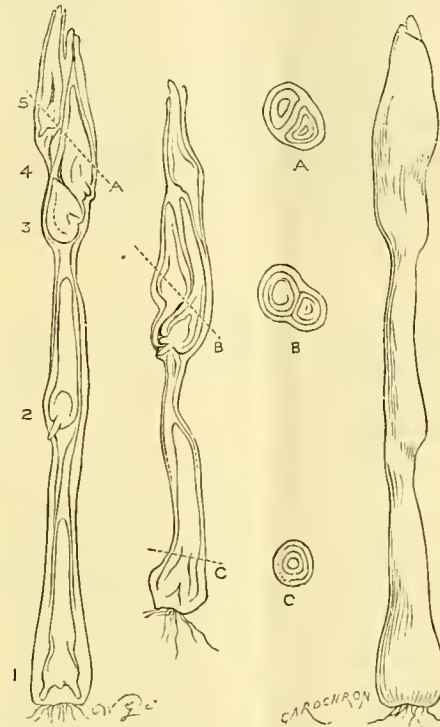


FIG. 45.—ADVENTITIOUS BULBS IN SCILLA IN MARCH.

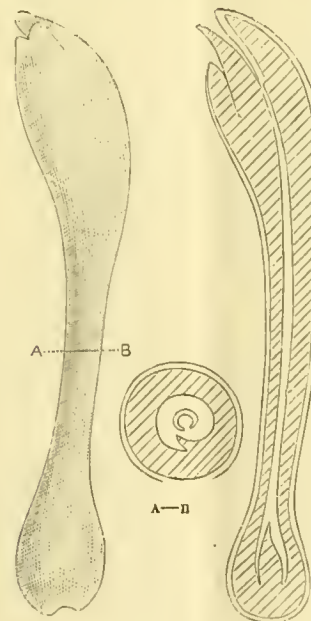


FIG. 46.—DROPPERS IN OCTOBER.

pillar. The insect is sluggish in the morning, and may be caught easily. *J. Hamilton, Needwood, Burton.*

FIG TREES.—With regard to the advice given at p. 206, to "prune and nail Fig trees which are growing in mild localities at once," I may, as one having an extensive and successful experience of the culture of Figs on walls, be allowed to recommend

that pruning, and consequently nailing, of all Fig trees growing out-of-doors in cold as well as mild districts be deferred until growth begins, say the first or second week in May, according as the locality is warm or cold. There will then be no difficulty experienced in deciding which shoots shall be retained as the most likely to produce good crop, as the fruits will have commenced swelling. The fruit is not only borne on the extremities of the shoots made the previous year, but pretty well at every joint, providing that the said shoots had been pinched a couple of times during their growth, and that the wood was well ripened, as was the case last autumn. In pruning, as your correspondent very properly recommends, as much of the old wood as can be dispensed with should be cut out, retaining the shoots which are best furnished with embryo fruit to form the tree. Another reason why the pruning of Fig trees should be deferred until the terminal buds of the individual branches have pushed into leaf is that they do not then bleed so much as they would do if pruned earlier in the season. That the practice of protecting Fig trees during the winter months does more harm than good, I have no doubt. Previous to my taking charge here, some seventeen years ago, the Fig trees in these gardens, covering 300 or 400 feet run of wall, used to be disnailed and bundled together horizontally half-way down the wall, and covered with mats during the winter months; but during the interval (seventeen years) the trees have been purposely allowed to remain tacked to the wall without the slightest protection of any kind being given them, with the most satisfactory results in the way of crops. Some seasons the thermometer registered as many as 30° of frost. In conclusion, I may be allowed to say that all superfluous growths are promptly removed during the growing period, those intended to take the place of wood made the previous year at pruning time being laid in in due time. *W.*

SLUGS, &C.—Is there any known way of killing slugs, &c., contained in fresh sphagnum before using the moss for potting Orchids and other plants? I am encouraged to ask by an account in the *Gardeners' Chronicle* of some *Odontoglossums* which are grown in a bed of sphagnum, and I can hardly think such a coarse sale with sphagnum as ordinarily received. Perhaps the grower of those Orchids would give information through your columns. *J. Cumming.*

DRYING-OFF OF ALLAMANDAS.—I quite agree with your correspondent "Mayflower," that plants of Allamanda should not be dried off during the resting period. In the gardens of Lord Lilford, under the management of Mr. Harlock, the Allamandas are grown to perfection. The plants in question, which occupied a 7-inch or 8-inch pot, were several years ago placed on the bed of a span-roofed stove, under which was a tank with hot-water pipes running through it. The roots of the plant soon descended into the tank, and there they may be seen hanging in large clusters, enjoying the unlimited moisture summer and winter. With this treatment the plant has always grown well, and the number of flowers produced yearly is marvellous. *L. J.*

SCENT IN SOLOMON'S SEAL.—There is no doubt at all that the flowers of this plant have a most agreeable scent, as any one will easily detect by flowering a few roots. The scent is perhaps more pronounced when the plant is forced gently into flower, and it is due to confining the plant in a house that the scent is more noticeable than out-of-doors. *S.*

SOCIETIES.

EDINBURGH BOTANICAL.

FEBRUARY 9 (continued from p. 247).—Mr Patrick Geddes read a paper on the "Origin of Evergreens." He stated that the explanation he had to offer was of the same kind as his explanation of the shortening of the axis in inflorescence; as that of the conversion of hypogyny into epigyny: that given by him at the previous meeting as to the origin of spines, and that in Mr. Sewell's paper on "Floral Colour."

The Society would remember that in accounting for the shortening of the axis in the inflorescence or in the flower he had insisted on the fact that such floral modifications were only possible at the expense

of vegetation. A similar lessening of vegetation had produced spines, the explanation of that, as of the preceding variations not being accounted for by natural selection chiefly.

Finally, he reminded the Society that a similar reason for variation accounted for such different characters are to be found within a natural order—the contrast between Larkspur and Rue, Lily and Rush; thus falling under an explanation in harmony with others mentioned.

Evergreens are peculiarly natives of regions in which there is little or no difference between winter and summer—that is, they are found where they may vegetate continuously, as, for instance, is possible in Japan, their characteristic habitat.

But there is in reality no hard and fast line between evergreen and deciduous plants. It is well known to every gardener that plants generally deciduous will, in certain favourable winters, persist as evergreens. Again, plants which in one country are deciduous annuals will change to evergreen perennials in another where there are more nutritious surroundings.

Evergreens are therefore plants of a vegetative habit, which may have acquired the tendency to accumulate reserve material—laying by a deposit, as it were—to tide them over the winter or that period in which they do not assimilate. It follows from this vegetative character that they will be late flowerers, and that commonly they will be less developed florally than their allies, which are not so distinctively vegetative. Double flowers are shown by experience to be later bloomers than single ones of the same species. Again, for instance, it is several years before such plants as *Rhododendrons* have acquired enough reserve material to enable them to flower. Evergreen plants, such as *Helleborus*, *Iris histrio*, *Tritoma media*, which are commonly regarded as early flowerers, may with greater reason be regarded as very late flowerers, blooming, as they do, by means of reserve material stored up in the previous year.

Examination may be made of natural orders or alliances, and it will be found that the orders, or even genera that are more characteristically evergreen than their allies, have the simpler flowers. Compare in this connection *Saxifragaceæ* and *Crassulaceæ* with the deciduous *Umbellifereæ*, *Crucifereæ* with *Fumariaceæ*, *Araliaceæ* with *Umbellifereæ*. But perhaps the best support is given to Mr. Geddes' position by the condition of annual plants, which in exact contrast to evergreens are the most floral of all plants in their character, and poorly vegetative. Evergreens and annuals may serve as the two opposite extremes in plant life, illustrating, the one the vegetative, the other the reproductive condition pre-eminently. But the struggle between the vegetative and the reproductive which is now recognised by biologists as the chief reaction throughout all life, is capable of being resolved into the factors of more or less vegetation among plants—one condition in which more assimilation takes place, the other in which more breaking down or destructive change is evident. The night flowering *Cactus* furnishes a final instance. The flower has been adapted to suit moths, which are present in greater numbers after darkness has set in. The flower is only possible in this plant after vegetation, which has been active during the day, has ceased. The flower is a product of the nutritive material stored up during the day; its strong perfume is an evidence of the intensity of the destructive change in the cell contents necessary to its production from the reserve nutritive material.

Ipecacuanha.—Mr. J. Rutherford Hill showed a sample of Indian cultivated *Ipecacuanha* root as now offered in the English market. It could be distinguished from the Brazilian root by the fibrous rootlets, which were absent from the latter as met with in commerce. He also showed a root which had been sold at Mincing Lane as Indian *Ipecacuanha* root, but which was not an *Ipecacuanha* root at all. The spurious drug consisted of more or less conical or fusiform tap-roots, pale yellowish-brown externally, white and starchy internally, without the characteristic cortical layer and woody medullium of *Ipecacuanha*. It contained no alkaloidal principle. Its botanical source had not yet been determined, but it bore some resemblance to the root of *Aconitum heterophyllum*.

Astragalus.—Mr. Rutherford Hill also showed a plant recently received from a correspondent in Cyprus. The specimen consisted of the herb with immature legumes and a few flowers in a chopped up condition. It appeared to be a species of *Astragalus*, and Mr. Lindsay, of the Royal Botanic Garden, to whom it had been submitted for identification, without any

information as to its source, had suspected that it was the *Astragalus mollissimus*, or Loco Weed of North America. On making further inquiry as to the properties and uses of the plant the following reply had been received from Cyprus.

"The name of this plant among the natives is 'Zacroune,' and it has a deleterious effect on animals. If cattle, goats, or sheep eat it, especially while the plant is in blossom, they get sick and fall down as if intoxicated; at the same time, when the Barley harvest is poor in Cyprus, and there is a scarcity of chopped straw, on which cattle are fed, the natives collect this plant, cutting it from the roots and have it thrashed, and mix it up with chopped straw for feeding their cattle; but until they are used to this food they are always sick and ill."

From this account it seemed very probable that the plant was really the *Astragalus mollissimus*, or some closely allied species. Specimens of the entire plant and seeds had been sent to the Botanic Gardens, but the parcel had, unfortunately, gone astray, and it was hoped that a further supply would be got next season.

LINNEAN.

FEBRUARY 16.—W. Carruthers, F.R.S., President, in the chair. Announcement was made of an acceptable donation of books to the library by the widow of the late Dr. John Miller, Fellow of the Society, recently deceased, and a unanimous vote of thanks accorded.

Mr. Spencer Moore exhibited, and made some remarks upon, specimens illustrative of the *Palmella* state of *Draparnaldia glomerata*.

Mr. D. Morris, Royal Gardens, Kew, exhibited a specimen of wood of *Hieronyma alchorneoides*, received from Trinidad, showing in its fissures mineral deposits which, on chemical analysis, proved to be calcic carbonate. For comparison Mr. Morris also exhibited and made some observations upon some deposits of calcic phosphate in Teak. Some of these (described by Sir Fred. Abel, *Quart. Jour. Chem. Soc.*, xv., 91) are 6 feet in length, 6 inches in breadth, and from $\frac{1}{2}$ to $\frac{3}{4}$ inch in thickness. Deposits in Bamboo known as *tabasher* (silicate) were shown, as also pearls (carbonate of lime) from Cocoa-nuts, received from Dr. Sydney T. Hickson (see *Nature*, vol. xxxvi., p. 157). All these specimens were from the Museum of Economic Botany of Kew.

Dr. Burn Murdock exhibited, and offered remarks upon the intra-marginal (so-called) veins in the section *Areolata* of the genus *Erythroxylon*, of which *E. coca* is the most familiar species. These lines are due to a thickening of the parenchymatous tissue, which takes place in the bud stage, and are in no way connected with the venation of the leaf.

Mr. G. F. Sherwood exhibited a collection of photographs taken in Samoa illustrating the scenery and people, together with a number of necklets formed with strings of various bright-coloured seeds.

The first paper of the evening was by Mr. H. N. Ridley, on self-fertilisation and cleistogamy in Orchids. Three common methods of self-fertilisation were explained:—1, by the breaking-up of the pollen mass and falling of the dust either directly upon the stigma, or into the lip, whence it comes into contact with the stigma; 2, by the pulling of the pollen masses as a whole from the clinandrium into the stigma; 3, by the pulling forward of the pollinia from the clinandrium or the anther cap, the caudicle and gland remaining attached to the column. An interesting discussion followed in which Professor Marshall Ward, the Rev. G. Henslow, and Mr. A. W. Bennett took part. A paper was then read by Dr. John Rae, F.R.S., entitled "Notes on some of the Birds and Mammals of Hudson Bay Territory."

Dr. Rae, whose long residence in Northern and Arctic America enabled him to speak authoritatively from personal observation, gave an interesting account of the migration of the Canada goose, snow goose, and blue-winged goose, and of the habits of the American hare and lemming. He particularly referred to the belief entertained by some of the Indian tribes he had met with, and to which he himself gave credence, that certain species of small birds are assisted on their migration by being carried on the backs of the Canada geese.

Mr. J. E. Harting, in criticising this paper, gave an exposition of the view held by leading ornithologists on the subject on the American, Canada, and snow geese, their relationship and nomenclature, and pointed out that the story of small birds being carried by larger ones is not confined to North America, but is current in South-Eastern Europe, Palestine, and Arabia, where reliable evidence has

been obtained that wagtails and other small birds travel on the backs of Cranes. He added that one instance was known to him of such an occurrence in England, a short-eared owl having been seen to arrive on the north coast of Yorkshire carrying on its back a golden-crested wren, which was secured by the observer.

TREES AND SHRUBS.

HAMAMELIS ZUCCARINIANA.

I SEND herewith a finely bloomed specimen branch of the very scarce shrub, *Hamamelis Zuccariniana*, of which my specimen is the only one I know or have ever met with, and the nurseryman who sent it me can no longer supply or procure plants of it. I think it most effective, and quite distinct from any other member of the family I have ever seen. Please also note the very peculiar odour exhaled by the flowers, which does not, I think, exist in the flowers of *H. arborea* or *H. virginica*. This odour somewhat resembles that of a laundry. *W. E. G.*

[Botanists, for the most part, consider that there are but two species of this genus, one the North-east American *H. virginica*, the other the Japanese *H. japonica*; Franchet even goes so far as to combine the American and the Japanese species. For garden purposes, however, the forms are quite distinct enough to warrant separate appellations. *H. virginica* is the best known but the least attractive, its flowers being smaller than in the other forms. *H. arborea* is now generally referred to *japonica*. Its flowers, crowded, as it were, into sub-globose heads at the ends of the short branches, and the deep claret colour of the inner surface of the sepals, are remarkable.

In *H. Zuccariniana*, which we received from Messrs. Ottolander, of Boskoop, in 1874, the inflorescence is more racemose, the flowers being arranged in longish clusters on either side of the branches of the inflorescence, and the interior of the calyx is much less highly coloured. The manner in which the bright yellow petals are rolled up in the bud is very curious. As winter-flowering hardy shrubs there are few to equal, and none to surpass in beauty and interest these curious shrubs. *Ed.*]

BERBERIS CHINENSIS.

In "A. D. W.'s" notes on berry-bearing *Barberries* (p. 149) he does not mention the most beautiful of all the berried *Barberries* in my estimation. This is the little *B. chinensis*, or, as it is more commonly called, *B. Thunbergi*. It is a dwarf grower, and, being very dense and bushy, is neat. From early autumn till early winter the bushes of it are generally covered with a profusion of small oval berries the colour of red sealing-wax. They are produced singly, but are very numerous. Another beautiful berried *Barberry* he does not mention is *B. asiatica*, whose berries are the size of Peas, and covered with a glaucous bloom, like a black Grape, and hang on the bush like pearls. Not half enough praise is bestowed on the common *B. aquifolium*, which in autumn, with crowds of clustered berries like miniature Plums, has a charming effect. *G.*

WINTER FLOWERING SHRUBS.

Mr. Horsefield's list of winter-flowering shrubs out-of-doors (p. 150) does not include two of the most beautiful. One is the *Mezereon*, which I feel sure Mr. Horsefield must have overlooked, being such a common shrub; the other is a rarity—the Japanese Witch Hazel (*Hamamelis arborea*). This last is a most charming shrub, and of exceptional interest. It flowers while leafless, the naked twigs and branches being now wreathed with most curious flowers, and having curly petals of a bright yellow, and a centre the colour of ruby. The flowers put me in mind of a miniature octopus, and are different from any other flower I know. It is an infinitely superior shrub to the commoner *H. virginica* which one meets with in old gardens, and from its habit of flowering in the dead of winter it is a shrub for

every garden. It should be planted in a spot near the house, where its flowers may be conveniently seen, or it would do against a wall. The Garrya makes a good wall plant, but it also is one of the best evergreens as a standard bush, and so grown it flowers quite as freely as against a wall. The different forms of *Daphne mezereum* should receive the attention of those who like winter-flowering shrubs. Besides the single white there is the double, and one or two very deep coloured forms. The Witch Hazel, I omitted to add, can be seen at Kew, and I believe also in the Coombe Wood Nursery, in flower. W. G.

VARIORUM.

ANTS AND PLANTS.—In the last volume of the *Nova Acta Regiæ Societatis Scientiarum Upsaliensis*, Professor Lundström publishes some remarkable information on the relation between ants and plants. Studying the nectar produced on the leaves of the Cow-Wheat (*Melampyrum*) he found that ants were attracted by the nectar on the leaves, and that some while walking over the leaf bore the seeds of the Cow-Wheat in their mouths down towards the ground. Professor Lundström was astonished by the great resemblance of these seeds to the "ant-eggs" (the cocoons of the ants), and he found that the ants took these seeds for cocoons; for when he strewed some seeds on the ground the ants saved them as they did their cocoons. Lundström afterwards found that the thin membrane which surrounds the seed and causes it to resemble an ant egg so closely, falls off soon after the seed is brought by the ants to the soil, and that it remains there untouched by the ants. Another observation of the same author, noteworthy for arboriculturists, is the following. At Christineberg, near Hudiksvall, the soil in an avenue of *Populus tremula* was dug and the ants, which were formerly very numerous, disappeared in consequence. In the next year Professor Lundström found that the leaves of these Poplars were destroyed by insects in a short time, whilst those of the other Poplars, where the soil had not been dug up, were quite intact. Careful observation showed that the first leaves of the trembling Poplar have short round petioles with nectar glands, whilst the petioles of the older leaves are much longer, flat, and without these glands, as, Trelease showed in the *Botanical Gazette*, vi. (1881). Lundström's notion is, that the ants are attracted by these glands, and preserve the tree from the attacks of caterpillars, &c., for the first time. At a later season the leaves with the long, flat petioles are so much disturbed by the movements of the leaves that no caterpillar can go on them. The author found ants in every situation where the trembling Poplar grew.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending, February 27, is furnished from the Meteorological Office:—

"The weather has been in a dull and gloomy condition in all parts of the Kingdom. Slight showers of snow have been experienced at nearly all stations, but few heavy falls have occurred.

"The temperature has continued below the mean in all districts. In Scotland the deficit varied from 4° to 6°, and in Ireland from 6° to 8°, but over the greater part of England it was as much as 10°, 11°, or 12°. Over England and Ireland the temperature was even lower than that of last week. The difference of the weekly average from the mean for the season over England has not been so large since the week ending January 24, 1881. The highest of the maxima, which were generally recorded either on the 21st or 27th, ranged from 37° in 'England, E.' to 48° in 'Ireland, N.' The lowest of the minima, which were registered on rather irregular dates, varied from 17°

in the 'Midland Counties' and 'Ireland, S.' to 26° in 'Scotland, W.' and 27° in 'England, N.E.' The very low average over England and Ireland is not so much due to low minima as to the extremely low maxima which have prevailed.

"The rain fall has been considerably less than the mean in nearly all districts.

"Bright sunshine has been very deficient generally, the percentage of the possible amount of duration ranging from 2 in 'England, N.E.' 6 in the 'Midland Counties,' 7 in 'Scotland, E.' and 8 in the 'Channel Islands,' to 24 in 'England, S.W.' and 26 in 'Scotland, N.'"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending Feb. 27.	ACCUMULATED.			
		Above 32° for the Week.	Below 32° for the Week.	Above 32° difference from Mean since Jan. 3, 1888.	Below 32° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	4 below	0	50	— 12 +	80
1. SCOTLAND, E. ...	5 below	0	60	— 20 +	5
2. ENGLAND, N.E. ...	8 below	0	60	— 30 +	18
3. ENGLAND, E. ...	11 below	0	87	— 46 +	63
4. MIDLAND COS. ...	10 below	0	81	— 49 +	74
5. ENGLAND, S. ...	12 below	0	82	— 58 +	114
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	6 below	0	49	— 26 +	19
7. ENGLAND, N.W. ...	8 below	0	64	— 45 +	35
8. ENGLAND, S.W. ...	12 below	0	73	— 88 +	145
9. IRELAND, N. ...	6 below	0	48	— 30 —	3
10. IRELAND, S. ...	8 below	0	50	— 61 +	34
— CHANNEL ISLANDS	10 below	0	50	— 74 +	75

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Inch.		
0. SCOTLAND, N. ...	6 less	38	6.4	26	18
1. SCOTLAND, E. ...	3 less	31	3.7	7	24
2. ENGLAND, N.E. ...	1 less	26	2.2	2	19
3. ENGLAND, E. ...	3 less	25	2.3	9	21
4. MIDLAND COS. ...	4 less	21	1.8	6	19
5. ENGLAND, S. ...	4 less	22	2.4	18	18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	8 less	26	5.3	16	23
7. ENGLAND, N.W. ...	6 less	29	2.3	18	21
8. ENGLAND, S.W. ...	9 less	27	3.0	24	25
9. IRELAND, N. ...	7 less	27	3.7	15	21
10. IRELAND, S. ...	7 less	22	3.8	21	25
— CHANNEL ISLANDS	8 less	36	3.5	8	22

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MARCH 10. (AVERAGE OF FORTY-FOUR YEARS).

Mar. 4	41° 0	Mar. 8	41° 8
" 5	41° 1	" 9	41° 7
" 6	41° 3	" 10	41° 8
" 7	41° 5	Mean for the week ...	41° 4

Obituary.

If proof were needed of the necessity for the establishment of the "Gardeners' Orphan Fund," no better instance could be found than that which we regret to have to record by the death, on the 19th ult., of Mr. JAMES HYDE, at the early age of forty-seven. He has been for the last eight years gardener to R. Christy, Esq., Watergate House, Emsworth, Hants, and leaves a widow and nine children, the eldest fifteen years, and the youngest ten months, totally unprovided for. Previous to going to Watergate, Mr. Hyde was gardener for nine years to Captain Elliot, Farnborough Park, Hants. He was a quiet, unassuming, hard-working gardener. He died from paralysis, accelerated by anxiety to get out to work before he had thoroughly recovered from a previous attack of congestion of the liver. W. Wildsmith, Heckfield.

ENQUIRIES.

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

BASIC CINDER.—Can any of your readers state their experience of the use of basic cinder as a manure? I recently heard it stated that it contained 38 per cent. of phosphate of lime, but that the demand for it in this country was so small that it was exported wholesale to Germany from the Cleveland district. Any information as to the solubility of the phosphate, or the composition of the remaining sixty-two parts, will be thankfully received. A. G. B.

FOR GARDENERS ONLY?—In the schedule of prizes offered at our show this year there are classes open to gardeners and to nurserymen, also to gardeners only. Can a jobbing gardener who is employed by a nurseryman exhibit in the classes for gardeners only? Can a manager of a nursery who hires a piece of ground on his own account exhibit in the classes for gardeners only? *Sittingbourne.* [We are of opinion that the same principle applies to both these cases. Provided that the jobbing-gardener and the nursery manager grow, as private individuals, on their own ground, and not for profit or for sale, they are both entitled to show in the classes for gardeners only. In each case the exhibits are the result of private, not of commercial enterprise. But as this is a matter upon which opinions may differ, we suggest that the committee be asked to define what they mean. Ed.]

NOTICES TO CORRESPONDENTS.

BOOK—GARDEN CHEMISTRY: H. B. P. *How Plants Grow* (Macmillan); *Plant Life* (Bradbury, Agnew, & Co.).

COLOGNIES: H. S. T. You can pot them all up at once, and place them in a cool intermediate-house. Give a medium quantity of water at present, and supply more freely when they commence to grow.

CORRECTION.—In "The Action of Frost on Seedlings," p. 240, in our last issue, the eighth line from bottom of the middle column should read, "in the same time must remain a question."—Amaraboya and Piper rubro-venosum. These should have been mentioned as having been illustrated in the *Illustration Horticole*, not in the *Lindenia*, which is devoted especially to Orchids.

DRY-GLAZING: J. C. H. It is contrary to our rule to recommend tradenames. There are several systems of dry-glazing in use, and which are frequently advertised in our columns, and strongly recommended by competent authorities.

DRY-GLAZING: E. There are so many systems or modifications of dry-glazing in existence now all very similar, and all no doubt excellent, so that it is next to impossible excepting by actual experience to say which is the better or the most to be preferred. We cannot discover any material distinction between yours and several others which we have seen.

GARDENIA ROOTS: S. P. Your Gardenia roots are infected with the root-worm, fully described and figured at p. 488, April 9, 1887. Burn the plants, and start in fresh soil.

INSECTS: *W. H.* The white curved grubs which have destroyed your Maidenhair Ferns by gnawing the plants off just under the crowns, are the larvæ of one of the most destructive kind of the weevils (*Otiorynchus sulcatus*). It is almost omnivorous, both in the larva and perfect states. The larvæ are now nearly full-grown; but you had best take up the plants, and shake off all the earth, and report them in fresh mould. *I. O. W.*—*R. E.* The Cattleya-fly was originally imported, but it breeds freely here.

NAMES OF FRUIT: *D. Bros.* Not known. Seems to be distinct, but not of any special merit.—*Elizabeth C.* We do not recognise the Apple. Seems to be a very good sort.—*F. B.* 1, Rymer; 2, Mother.

NAMES OF PLANTS: *D. S.* *Rhododendron Maddeni*, of which *Jenkinsi* is a synonym.—*W. H. K.* *Justicia flavicoma*.—*G. T.* 1, *Helleborus viridis*; 2, *Chorozema llicifolium*; 3, *Coronilla glauca*; 4, *Sericobonia penrhosiensis* ×; 5, *Alonsoa Warscewiczii*; 6, *Begonia maucata*.—*F. Hester.* *Oncidium Baueri*.—*G. O. P.* 1, *Pteris serrulata cristata*; 2, *Adiantum Capillus-venenis*; 3, *Davallia canariensis*; 4, *Dracena feneris*; 5, *D. terminalis*; 9, *D. Guilfoylei*; 6, *Acalypha Macafeana*; 7, *Begonia parvifolia*; 8, *Begonia*, unknown; 10, *Agatheæ cœlestis*; 11, *Cestrum* (*Ilabrothamnus*) *corymbosum*. Next time send only six specimens.—*D. S.* *Rhododendron Maddeni*. *Name lost*—specimen sent in bud: *Rhododendron Falconeri*.

ONONTOLOSSUM ALEXANDRE: *W. D.* The flower is a fine one, but does not differ from many others.

PRIMULAS: *P. & Son.* The flowers are flesh-colour, not white as you state; it is a pretty form, but we can say nothing about it from flowers alone.

SEAFORTHIA ELEGANS: *R. A.* This Palm cannot be cut back. The stem has no other bud except the terminal one, so that if you remove the head the stem must die. Nor can you cut off the stem and plant it as a cutting. Unless you can lower your specimen by sinking it into the floor, you must either remove it to larger quarters or sacrifice it, and plant a young one in its place.

SPIRÆAS AND MANURE-WATER: *Young Grower.* Plants of the slender, twiggy habit of most of the species of the above should be but sparingly supplied with manure-water, but sufficient nutriment should be incorporated in the soil used in potting them. Plants lifted from the ground, such as the common *Spiræa japonica*, cannot make use of manures to any extent before they bloom, and it is of but little use afterwards. Shrubby *Spiræas* may be grown in fairly rich ground, so as to induce the formation of long shoots, and these must be well matured by abundance of direct sunlight if much bloom is to be looked for.

THE EARLIEST TOMATOS: *A. M.* The Chiswick trials of these (see p. 411 in our issue for October 1 last), will afford you the information required.

CATALOGUES RECEIVED.

F. BARTELDSE & SON, Lawrence, Kansas, U.S.A.—Seeds.

JAS. BACKHOUSE & SON, York—Hardy Trees, Shrubs, and Conifers.

JAMES L. BOYSON, Caen, Calvados, France—Roses.

W. M. BEALE, Neath, S. Wales—Seeds, &c.

WILLIAM PARRY, Parry P. O., New Jersey, U.S.A.—Fruit Trees, &c.

W. & J. BIRKENHEAD, Sale, near Manchester—Ferns and Selaginellas.

ALEX. LISTER, Rothsay, N.B.—Vegetable and Flower Seeds.

F. W. & H. STANSFIELD, Sale, Manchester—Ferns.

VILMORIN-ANDRIEUX & Co., 4, Quai de la Mégisserie, Paris—Seeds of Trees, Shrubs, Palms, &c.

GEO. BOYES & Co., Aylestone Park Nurseries, Leicester—Pelargoniums, Fuchsias, &c.

D. DOWEL, 246, King Street, West Hammersmith, London, W.—Pottery.

SAMUEL SHEPPARDSON, Prospect House, Belper—Spring Flowering Plants, &c.

JAMES DICKSON & SONS, 108, Eastgate Street, Chester—Farm Seeds.

KENT & BRYDON, Darlington—Farm Seeds.

T. S. WARE, Hale Farm Nurseries, Tottenham, London—Dahlias, Chrysanthemums, Pæonies, Florists' Flowers, and Hardy Plants, &c.

BADGER STATE SEED FARMS, Oshkosh, Wisconsin, U.S.A.—Seeds.

J. C. VAUGHAN, 88, State Street, Chicago, U.S.A.—Seed List.

JOHN A. BRUCE & Co., Hamilton, Ontario, U.S.A.—Seeds.

J. BRECE & SONS, 51, 52, 53, North Market Street, Boston, U.S.A.—Seeds, &c.

ROBERT VEITCH & SON, Exeter—Agricultural Seeds.

WAITE, NASH & Co., 79, Southwark Street, London, E.C.—Agricultural Seeds (Wholesale).

HOGG & WOOD, Coldstream, N.B.—Agricultural Seeds and Manures.

COMMUNICATIONS RECEIVED.—*L. L.*—*A. J. K.*—*W. E. G.*—*B. F.*—*J. C. H.*—*H. G.*—*W. & N.*—*B. D. J.*—*D. T. F.*—*C. M.* (next week).—*H. A. P.*—*R. A. R.*—*J. B. Mansell*.—*W. B.*—*J. J. & Co.*—*J. Webster*.—*S. W. G.*—*C. E.*—*F. Sander & Co.*—*P. G.*—*F. A.*—*J. O'B.*—*J. C. C.*—*Caledonian*.—*A. D. W.*—*F. Buss* (please send specimens).—*R. D.*—*C. B. K.*—*E. J.*—*R. D.*—*H. L. & Co.*—*W. A. P.*—*J. W.* (next week).

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, March 1.

We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

Prices remain as last week. With supplies coming shorter, our market is kept clear. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Aralia Sieboldi</i> , doz. 6 0-18		Ferns, in var., doz. 4 0-18	
<i>Azaleas</i> , per dozen ... 24 0-36		<i>Ficus elastica</i> , each. 1 6-7 0	
<i>Bouvardias</i> , per dozen ... 6 0-12		Foliage plants, vari	
<i>Cinerarias</i> , dozen ... 9 0-12		ous, each ... 2 0-10 0	
<i>Cyclamens</i> , per dozen 12 0-24		<i>Genistas</i> , dozen ... 9 0-15 0	
<i>Cyperus</i> , per dozen ... 4 0-12		<i>Hyacinths</i> , doz. ... 8 0-10 0	
<i>Daffodils</i> , dozen ... 9 0-12		<i>Lily of the Valley</i> ,	
<i>Deutzia</i> , per dozen ... 9 0-12		12 pots ... 18 0-24 0	
<i>Dracena terminalis</i> ,		<i>Marguerites</i> , doz. ... 9 0-12 0	
per dozen ... 30 0-80 0		<i>Myrtles</i> , per dozen ... 6 0-12 0	
— <i>viridis</i> , per doz. 9 0-24 0		<i>Palms</i> , in var., each 2 6-21 0	
<i>Dielytras</i> , dozen ... 12 0-15 0		<i>Pelargoniums</i> , scar-	
<i>Epiphyllums</i> , doz. ... 12 0-24 0		let, per dozen ... 3 0-6 0	
<i>Ericas</i> , various, doz. 9 0-18 0		<i>Primula sinensis</i> , per	
<i>Euonymuses</i> , in var.,		dozen ... 4 0-6 0	
per dozen ... 6 0-18 0		<i>Solanums</i> , per dozen. 9 0-12 0	
<i>Evergreens</i> , in var.,		<i>Spiræas</i> , dozen ... 9 0-15 0	
per dozen ... 6 0-24 0		<i>Tulips</i> (pots of), doz. 6 0-10 0	

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Acacia</i> , or <i>Mimosa</i> ,		<i>Marguerites</i> , 12 bun. 3 0-6 0	
per bunch ... 0 9-1 6		<i>Mignonette</i> , 12 bun. 3 0-6 0	
<i>Anemone</i> , French, 12		<i>Narcissus</i> , paperwhite,	
bunches ... 2 0-4 0		Fr., 12 bunches ... 2 0-4 0	
— <i>fulgens</i> , 12 bun. 6 0-9 0		— Various, 12 bun. 1 6-4 0	
<i>Arum Lilies</i> , 12 blms. 4 0-6 0		<i>Pelargoniums</i> , 12 spr. 1 0-1 6	
<i>Azaleas</i> , 12 sprays ... 0 6-1 0		— scarlet, 12 spr. ... 0 6-0 9	
<i>Bouvardias</i> , per bun. 0 6-1 0		<i>Primroses</i> , 12 bun. ... 1 0-2 0	
<i>Camellias</i> , 12 blms. 1 0-3 0		<i>Primulas</i> , double, 12	
<i>Carnations</i> , 12 blms. 1 6-3 0		sprays ... 1 0-1 6	
<i>Cineraria</i> , 12 bun. ... 6 0-12 0		— single, 12 bun. ... 4 0-6 0	
<i>Cyclamens</i> , 12 blms. 0 6-1 0		<i>Roses</i> , Tea, per doz. 3 0-8 0	
<i>Daffodils</i> , double, 12		— coloured, dozen. 2 0-4 0	
bunches ... 6 0-9 0		— red, per dozen ... 4 0-9 0	
— single, 12 bun. ... 8 0-18 0		<i>Safrano</i> , dozen ... 1 6-3 0	
<i>Deutzia</i> , 12 bunches 4 0-9 0		<i>Snowdrops</i> , 12 bun. 1 0-4 0	
<i>Eucharis</i> , per dozen 4 0-6 0		<i>Tuberose</i> , 12 blms. ... 1 6-2 0	
<i>Gardenias</i> , 12 blooms 9 0-18 0		<i>Tulips</i> , 12 blooms ... 0 6-1 0	
<i>Heliotropes</i> , 12 spr. 0 6-1 0		<i>Violets</i> , 12 bunches ... 1 0-1 6	
<i>Hyacinths</i> , Roman,		— French, bunch. 1 6-2 0	
12 sprays ... 0 6-1 0		— Fr. Parme, bun. 3 6-4 6	
<i>Lilium longiflorum</i> ,		<i>White Lilac</i> , French,	
12 blooms ... 6 0-9 0		per bunch ... 5 0-7 0	
<i>Lily of Valley</i> , 12 spr. 0 6-1 0			

* * * Orchid bloom in great variety, but the demand not very good.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
<i>Artichokes</i> , p. doz. ... 6 0-...		<i>Mustard and Cress</i> ,	
<i>Beans</i> , Kidney, lb. ... 1 0-2 0		punnet ... 0 4-...	
<i>Beet</i> , red, per dozen 1 0-2 0		<i>Onions</i> , per bushel ... 0 4-...	
<i>Brus</i> , Sprouts, lb. ... 0 6-...		<i>Parsley</i> , per bunch ... 0 6-...	
<i>Carrots</i> , per bunch. 0 6-...		<i>Potatoes</i> , per cwt. ... 4 0-5 0	
<i>Cauliflowers</i> , each. 0 3-...		— kidney, per cwt. 4 0-5 0	
<i>Celery</i> , per bundle ... 1 6-2 6		<i>Rhubarb</i> , per bundle 0 4-...	
<i>Cucumbers</i> , each ... 1 0-2 6		<i>Seakale</i> , punnet ... 1 6-2 0	
<i>Endive</i> , per dozen ... 2 0-...		<i>Shallots</i> , per lb. ... 0 6-...	
<i>Green Mint</i> , bunch. ... 1 0-...		<i>Spinach</i> , per bushel ... 4 6-...	
<i>Herbs</i> , per bunch ... 0 4-...		<i>Sprue</i> , per bundle ... 1 0-...	
<i>Leeks</i> , per bunch ... 0 6-...		<i>Tomatoes</i> , per lb. ... 2 6-...	
<i>Lettuce</i> , per dozen ... 1 6-...		<i>Turnips</i> , per bunch. 0 6-...	
<i>Mushrooms</i> , punnet 1 0-1 6			

POTATOS.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton; and heavy market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve ... 2 0-5 0		Pears, per dozen ... 3 0-6 0	
Grapes, per lb. ... 3 0-5 0		Pine-apples, Eng., lb. 1 0-2 0	
Kent Cobs, 100lb. ... 50 0-...		— St. Michael, each 2 0-5 0	
Lemons, per case ... 12 0-21 0		Strawberries, oz. ... 1 6-2 0	

SEEDS.

LONDON: February 29.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report that there was very little business transacted on the seed market to-day. The long-continued wintry weather naturally delays the sowing demand. Mean-time, values all round appear to have touched bottom; stocks are moderate, and heavy consumptive wants have still to be satisfied. Clover seeds, therefore, offer no subject for remark. The supply of Sanfoin is small. There is no alteration in spring Tares. Hempseed continues extremely scarce. Rape seed firm.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended February 25:—Wheat, 30s. 2d.; Barley, 25s. 8d.; Oats, 16s. For the corresponding week in 1887:—Wheat, 32s. 7d.; Barley, 25s.; Oats, 16s. 11d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: February 29.—A dull demand for most descriptions, the best alone commanding an active trade. Green stuffs continue to be in request at advanced prices for short arrivals. Quotations:—English Apples, 5s. to 7s. per bushel; American Apples, 14s. to 21s. per barrel; Cauliflowers, 7s. to 14s. per tally; Savoys, 5s. to 10s. 6d. do.; Brussels Sprouts, 6s. to 7s. per sieve; Spinach, 2s. to 3s. do.; Turnip-tops, 2s. 6d. to 3s. 6d. per sack; Greens, 4s. 6d. to 5s. per dozen bunches; Turoips, 3s. to 3s. 6d. do.; Carrots, 2s. 6d. to 3s. do.; Rhubarb, 3s. to 5s. per dozen bundles; Celery, 10d. to 1s. 6d. per bundle; Horseradish, 1s. to 1s. 4d. do.; Beet-roots, 6d. to 8d. per dozen; English Onions, 12s. 6d. to 14s. per cwt.; foreign do., 10s. to 12s. per bag of 110 lb.; Carrots, 32s. to 40s. per ton; do. for horses, 28s. to 30s. do.; Mangels, 20s. to 22s. do.

STRATFORD: February 28.—Quotations:—Savoys, 10s. to 12s. per tally; Greens, 3s. to 3s. 6d. per cwt.; Brussels Tops, 2s. to 3s. per basket; Celery, 6s. to 9s. per dozen bundles; Rhubarb, 2s. to 2s. 6d. do.; Beetroots, 4d. to 6d. per dozen; herbs, 4s. per dozen bunches; salads, 2s. to 2s. 6d. do.; Carrots, 2s. 6d. to 3s. do.; Turnips, 3s. to 3s. 6d. do.; do. 35s. to 55s. per ton; Carrots (household), 40s. to 50s. per ton; do., cattle feeding, 28s. to 31s. do.; Parsnips, 6d. to 1s. per score; Mangels, 19s. to 22s. per ton; Swedes, 20s. to 22s. do.; Onions, English, 13s. to 15s. per cwt.; Dutch, 10s. to 12s. 6d. per bag; German, 12s. to 14s. per case; Apples, English, 2s. 6d. to 6s. per bushel; do., foreign, 20s. to 30s. per drum; Watercress, 6d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: February 28.—Supplies are checked by severe weather, and for best samples prices are firm, but the general trade continues slow. Quotations:—Regents, 110s. to 125s.; Magnum Bonums, 46s. to 105s.; English Rocks, 55s. to 110s. per ton; Dutch, 2s. 6d. to 2s. 9d. per bag.

COLUMBIA (East London): February 29.—Quotations:—Regents, 60s. to 90s.; Champions, 45s. to 60s.; Victorias, 55s. to 75s.; Magnum Bonums, 45s. to 70s.; Beauty of Hebron, 120s. to 140s. per ton.

STRATFORD: February 28.—Quotations:—Scotch Regents, 70s. to 90s.; Magnums, 70s. to 85s.; English, 55s. to 75s.; fenland, 45s. to 50s. per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 85s. to 97s. 6d.; inferior, 78s. to 82s.; hay, prime, 70s. to 92s.; inferior, 45s. to 65s.; and straw, 28s. to 42s. per load.

SANKEY AND SON'S GARDEN POTS.

From Mr. THOS. B. THOMSON, Nurseryman, 20, High Street, Birmingham.

"GENTLEMEN.—The pots have come to hand, and as usual, have given us the greatest satisfaction. We wish to take this opportunity of informing you that for the large number of years we have dealt with you we have always been highly satisfied with the pots you have sent us. For strength, colour, porosity, lightness, and finish we consider them the best in the market."

"BULWELL POTTERIES," NOTTINGHAM.

Carriage and Breakage Free on £10 Orders. Half Carriage and Breakage Free on £5 Orders.

Samples (carriage free) gratis, prices free on application.

From Mr. H. GRIBBLE, Gardener to His Excellency the Marquis of Londonderry, Wynyard Park.

"GENTLEMEN.—I am very pleased with the quality of your garden pots. For lightness, durability, and keeping their colour they are the best pots I have ever used. Your pots that I have used for cool Orchids for over a year are perfectly clean and porous now, this saying a great deal where moisture is abundant and other pots require scrubbing frequently to keep them clean and porous. They are equally clean for stove plants."

BEGONIA TUBERS.—BOX'S Jubilee Varieties. Twelve distinct colours, viz.:—Red, crimson, scarlet, pink, rose, purple, white, canary, yellow, apricot, bronze, orange, salmon, per dozen, 6s., post-free. The best and cheapest procurable.—JOHN R. BOX (for ten years J. LAING'S sole partner), Seedsman and Begonia Grower, Croydon.

FINEST LILY OF THE VALLEY CROWNS for Early Forcing, by Gustav A. Schultz, Berlin. For price write to JACOB AND VALENTIN, 56, Cheapside, London, E.C.

RASPBERRY CANES. Selected Fastolf, 30s. per 1000.
STRAWBERRY PLANTS, Sir Joseph Paxton, 12s. per 1000.

RED CURRANTS, 2-yr. old, 8s. per 100. Terms Cash.
R. BATH, Osborne Farm, Wisbech.

STRONG FOREST TREES.

ALDER, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.
BIRCH, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
ELM, Wych, 2 to 3, 3 to 4, and 4 to 5 feet.
LARCH, 2 to 3, 3 to 4, and 4 to 5 feet.
OAKS, 1½ to 2, 2 to 3, and 3 to 4 feet.
FIR, Scotch, 1½ to 2, 2 to 3, and 2½ to 3 feet.
FIR, Spruce, 1½ to 2, 2 to 3, 2½ to 3, 3 to 4, and 4 to 5 feet.

All these are stout, good plants, and properly rooted. The prices quoted will be very reasonable in order to clear.

Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

CABBAGE PLANTS, very strong autumn sows.

Eafield Market and Robinson's Drumhead, 3s. 6d. per 1000; 30s. per 10,000.

LETTUCE, Hardy's Northern King Cos, 5s. per 1000.

CURRANTS, Red, Black, strong 3½ yr. old, 10s. per 100.

Package free, extra plants for carriage. Cash.
H. J. HARDY, Stour Valley Nurseries, Bures, Suffolk.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

SPECIMEN CONIFERS, TREES for Avenues, EVERGREENS and FOREST TREES in great variety. CATALOGUES Free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

EARLY BIRD—the best Early Green Wrinkled Marrow PEA in the world, coming in with Gem of the Season, Lightning, and Earliest of All. Every one who has a garden should grow it for a first early. A trial packet, containing 1 pint, sent post-free on receipt of Postal Order for 1s. 6d.

W. BURBURY, Seedsman, &c., The Crew, Kenilworth.

PREHISTORIC PLANTS of NEW ZEALAND.—In collections, twelve vars., price 5s. each, post-free. No. 1, Ferns; No. 2, Alpine Plants; No. 3, Trees; No. 4, Flowering Shrubs; No. 5, &c.; No. 4, Filmy Ferns; No. 5, Terrestrial Orchids and Carnivorous Plants; No. 6, Veronica. Ferns, packed so as to arrive in good condition, 10s. per dozen varieties.—ADAMS AND SONS, Victoria Nurseries, Christchurch, Canterbury, N.Z.

CHOICE CACTUS DAHLIAS, pot roots, sound.

MRS. HAWKINS (new yellow), 9d. each; 6s. per dozen.
JUAREZII (crimson-scarlet), 9d. each; 6s. per dozen.
COCHINEAL (dark velvety-crimson), 9d. each; 6s. per dozen.
GLARE OF THE GARDEN, 6d. each; 4s. 6d. per dozen.
CONSTANCE and MR. TAIT, 1s. each, pure white.
SINGLE DAHLIAS, PARAGON and WHITE QUEEN, two of the finest cut flowers, 4s. 6d. per dozen.
DOUBLE DAHLIAS, to name, fine show varieties; pot roots. The above are very healthy sound pot roots.

Carriage paid for cash with order.

Magnificent new Dwarf Striped PETUNIA SEED. This is without doubt the finest strain possible to grow. The plants commence to bloom 3 inches high, and are most attractive; scarcely two flowers are alike. Thousands are sold in Covent Garden Market, and acknowledged by all to be the best they have ever grown. Per packet, 2s. 6d., post-free.

CHARLES BURLEY, Nurseries, Brentwood, Essex.

A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate disposal.—Latania borbonica, Seafortia elegans, Chamaerops excelsa, and Phoenix reclinata—from 10s. per pair. GARDENER, Holly Lodge, Stamford Hill, London, N.

FOR SALE, 50 CAMELLIAS, 4 to 8 feet high; 200 ARJIS, 3 to 8 breaks; 50 CYPRIPEDIMS, 8 to 20 breaks in each.
G. WALKLING, College Park Nursery, Lewisham, S.E.

ASPARAGUS, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. 6d. per dozen, 12s. 6d. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Full of Useful Information—No Charge.

BARR'S 1888 SEED CATALOGUE, now ready. In addition to the usual valuable information, will be found special remarks on the Culture of the TOMATO and TOBACCO as INDUSTRIES, with a Special List of HIGH-CLASS POTATOS, handsome in form, pleasant in flavour, and bountiful croppers. CATALOGUE free on application to BARR AND SON, King Street, Covent Garden, W.C.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to make SPECIAL OFFERS of their fine selected stocks of Home-grown MANGEL WURZEL and TURNIP SEEDS, raised from picked transplanted bulbs, and harvested in splendid condition. Prices and Samples may be had on application. Seed Growing Establishment, Wisbech.

BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain.

CATALOGUES gratis.

JOHN LAING AND SONS, The Nurseries, Forest Hill, S.E.

To Gentlemen, Nurserymen, Builders and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMs, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. CATALOGUES free on application.

The Nurseries, Trinity Road, Wandsworth Common, S.W.

FOREST TREES, &c.—Ash, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Beech, 1½ to 2 feet, 14s. per 1000; ditto, 2 to 3 feet, 18s. per 1000. Birch, 1 to 1½ foot, 13s. per 1000. Elm, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 14s. per 1000; ditto, 3 to 4 feet, 17s. per 1000. Larch, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000; ditto, 3 to 4 feet, 18s. 6d. per 1000; ditto, 4 to 5 feet, 20s. per 1000. Spruce Fir, 1 to 1½ foot, 8s. per 1000; ditto, 1½ to 2 feet, 10s. per 1000; ditto, 2 to 2½ feet, 12s. per 1000. Scotch Fir, 2 to 2½ feet, 12s. per 1000. Oak, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Pinus austriaca, 2 years transplanted, fine, 16s. per 1000. Oval Privet, 2 to 2½ feet, 26s. per 1000; ditto, 4 feet, 6s. per 100. Sycamore, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Thorns, 1 to 1½ foot, 12s. per 1000; ditto, 1½ to 2 feet, 15s. per 1000; ditto, 2 to 2½ feet, 17s. 6d. per 1000. Special offers for extra quantities.

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100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rock-work, which produce flowers and render the garden attractive all through the year. New LIST of sixty-four pages Free.

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ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris 1878.

Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

CHRISTMAS ROSES.—Ten distinct varieties of this finest of hardy winter flowering plants, Carriage free, for 10s.

HEPATICAS, angulosa, 3s. per dozen; Single Blue, 2s.; Double Blue, 18s.; Single Red, 3s.; Double Red, 2s.; Single White, 3s. One flowering plant of each, free by post, for 2s. 6d.

MORRISON BROTHERS, Nurseries, Aberdeen.

RHODODENDRON STOCKS.—Fine, for immediate working, of two samples, at £5 and £8 respectively, according to strength.

PAUL AND SON, The "Old" Nursery, Cheshunt.

SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious MUSHROOMS.

See Seed LIST, Free.

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RICHARD J. WOOD, of the Old-established Bedford and Haverstock Nurseries, Haverstock Hill, London, N.W., is now offering New Seeds for the FLOWER and KITCHEN GARDEN. Collections from 5s. upwards.

CATALOGUES Free on application. TREES, SHRUBS, ROSES, FRUIT TREES, and all Garden Requisites, at very moderate prices.

For Real Quality and Flavour of Vegetables

GILBERT'S COLLECTION of NOVELTIES have no match. They are at once unique. All stamped with the evitable mark of excellence. First-class Royal Certificate. Send for CATALOGUE to R. GILBERT, High Park Gardens, Stamford.

PALMS.—A few hundreds, well-grown, strong and healthy.

Seafortia elegans, Latania borbonica, Phoenix reclinata, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Latania borbonica, Seafortia elegans, Phoenix reclinata, and Corypha australis, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seafortia elegans, Latania borbonica, Phoenix reclinata, Enterpe edulis, and Areca lutescens, 2 feet 6 inches to 3 feet high, 3s. to 5s. each.

Fine feathery-foliaged Seafortia elegans, 4 feet high, 15s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

VICTORIA, GIBBORNE, and other PLUMS;

Farleigh DAMSONS, Morello CHERRIES. Low prices per 100 or 1000. GRAPE VINES, extra fine Canes for Fruiting, 7s. 6d. each, 80s. per dozen. RHUBARB, very large and fine Stools of "Albert" and "Linnaeus," 40s. per 100, £13 per 1000. Trade terms on application.

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Spring 1888.

NEW WHITE ROUND POTATO, WEBB'S "EARLY WHITE BEAUTY." Awarded First-class Certificate, Royal Horticultural Society, September 21, 1887. (See *Gardeners' Chronicle*, January 28.)

The many Testimonials received from well-known authorities speak so well for the excellence of this splendid new white-skinned Potato, that a lengthy description is unnecessary. In short, it possesses every good quality. It is of handsome appearance, with shallow eyes, and the superior Beauty of Hebron, both for quality and productiveness, whilst its dwarf habit and extraordinary quickness of maturation make it invaluable for early work. It has been tried on all kinds of soil with most satisfactory results, producing in every case a fine crop entirely free from disease. Send post-card for illustration and read Testimonials. Price per lb., 1s.; 7 lb., 6s. Sample pound, post-free for sixteen penny stamps.

Address, F. WEBBER, Quarry Hill Nursery, Tonbridge.

CARNATION "GLOIRE DE NANCY,"

without doubt the grandest Carnation ever sent out for Cut as well as Conservatory and the Open Border. Flowers from 2 to 3 inches across, pure white, and strong Clove-scented. More robust than the old red Clove, and freer. Good rooted Layers, 25s. per 100, 15s. for 50, 8s. for 25. Cash with order.—E. COLLINS AND SONS, Cumberland Park Nursery, Willesden Junction, London, W.

CHRYSANTHEMUMS.—New, Descriptive, and Priced CATALOGUE of 1000 New and Old Varieties worth cultivation, giving Raiser's Name, Year of Introduction, List of Early, Medium, Late, Exhibition, Specimen, Market and Scented Varieties, with heights and other information, and Cultural Directions, by E. Moyleux and C. Orchard. Post-free, 6d.

ROBT. OWEN, F.N.C.S., Floral Nurseries, Maidenhead.

1000 SEAKALE Roots, for forcing. A capital lot. Specially grown for extra fine produce. 10s. 100, cash with order.—G. H. COPP, Gardens, Holnest Park, Sherborne.

TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE Free on application.

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A Good Potato, of Sterling Worth.

MAIN CROP KIDNEY, W. W. JOHNSON AND SON.

First-class Certificate awarded by the Committee of the Royal Horticultural Society, September 21, 1887.

It was tested by cooking, and described by the Committee as a "White Kidney, with clean, rough skin, white flesh, a good cropper."

This Potato is pronounced by competent judges as likely to become one of the best Main Crop Potatoes of the future. It has entirely resisted disease; tubers have a handsome appearance, with very shallow eyes; are white, mealy, and of the finest flavour when cooked. In excellent condition for the table from the time of taking up until late in the spring.

Price per peck of 14 lb., 5s.; per bushel, 18s.

Wholesale of Messrs. HURST AND SON, 182, Houndsditch, London, E.; and from W. W. JOHNSON AND SON, Seed Potato Growers and Seed Merchants, Boston, Lincolnshire.

ORCHID PEAT, best quality; BROWN

FIBROUS PEAT for Stove and Greenhouse use, RHODODENDRON and AZALEA PEAT. Samples and Prices to WALKER AND CO., Farnborough, Hants.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

JENSEN'S

Every grain fertilizes because the Guano is perfectly pure. It is most economical, one part of Maure to 100 parts of soil being ample for garden use.

FISH-POTASH

FISH-POTASH contains Ammonia, Phosphates and Potash in large proportions, which are the principal elements of fertilization.

GUANO.

GUANO—2-lb. Tins, 1s.; in Bags, 7 lbs., 2s.; 14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d.; 1 cwt., 16s.; 2 cwt., 30s. Special terms for larger quantities. Analysis guaranteed.

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GARDEN REQUISITES,

of best quality, as supplied to the Royal Gardens, &c.

BEST COCOA-NUT FIBRE REFUSE, 10 sacks for 10s., 15 for 14s., 20 for 18s., 30 for 25s.; two ton truck, 28s. Free on rail.
RUSSIA MATS, from 12s. to 18s. per dozen.
FINEST ORCHID PEAT, 7s. per sack.
BEST BROWN FIBROUS PEAT, 6s. per sack, 5 for 22s. 6d.
BEST BLACK FIBROUS PEAT, 4s. 6d. per sack, 5 for 20s.
COARSE SILVER SAND, 1s. 6d. per bushel; 14s. 4-ton; 25s. per ton.
PURE LEAF-MOULD, 3s. per sack.
YELLOW FIBROUS LOAM, 3s. per sack.
BEST MUSHROOM SPAWN, 4s. per bushel.
RAFFIA, LABELS, STICKS, BAMBOO CANES, VIRGIN CORK, CHEMICAL MANURES, &c.
SPHAGNUM MOSS, 6s. per sack. CHARCOAL, 8s. per sack.
SPECIALITE TOBACCO PAPER and CLOTH, each 8d. per lb.
28 lb. for 18s. Price List free by post.
W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

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HORTICULTURAL SPECIALTIES, ORCHID PEAT, AND MANURES WERE AWARDED

15 CERTIFICATES OF MERIT 15 IN 1887.

The Secret of Success in the Cultivation of Grapes. Perfection in SIZE, COLOUR, and FLAVOUR, is best obtained by the use of WOOD AND SON'S celebrated

VINE MANURE—"LE FRUITIER."
Prices per ton, £17 10s.; 10 cwt., £9; 5 cwt., £4 10s.; 1 cwt., 19s.; 56 lb., 11s.; 28 lb., 6s.; 7 lb., 2s. 6d.

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POTATO MANURE—"SUCCESS,"

Specially prepared for Exhibitors.

From WM. KERR, Dargavel, Dumfries, October 13, 1887.
"Dear Sir,—The Potato Manure (4 tons) I had of you last spring, has done very well with me. I have a grand crop of Potatoes—the best I have had for many years, and I attribute this, in no small degree, to your Manure. I shall use it again next season."

Per 7 lb., 2s. 6d.; 14 lb., 4s.; per cwt., 17s. 6d.

W. WOOD & SON, Wood Green, LONDON, N.,
Or of all Seedsmen and Seed Potato Dealers,

SAVE HALF THE COST.

GARSDIE'S

BEDFORDSHIRE

SILVER SAND,

Coarse and Fine,

Is admitted by the leading Nurserymen to be the Best Quality obtainable in the Trade.

Consumers should Buy Direct from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Silicid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS.

Apply direct to the Proprietor for Samples and Price. Free on Rail or Canal. All Orders executed with the utmost promptness and under personal supervision. Special Railway Rates in force to all parts.

GEORGE GARSIDE, Jun., LEIGHTON BUZZARD, BEDS.

CARSON'S PAINT

Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations. Non-Poisonous Paints for Inside Work, Conservatories, &c. Prices, Patents, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C.
BACHELOR'S WALK, DUBLIN.—Discount for Cash.

By Royal Letters Patent.—Carbon Cones.



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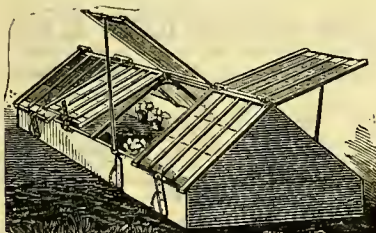
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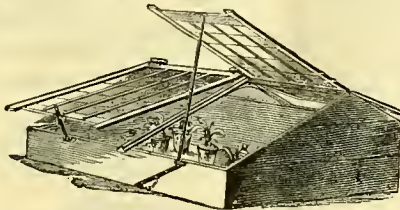
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1	Light Frame, 4 feet by 6 feet	...	£2 17 6
2	" " 5 feet by 6 feet	...	4 7 6
3	" " 12 feet by 6 feet	...	5 17 6
4	" " 16 feet by 6 feet	...	7 7 6
5	" " 20 feet by 6 feet	...	8 17 6

No. 74.—PLANT FRAME.

The Frames are 13 inches high at front, 24 inches high at back, and 32 inches at the ridge, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, fitted with set-opes, and arranged to turn over, back and front, for ventilating.

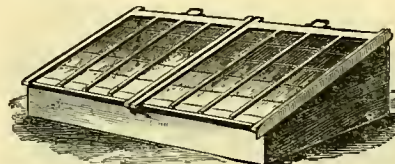


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1	Light Frame, 4 feet by 6 feet	...	£2 17 6
2	" " 5 feet by 6 feet	...	4 7 6
3	" " 12 feet by 6 feet	...	6 0 0
4	" " 16 feet by 6 feet	...	7 12 6
5	" " 20 feet by 6 feet	...	9 5 0

Made up to any length.

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	Length.	Width.	Price.
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3	" " 12 feet by 6 feet	...	4 5 0
4	" " 16 feet by 6 feet	...	5 10 0
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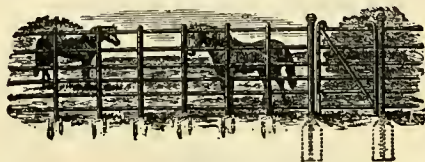
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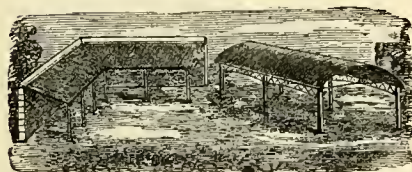
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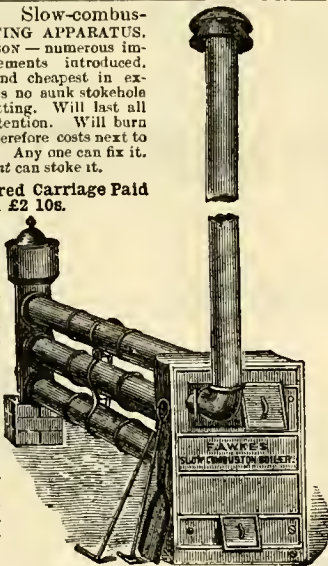
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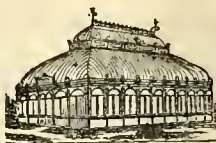
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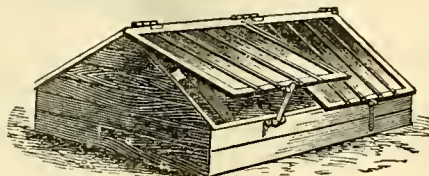
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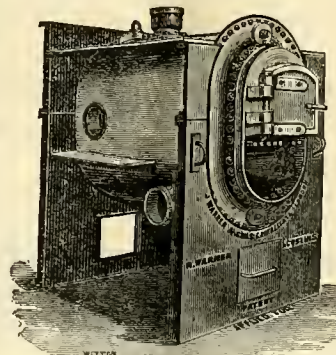
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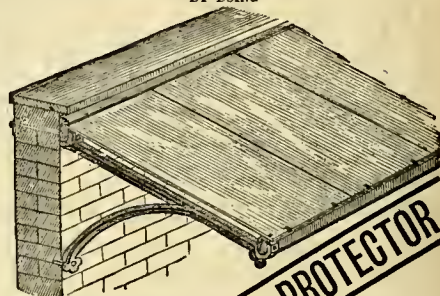
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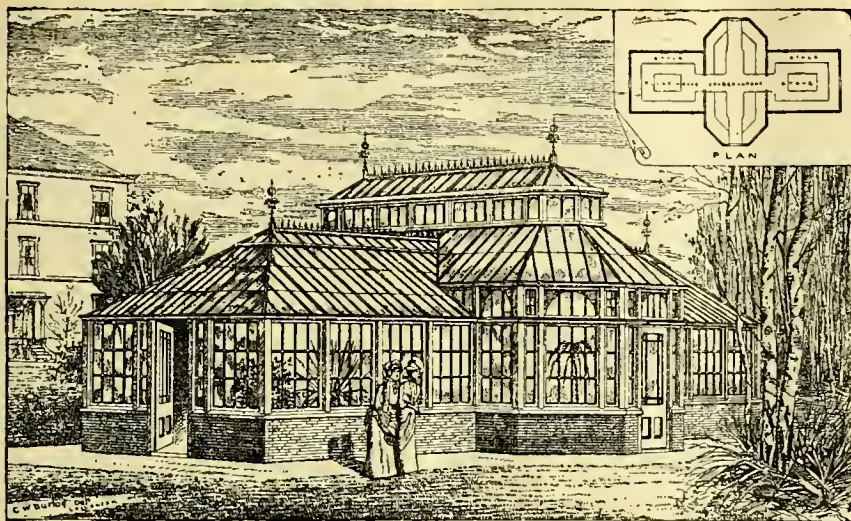
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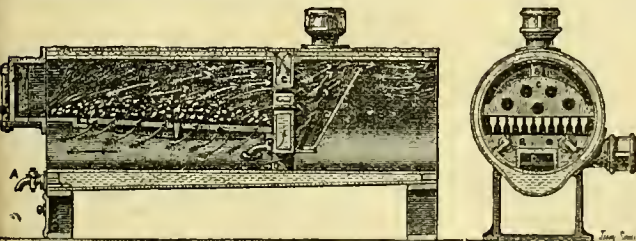
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REQUIRE the SERVICES of an experienced **MAN** to take the **MANAGEMENT** of their New Golden Acre Nursery. Must have a good knowledge of Producing and Growing Stove and Greenhouse Plants, Palms, Ferns, Pelargoniums, Winter-flowering Plants, and Forced Flowers of all kinds in large quantities. State age, experience, qualifications, and give references and wages expected.

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To Nurserymen.

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FOREMAN, or FIRST JOURNEYMAN, in the Houses.—Eight years' good character. Three in present, five in previous situation. Abstainer.—T. COLLINS, The Gardens, Elsham House, Grantham.

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FOREMAN, or good FIRST JOURNEYMAN.—J. HEARY would be pleased to meet with a Gardener requiring the above. Nine years' experience in good establishment. Good references.—Handcross, Crawley, Sussex.

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To Nurserymen.

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JOURNEYMAN, in the Houses.—Three years in present situation. Bothy preferred.—W. LOCKYER, Ditton, Maidstone, Kent.

JOURNEYMAN, in the Houses.—Age 19; four years' experience. Bothy preferred.—E. WILKINS, Gardens, Buckhurst, Wokingham, Berks.

JOURNEYMAN, in the Houses.—Age 21; eight years' experience. Good references. Bothy preferred.—D. ANSTAY, Dyrham, near Marshfield, Chippenharn.

JOURNEYMAN, in the Houses.—Age 22; seven years' experience. Good reference.—W. JONES, The Street Gardens, Chorley, Lancashire.

JOURNEYMAN, in the Houses in a good Garden.—Good references.—J. BAKER, Hinton Hill, Maidstone, Kent.

JOURNEYMAN, in the Houses in a good establishment.—Age 24; first-class reference as to character and ability from last situation.—W. QUARRY, Glenthorpe, Stanmore, Middlesex.

JOURNEYMAN, in a Gentleman's Garden, where Fruits, Plants, &c., are well grown.—Age 21; four years in Plant Nursery.—S. STUTTARD, Edgoad, Brierfield, Burnley, Lancashire.

JOURNEYMAN, in the Houses.—Age 21; bothy preferred. Five years' experience inside and out. Good character.—A. TROTT, The Gardens, Woodhurst, Crawley, Sussex.

JOURNEYMAN, in the Houses.—Age 20; six years' experience, last two years in Orchids. Well recommended.—M. DYER, Gatton Lodge, North Cray, Kent, would be pleased to hear of situation as above. Bothy preferred.

JOURNEYMAN, in the Houses, in a good establishment; age 26.—Mr. JACKSON, Gardener to the Right Hon. Lord Sealsdale, Kedleston Hall, Derby, will be pleased to recommend Arthur Spray, as above.

JOURNEYMAN, in a good establishment.—Age 20; four and a half years with present employer; good character.—Mr. HENDERSON, Mableda Park Gardens, Tonbridge, Kent.

To Nurserymen.

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TO GENTLEMEN.—A young man (age 22) seeks re-engagement with a Gentleman. Has had seven years' good experience in Plant and Grape Growing. Three years with late employer, Mr. John Ward, Leytonstone.—DRAPER, Essex Villa, Brunswick Street, Walthamstow.

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TO GARDENERS, &c.—Wanted by a strong, active, and willing youth (age 18), abstaier, situation in a Gentleman's Garden. Can be thoroughly recommended.—JACKSON, South Lodge, Claydon, Winslow, Bucks.

TO GARDENERS, &c.—Will any Gardener take a steady man (age 30), into his garden. Has been in the Garden before. Good character. Not afraid of work.—C. J., Mrs. Medcraft, Marsh Gibbon, Bicester, Oxon.

TO GARDENERS.—Two Brothers (age 16 and 17) require situations in Gardens. Excellent characters. Bothy preferred.—F. AND E. SHERBOURNE, Great Rissington, near Barford, Gloucestershire.

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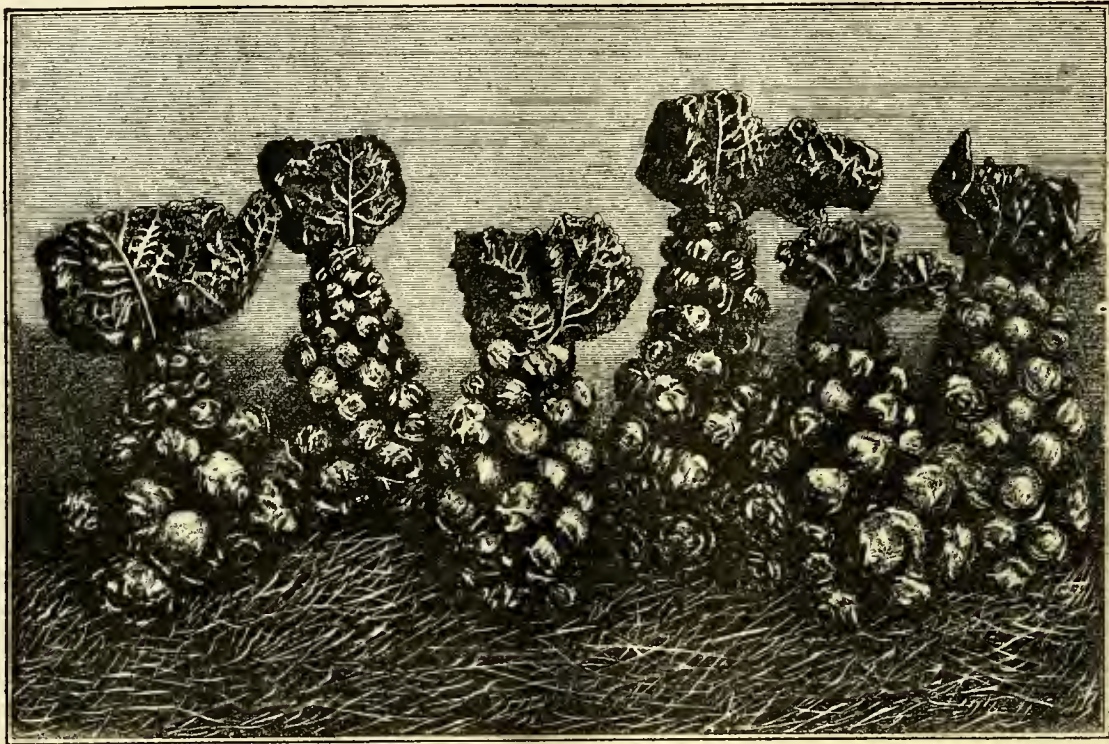
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TO SEEDSMEN or NURSERYMEN.—Advertiser, age 30; thorough knowledge of Seed Business, good Writer, can keep Books, and Travel. Seventeen years' undeniable references.—W. G., 23, Charles Street, West Lincoln.

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NEW AND SELECT STOCK OF BRUSSELS SPROUTS.



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JOHN ETHERINGTON DIXON having purchased the entire Stock of this extraordinary variety from **Mr. JOSEPH BENTLEY**, purposes sending it out for season 1888. It has been proved by all who have grown it to be the best extant for size of knobs and habit of growth. It grows similar to a pyramid, and has been selected with the greatest care possible, so that it may be depended upon as something specially good.

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SIR,—Your strain of Brussels Sprouts is the best in cultivation. I tried it the first year, alongside three of the leading strains, but it proved so much superior to the others that I have grown no other since.

The exhibit of your strain of Brussels Sprouts at our Chrysanthemum Show will not easily be forgotten by those who were present, drawing high encomiums from the Judge, Mr. J. WRIGHT, "*Journal of Horticulture*."

To Mr. JOSEPH BENTLEY, January 5, 1888. [The above is only one out of many received.]

OPINIONS OF THE PRESS.

A BROBDINAGIAN BRUSSELS SPROUT.—To local vegetarians a paradise is shortly in store in the shape of a succulent Sprout of mammoth proportions, the only seed in existence of which has been secured by Mr. JOHN ETHERINGTON DIXON, Seedsman, Lord Street. This new variety is known as the **PRESIDENT CARNOT BRUSSELS SPROUT**, and the plants are of huge size and symmetrical proportions. The Sprouts being of excellent flavour, market gardeners will put in a strong demand for the limited quantity of this seed in the market.—*From the "Retford and Gainsborough Times," December 30, 1887.*

Mr. J. ETHERINGTON DIXON has some extraordinary **BRUSSELS SPROUTS** of a new variety, as may be judged by the name, "**PRESIDENT CARNOT**," the seed of which will be sent out during the coming spring in sealed packets. The product of the first year's growth are of a truly wonderful size, firm in the heart, the plant being of a pyramidal shape, and very thickly studded with large sprouts.—*From the "Retford, Worksop and Gainsborough News," December 24, 1887.*

Price, 2s. 6d. per Packet.

Free by Post, 31 Stamps. Usual Discount to the Trade.

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SEED MERCHANT, &c., LORD STREET, GAINSBOROUGH.

The GARDENERS' CHRONICLE

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ROYAL BOTANIC SOCIETY,
Gardens, Regent's Park, N.W.
FIRST EXHIBITION OF SPRING FLOWERS,
WEDNESDAY, March 21.
Gates open at 2 o'clock. Schedules of Prices and Tickets now ready.

CRYSTAL PALACE.
SPRING EXHIBITION OF PLANTS, FLOWERS, &c.
SATURDAY, March 24.

Schedule of Prizes, Entry Forms, &c., may be obtained on application to Mr. W. G. HEAD, Superintendent of Gardens, Crystal Palace, S.E.
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ROYAL BOTANICAL and HORTICULTURAL SOCIETY of Manchester.

The FIRST SPRING FLOWER SHOW of the present year will be held in the Town Hall, Manchester, on TUESDAY, the 20th inst.

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Old Trafford, Manchester. DRUCE FINDLAY.

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THE GOLDEN-RAYED LILY.

CARTERS' LAST CONSIGNMENTS of the GOLDEN-RAYED LILY of JAPAN, LILIUM AURATUM, have arrived direct from the Japanese Lily Farms.

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WAITE, NASH AND CO. have posted the General Agricultural Seed CATALOGUE to all their customers. If not received another copy will be sent on application.

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FOR SALE, Five very fine ORANGE TREES, in tubs. Apply

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FOR DISPOSAL, or EXCHANGE for ORCHIDS, several Large Specimen Plants, including Alsophila australis, with 2 feet trunk, good heads; Dicksonia antarctica, Davallia Mooreana, and other Ferns.
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SQUELCH AND BARNHAM, North Row, Covent Garden, W.C., are OPEN TO DISPOSE of any quantity of MUSCATS and BLACK GRAPES, TOMATOES, CUCUMBERS, FRENCH BEANS, STRAWBERRIES, CHOICE FLOWERS, &c. Highest Market Prices obtained. Account Sales daily; Cheques weekly or as preferred by Sender. Baskets and Labels supplied. References given.

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The most complete and exhaustive Treatise on Grapes and their Culture ever published.

New Edition.

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Plans and Estimates Free.

See large Advertisement, March 3, p. 282.

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MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 14, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7639.)

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 15, at half-past 12 o'clock precisely, a fine collection of ORCHIDS in Flower and Bud, including a splendid plant of Lycaste Skinneri alba, with 11 spikes, in superb health; Lælia purpurata alba, with 80 bulbs; fine forms of Odontoglossum Alexandræ, O. Pescatorei and O. Rossi, Cattleyas, Dendrobies, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7639.)

10,000 Grand Bulbs of LILUM AURATUM, 700 L. SPECIOSUM ALBUM, and L. ROSEUM, 150 L. AURATUM MACRANTHUM, L. KRAMERII, and other Bulbs from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 15, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7639.)

FINE IMPORTED INDIAN ORCHIDS,

including Cælogyne ocellata, Cymbidium Mastersii, Pleione præcox Wallichiana, Vanda cœrulea, Dendrobium calceolus, D. chrysanthum, Cymbidium species, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 15.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7639.)

400 strong Established ODONTOGLOSSUM ALEXANDRÆ and others, from a well-known private collection, consisting principally of unflowered plants.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 15, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest, the whole in the finest possible condition.

Dates and further particulars will be duly announced in future Advertisements.

Tuesday Next.

VALUABLE IMPORTED ORCHIDS.

ODONTOGLOSSUM PESCATOREI, fine masses.

BLANDUM.

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, March 13, at half-past 12 o'clock precisely, a splendid lot of the showy ODONTOGLOSSUM PESCATOREI, in excellent condition, comprising masses with stout and fine looking bulbs, having been collected in the best district, whence the finest varieties in collections have been obtained. Also a fine lot of the rare ODONTOGLOSSUM BLANDUM, in extra condition; good pieces of the showy ADA AURANTIACA, O. TRIUMPHANS, O. HASTILABUM, a few plants of the scarce and beautiful ODONTOGLOSSUM PHALENOPSIS, CHYSIS BRACESENS, EPIDENDRUM XANTHINUM, and other ORCHIDS.

The Sale will also include a very fine assortment of well-grown Established ORCHIDS, nearly all in Flower or Bud, and including some very fine varieties of Odontoglossum Alexandræ.

On view morning of Sale, and Catalogues had.

Tuesday Next.

Very fine collection of Standard and Dwarf ROSES, Standard and Trained FRUIT TREES, HARDY EVERGREENS, DECIDUOUS SHRUBS, CLIMBING PLANTS, and GREENHOUSE PLANTS, in variety, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above, by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, London, E.C., on TUESDAY NEXT, March 13, at half-past 12 o'clock precisely. Catalogues had at the Rooms; and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

Wednesday Next.

10,000 LILUM AURATUM.

2,100 various JAPANESE LILIES, according to native drawings in fine varieties. The bulbs are in splendid condition, and will be sold without reserve.

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

On view morning of Sale, and Catalogues had.

Wednesday Next.

Important to Noblemen, Gentlemen, Nurserymen, Builders, and others largely engaged in Planting. SALE by AUCTION of extensive quantities of NURSERY STOCK and GREENHOUSE PLANTS by samples.

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

3,000 Dwarf Roses, [sorts]	1,000 Aucuba japonica, 1 to 2 feet 9 inches.
4,000 Gooseberries, best named	4,000 Laurel, rotundifolia, 1½ to 2 feet.
3,500 Red Currants, of sorts.	500 Portugal Laurels, 1½ to 2 feet.
5,000 Black Currants.	1,000 Bay Laurels.
1,000 Broad leaved Box, 1½ to 2 feet.	1,000 Sweet Bays.
3,000 Evergreen Privet.	10,000 Quince.
12,000 Poplars, Elms, Ash and Laburnums.	600,000 Native Scotch Firs.
8,000 Scotch Elms.	1,000 Wilson Junior Black-berries.
Dwarf Trained Fruit Trees.	Specimen Cedrus Deodora.
200 Ficus elastica.	Pyramid Apples.
1,000 Double and single Begonias.	Carnations of sorts.
700 Hydrangea paniculata grandiflora.	10,000 Lilium auratum, &c.

Samples will be on view the morning of Sale. Catalogues can be had of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Every Wednesday and Saturday.

SALES OF STANDARD and DWARF ROSES, GREENHOUSE PLANTS, and PALMS; LILUM AURATUM from Japan; an extensive assortment of ENGLISH-GROWN LILIES, including most of the principal varieties; TUBEROSES, SPIRÆAS, GLADIOLUS, HERBACEOUS PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will

SELL the above by AUCTION, at their Central Sale Room, 67 and 68, Cheapside, London, E.C., every WEDNESDAY and SATURDAY, at half-past 12 o'clock precisely each day.

On view morning of Sale, and Catalogues had.

Friday Next.—Established Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 16, at half-past 12 o'clock precisely, a very fine lot of ESTABLISHED ORCHIDS, containing plants in excellent health, among them many rare and fine species.

Onidium incurvum album, with spike.	Batemannia Burtii.
Cælogyne Dayana, splendid specimen.	Masdevallia hieroglyphica.
Vanda Sanderiana, grand specimen.	Cymbidium macrocarpum.
Lælia Gouldiana, true.	Zygopetalum Murrayanum.
Cypripedium Arthurianum.	„ crinitum nigrum.
Odontoglossum Schroderianum.	Lycaste macropogon, unique specimen.
Deudrobium nobile Cooksoni.	„ Denningiana.
„ Leechianum.	Angraecum Sanderianum.
Trichopilia suavis alba.	„ Du Boyssoni.
„ lepidia.	Cattleya Fearnleyana, new.
Masdevallia Gelogeania.	„ Matthewsiana, new.
	Masdevallia cupuluris.
	Cypripedium cardinale.

The following Cypripediums are from the collection of Norman C. Cookson, Esq.:—

Cypripedium albo purpureum	Cypripedium euryandrum
„ oeanthum superbum	„ seligerum majus
„ plaeurum	„ Schroderi
„ Harrisianum superbum	„ microchilum

And many other choice kinds.

On view morning of Sale, and Catalogues had.

Orchids in Flower.

SPECIAL SALE for Easter Decorations, TUESDAY, March 27. MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place as above, for which they will be glad to Receive Notice of Entries as soon as possible.

Crystal Palace (Close to).

TO BE SOLD, at a great sacrifice, in consequence of a family bereavement, a thoroughly genuine FLORIST'S BUSINESS.—Long Lease; excellent opening, seldom met with. Rent £26. Price for Dwelling-house and Incoming, £700.

Apply to MESSRS. PROTHEROE AND MORRIS, Auctioneers, 67 and 68, Cheapside, London, E.C. (Folio 5568.)

FOR DISPOSAL, a FLORIST and FRUITERER'S BUSINESS, in main road; also FREEHOLD NURSERY, with Glass Erections and eight-roomed House, within 5 miles of Covent Garden.

Particulars of E. R. HILL, Surveyor, Royston, Cambs.

Rugby.

FOR SALE, HOUSE, FARM BUILDINGS, and 19 Acres of rich LAND; suitable for a good Gardener. Price £1800. Apply to A. ABEL, Harrowgate.

TO BE SOLD, long Leasehold NURSERY; nearly 80 years' lease. £14 per annum Ground Rent. Ten Glass Houses and Pits, well-stocked. Price £1200. Apply at Saint Mary's Road, Harlesden, near Willesden Junction.

FLORIST BUSINESS.—S.W. suburb; genuine business, and easily worked. No Outdoor Work. S. H. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

Excellent Opening for Market Business.

TO LET or SELL, Immediate Possession, FAIRFIELD GARDENS, near Stockton-on-Tees. The Cottage, Glasshouses, and Garden contain nearly 9000 square yards.—Apply to LITTLE and BALLANTYNE, Carlisle.

TO LET, for Lady Day, a FRUIT and GARDEN FARM, consisting of about 16 Acres. Within a drive of Worcester, Malvern, Ledbury. Full particulars on application.

LEBAS, Saint Katherine, Malvern.

To Florists and Market Gardeners.

TO BE LET, or SOLD, an Excellent MARKET NURSERY, in One or Two Lots. There are nearly 4 Acres of Land, mostly walled in, a capital Residence, and nearly 10,000 feet of Glass in Six Houses, all well heated with hot water. Held on Lease, of which seventy years are unexpired. Close to Station and fifteen minutes from Town. Proprietor relinquishing on account of ill health.

Full particulars of Mr. HODSOLL, Land Agent, Farningham and Gravesend, Kent.

Enderby Strawberry Gardens near Leicester.

To Market Gardeners and Others.

TO BE LET, from Lady Day next, the above MARKET GARDENS, comprising good House with indoor Beer Licence, extensive Range of Greenhouse's (30 yards long) in excellent repair, 13 acres of Orchards and Gardens well stocked with Fruit Trees of every description, and 10,000 Strawberry plants, &c. Enderby is about 5 miles from Leicester and within 1½ of Narborough Railway Station.

For further particulars apply to Mr. G. H. WADE, The Chace, near Loughborough.

TO LET, a Nobleman's fine Walled KITCHEN

GARDEN, of 2 to 3 acres, with Four Vineries, Stove House, &c., and Gardener's Residence. Close to station and county town. About an hour from London, Brighton, and Portsmouth.

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Have just received a Grand Importation of Orchids, which includes a large number of splendid masses of

WHITE LÆLIA ANCEPS

From a New District.

Dried flowers sent with the plants are very large, and four and five on each spike.

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ROSES! ROSES!! ROSES!!!—The best and cheapest in the world; 40 choice Perpetuals for 21s., purchaser's selection from 400 best varieties. Catalogues free on application. Ten acres of Roses, 100,000 grand plants to select from. Plant now.—J. WALTERS, Rose Grower, Exeter.

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The finest Early Cabbage in cultivation, very distinct, conical, and extremely firm, with hardly any outside leaves, in fact "all heart." Flavour particularly mild and delicate. Weight, from 4 to 7 lb. The perfection of Cabbages for Garden or Market. In Sealed Packets, 1s. and 2s. 6d. each.

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100 Herbaceous and Alpine Plants for 25s.
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CATALOGUES gratis.

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H. AND F. SHARPE will be pleased to make SPECIAL OFFERS of their fine selected stocks of Home-grown MANGEL WURZEL and TURNIP SEEDS, raised from picked transplanted bulbs, and harvested in splendid condition. Prices and Samples may be had on application. Seed Growing Establishment, Wisbech.

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MAIN CROP KIDNEY,
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It was tested by cooking, and described by the Committee as a "White Kidney, with clean, rough skin, white flesh, a good cropper."

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Fine feathery-foliated Seaforthia elegans, 4 feet high, 15s. per pair.

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A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate disposal.—Latania borbonica, Seaforthia elegans, Chamerops excelsa, and Phoenix reclinata—from 10s. per pair. GARDENER, Holly Lodge, Stamford Hill, London, N.

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Wrinkled Marrow PEA in the world, coming in with Gem of the Season, Lightning, and Earliest of All. Every one who has a garden should grow it for a first early. A trial packet, containing 1 pint, sent post-free on receipt of Postal Order for 1s. 6d.

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CABBAGE PLANTS, very strong autumn sown.

Ecofield Market and Robinson's Drumhead, 3s. 6d. per 1000; 30s. per 10,000.

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Package free, extra plants for carriage. Cash.

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STRONG FOREST TREES.

ALDER, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.

ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.

BIRCH, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.

ELM, Wyeh, 2 to 3, 3 to 4, and 4 to 5 feet.

LARCH, 2 to 3, 3 to 4, and 4 to 5 feet.

OAKS, 1½ to 2, 2 to 3, and 3 to 4 feet.

FIR, Scotch, 1½ to 2, 2 to 2½, and 2½ to 3 feet.

FIR, Spruce, 1½ to 2, 2 to 2½, 2½ to 3, and 4 to 6 ft.

All these are stout, good plants, and properly rooted. The prices quoted will be very reasonable in order to clear.

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18 Hyacinths (open), £3, 1st; £2, 2nd; £1, 3rd. 12 Hyacinths (amateurs), £2, 1st; £1, 2nd; 10s., 3rd. 6 Orchids, distinct (open), £3, 1st; £1 10s., 2nd. And several other Classes for Plants, Cut Flowers, Fruit and Vegetables—46 Classes in all.

Entries close March 17. For Prize Schedules apply to 14, Milson Street, Bath. BENJN. PEARSON, Sec.

THE LIVERPOOL HORTICULTURAL ASSOCIATION.

EXHIBITIONS FOR 1888.

POSTPONEMENT OF SPRING SHOW to MARCH 28.—THE SPRING SHOW OF HYACINTHS, TULIPS, AZALEAS, &c., will be held in St. George's Hall, on WEDNESDAY, March 28.

GRAND EXHIBITION, in Sefton Park, on SATURDAY, August 4, and BANK HOLIDAY, August 5.

THE GREAT CHRYSANTHEMUM and FRUIT SHOW, on TUESDAY and WEDNESDAY, November 20 and 21.

Schedules on application to the Secretary, EDWARD BRIDGE, 3, Cedar Terrace, Tarbock Road, Huyton.

BATH and WEST of ENGLAND SOCIETY and SOUTHERN COUNTIES ASSOCIATION.

NEWPORT (Mon.) MEETING, 1888, commencing JUNE 6. The following PRIZES will be given, viz., a CUP or Money, value TEN POUNDS, for the best Group of Orchids. Amateurs.—Also a CUP or Money, value FIVE POUNDS, for the best box of Tea and Noisette Roses. Ditto for Nurserymen. For further particulars apply, Hoo, and Rev. J. T. BOSCAWEN, Lamoran Rectory, Probus, Cornwall.

SHREWSBURY FLORAL FETE

AUGUST 22 and 23, 1888.

For Twenty PLANTS, £25, £20, £15. For GRAPES, £25. For Collection FRUIT, £10, £5, £3. For VEGETABLES, £50, including Valuable SPECIAL PRIZES by Messrs. Webb & Sons, Messrs. Sutton & Co., and Mr. T. Laxton. The VEITCH MEMORIAL MEDAL and £5 will be awarded for VEGETABLES at this Show. Full particulars, with Schedules, post-free on application to the Hon. Secs.,

Messrs. ADNITT and NAUNTON, Shrewsbury.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 13 next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next. A. F. BARRON, Hon. Sec., Royal Horticultural Society's Gardens, Chiswick.

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H. AND F. SHARPE will be pleased to make special offers of their carefully selected stocks of SEED POTATOS, raised on their own farms expressly for seed purposes. Seed Growing Establishment, Wisbech.

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YEWs, bushy and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per dozen, 35s. per 100; 2 to 2½ feet, 8s. per dozen, 50s. per 100; 2½ to 3 feet, 9s. per dozen, 60s. per 100; 3 to 3½ feet, 12s. per dozen, 84s. per 100. Prices of larger sizes and other evergreens, suitable for hedges (e.g., TREE BOX, HOLLY, LAUREL, PRIVET, CYPRUS, JUNIPER, THUA, &c.) on application.

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100 ROSES, in 50 finest varieties, of H.P. and Tea on the Seedling Brier, from the open field .. for 35s.

We may state that we have grown
Teas on the Seedling Brier in the open
field for many years back, proving that
they are about as hardy as the H. P., as
we have frequently had the latter cut
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100 HERBACEOUS PLANTS, in 50 fine varieties .. for 20s.

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APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarfs, Pyramids, Bushes, Cordons, and Trained Trees, in great variety.

VINES, excellent Canes, 3s. 6d. to 7s. 6d. Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c. from 5s. FIGS from 3s. 6d.

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GLADIOLI, of which we grow 20 Acres.
PÆONIES " " " 5 "
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ROSES 20 ACRES.

Well-rooted, many shoot, truly named, of matured vigorous growth, and of the best kinds. BUSHES, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100. STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

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FRUIT TREES AND ROSES.

A Large and Select Stock is now offered for Sale. The Illustrated and Descriptive Catalogue of Fruits post-free.

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Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100; ditto in large pots, 25s. per 100. Descriptive LIST free.

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Mangel, Swede, Turnip, Cabbage, Carrot, &c.
Natural Grasses and Clovers of all sorts, or Mixtures made for Permanent Pasture to suit any soil.

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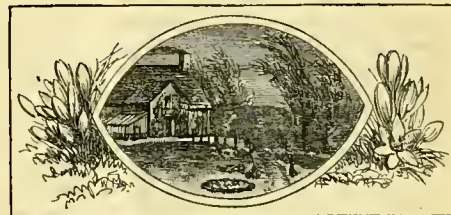
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 10, 1888.

THE FUTURE OF GARDENING.

"NOTHING is so likely to happen as the unexpected," was an old saw made popular by the late Lord Beaconsfield, and I may say that it is especially true as applied to gardening. Our failures often lead to our greatest successes, and our whilom successes not unfrequently tempt us to become negligent of those trifles which, taken collectively, conduce to, even if they do not actually command, success. "Ah!" said a gardener to me lately, "gardening is not what it used to be;" and then he added, in an awed kind of a whisper, "we sell everything now which the family do not require." "And why not?" I replied. "Why should not a garden be managed at a profit as well as a farm, or a stable of horses for breeding, or the shorthorns, or sheep, or poultry, or bees, or the hundred and one other things that go to make up the success of land culture in our country to-day? The ordinary rough and ready methods of farm culture and management common ten or twenty years ago lead to ruin, and the only way in which we can make land culture profitable now is by the organisation and focussing our brain-power on limited areas, glass protected or not as the case may be. This being so, I see no objection to the principle of self-help being carried out at Chiswick and elsewhere, indeed everything honest should be tried, and every nerve strained before we allow the only national and experimental scientific garden in England to fall to the ground. I have yet to learn why the best scientific schools and gardens should not be trading institutions, and to a certain extent if not altogether self-supporting. If "labour is honourable," as it is generally acknowledged to be, why should not trade also be honourable? As a matter of fact it really is so, and it is not difficult to point to trading institutions that are really scientific to the highest degree and profitable as well.

Where is there at the present moment a school of gardening equal to the nurseries of Messrs. Veitch & Son? Their establishments are

managed as paying concerns, and yet what purely scientific and State-aided garden can produce such a record of new plants introduced from abroad, or, as hybrids, raised under cultivation? In a lesser degree the same may be said of other nursery gardens in London and throughout the provinces. Let us take a few other examples, say, Doulton & Co.'s pottery or Price's Patent Candle Company—both concerns managed scientifically at a profit, and the former especially one of the best art schools in the kingdom, while the other has given us in glycerine, Gishurst compound, &c., from its once waste chemical products, results by no means to be despised. Any trade or profession may be both profitable and scientific if brain-power and energy are focussed on a limited area; and why should gardening be any exception to the general rule? Are not the shorthorns sold periodically from the Albert Model Farm? Why should gardening be exempt from that commercial test now applied to every other profession or science? There is scarcely a titled family in England that does not augment income by trade. It is, therefore, a matter of indifference whether they get rent for land or money for coals or iron or timber from their estates; and I see not how it matters whether you trade in coal or in Cauliflowers. The output of the one commodity may be as scientific as the culture of the other; for if science is anything to-day she is cosmopolitan and catholic, and ennobles all she touches, illumines all of which her light shines. After all, it is the individual that commands success in science as in most other things. Darwin, with his antiquated measuring-glass, and anything but exactly indexed 3-foot rule, did more for research than all the State-aided people put together.

The main drawbacks to trade in ordinary gardens, however, are the following:—As a rule the hothouses and fruit-houses are antiquated, badly lighted, and expensive to heat efficiently; then, if the place has to be kept clean, and the lawns closely shaven, for the pleasure only of the employer, he must of course pay for that, as he pays grooms for his racehorses, or sailors for his yacht. As a rule, an acre of land covered with cheap glasshouses, all heated efficiently from two or three boilers, will prove more economical and profitable than the usual run of barn-like structures existing in private gardens; so in the culture of hardy fruits, a bit of selected soil well planted with young fruit trees, vegetables, and flowers, will pay far better in the long run than will a gentleman's garden of a much larger area; but at the same time, if any gentleman likes to sell his surplus garden produce, by all means let him do so, and do not let us attempt to stop progress by saying that this was not the rule years ago. After all, we cannot stand still; new ways, new methods, new fashions, and new ideas will arise, and these in gardening, as in other matters connected with the culture and profitable management of land. The old gardeners took trouble to learn the way so to grow giant *Ericas*, *Stephanotis*, *Ixoras*, and to fill flower-beds with plants by the million, just as now-a-days they have to learn the growth of decorative plants, the mode of production of cut flowers, and the culture of alpine and herbaceous plants or Orchids. Evolution goes on in gardening as in all other things, and those young gardeners who are wise will take care to prepare themselves for the management of gardens of the self-supporting kind. After all, the one thing is as easy as the other, when once you know how it is done. The main thing in gardening as in other arts is to decide what you will do; in most cases the employer will decide

for you, and then one's duty becomes clear. But as to the question as to whether gardens are to be maintained for science, for pleasure, or for profit, that rests with their owners; but we may at any rate rest assured that whenever a garden is maintained at a profit there will be none the less pleasure derivable from it, and, as in the case of our best nursery gardens, science will not be far behind her highest standard, even if she does not now and then get a step or two ahead of the schools, in such well-managed places. *F. W. Burbidge.*

CRASSULA LACTEA.

HERE is an old acquaintance, and one admirably suited for the greenhouse of the amateur, or even the window of the cottager. If kept dry in the winter-time it will, like many other Cape plants, bear a comparatively low temperature with impunity. An admixture of mortar rubbish with ordinary garden mould suits it very well. The thick fleshy leaves are ovate-acute, with a row of white dots within the margin. The flowers are produced copiously, are snow-white, and expand in the winter season, on which account we call attention to the plant as one very desirable for cultivation even in these days of novelties. For the drawing whence our illustration (fig. 47) was made we have to thank Mr. Gilbert Davidson, of Wernoleu, South Wales.

NEW OR NOTEWORTHY PLANTS.

PHALÆNOPSIS DENTICULATA, *n. sp.**

THIS curious plant flowered with Messrs. Hugh Low & Co. in December last. Mr. Hugh Low kindly informed me that the plant comes near *Phalænopsis sumatrana* Marie, having green leaves about 6–7 inches long, by 2–3 inches in width, and roots with light green points. The peduncle at hand is two-flowered, and will, no doubt, improve a good deal when the plant becomes established. The sepals and petals are oblong-lanceolate, acute, white, with brown, mostly roundish spots. The lateral partitions of the lip are ligulate, toothletted refuse outside, with a callosity at the base, and a transverse keel running in an oblique manner outside. Mid-partition concave, ligulate, acute, toothletted at the anterior margins, with a long keel over the middle rising very high towards the apex. There are two forcipate callosities, one on the disc, the other at the very base of the mid-partition. Colour white, side-partitions lightest-yellow at the anterior side, with three mauve lines on each side of the mid-partition. Column enlarged by an angular part at the base. I am very thankful to state that Messrs. Hugh Low & Co. have favoured me with several identical peduncles. The denticulate margin is only known in *Phalænopsis pallens*, in which the whole top is widely enlarged. The concave mid-partition is quite peculiar. *H. G. Rehb. f.*

ODONTOGLOSSUM BODDAERTIANUM, *n. sp.†*

THIS is near to *Odontoglossum odoratum*, Lindl., yet it is quite distinct in the anterior major part of

* *Phalænopsis denticulata*.—Radicebus folisque *Phalænopsis sumatrana* Marie; pedunculo tenui bifloro (semper 2); sepalis tepalibus que cuneato-ligulatis acutis; labello unguiculato tripartito, partitionibus lateralibus ligulatis extus retusis denticulatis, basin versus umbonatis, extus transverse ob oblique carinatis, partitione mediana cuneato oblongo ligulata acutiuscula, antice denticulata concava, carina antorsum elevata per discum, callis bifidis biseriatis in disco inter partitiones laterales et in basi partitionis mediane; columna basi utrinque angulata. *H. G. Rehb. f.*

† *Odontoglossum Boddaertianum*, *n. sp.*—Affine *Odontoglossum odoratum*, Lindl.; sepalis tepalibus lanceola acuminatis; labelli lobis basilaribus erectis semi-ovatis, lobo medio basi utrinque triangulo seu semi-elliptico auriculato, auriculis divaricatis, parte antica porrecta magna lancea acuta, seu acuminata seu cuspidata, minutissima denticulata, callis in basi parallelis geminis bidentatis; columna validiuscula. Ex Venezuela mis. coll. Bangeroth. *H. G. Rehb. f.*

the mid-lacinia of the lip, having on each side a spreading angle at the base. It has been compared with *Odontoglossum Sanderianum*, a very rare plant that appears to be often very ill understood, or oftener quite misunderstood. The last named plant has a much broader lip, the anterior broad part usually pandurate, without any such spreading angles. The basilar part of the lip, the two semi-oblong valves, are much broader.

Our plant has lanceolate acuminate yellow sepals, with dark cinnamon markings, which appear to have a tendency to longitudinal extension. On the pallid outside you may see them very well, though pale too. The lip is white; its basilar lobes are semi-oblong, upright, with some mauve or purple spots. The mid-lobe has spreading small basilar angles, the mid-part is much larger, lanceolate, acuminate, toothletted, though not in a conspicuous manner. There are two parallel bidentate calli at the base, and a few purple spots around. The column is whitish-yellow, with a few dark brownish-purple spots, and the usual linear falcate markings.

I have not seen the plant, nor can I say whether when well-grown it is racemose or paniculate, which is a most disagreeable state of things for me. This will, no doubt, now be decided by Messrs. Linden, provided their plants are yet established.

I am afraid my first knowledge of the plant, vague as it is, is five years old. Mr. Peacock, of Hammersmith, once the king of succulents, now an enthusiastic collector of Orchids, sent me a flower in April, 1887, that comes very near to this, though a little doubt is left. Notwithstanding my request, I got no additional information, nor any more material, and thus I was deprived of the satisfaction of doing justice to the gentleman and to the plant.

Monsieur le Professeur Dr. Boddaert van Cutsem, of Ghent, celebrated as an enthusiastic Orchidist, has twice sent me very good materials (dense racemes), which enabled me to get a rather good idea of the plant. Being indebted for all my positive knowledge to this gentleman I have named the *Odontoglossum Boddaertianum*, and now Monsieur Lucien Linden, Director of l'Horticulture Internationale, Brussels, sends me recently developed flowers from specimens collected and sent by one of the assiduous collectors of this company, Mr. Bangeroth. *H. G. Rehb. f.*

CYPRIPEDIUM × GODEFFIANUM, *n. hybr. Angl., Cookson.*

THIS is really a fine thing.—one of the best hybrid *Cypripedia* I have seen. It was kindly sent me by Mr. Norman C. Cookson, Oakwood, Wylam-on-Tyne. Its parents are *Cypripedium hirsutissimum*, male; and *C. Boxalli*, female.

The leaf is a span long, nearly 2 inches broad, very stiff, with a fine narrow, pellucid, cartilaginous margin. The strong peduncle is covered with reddish stiff hairs, as is also the ovary, which is nearly equal to half the bract in length. The bract has small dark spots at its base. The oblong median sepal is of the lightest yellow, only pure at the border, the whole disk being covered with sepia-brown, whereon circles of the lightest yellow are to be seen, with a few sepia spots at the base, on a light yellow area. The lateral sepals are oblong-acute, of the lightest yellow, with a few rows of dark spots at the base in the centre. The ligulate petals are much broader, blunt at the top, finally undulate at the base in the upper half. The spreading petals constitute the chief ornament of the flower. They are of a gorgeous purple-mauve at the exterior half, running out in a mauve line from the middle to the base. The remaining parts over and under the line are of the finest sulphur with innumerable fine blackish-red spots. The colours are not dull, as is the case in so many hybrids, but bright and clear. Outside the petals are the lightest sulphur-chloured, with dark brown markings at the base, and a line of the same colour in the middle of the anterior part, where there is a delicate wash of the most pallid purple-mauve. The lip is rather slender, blunt, extinguisher-shaped, light brown, yellowish underneath. The staminode is nearly square, apiculate, with a knob-like projection at the top, and another at the base, yellow.

I have no doubt admirers of hybrids will like this plant, the more so as the "blood" of *Cypripedium hirsutissimum* appears to give a strong warranty that the plant will not grow like a weed, which is a fault in the eyes of purchasers of numerous hybrids. As I esteem the novelty so highly, it is an uncommon satisfaction to me to name it in honour of Mr.

confluent in lines, on a bright green ground, the darker colour of the petals, and the much darker lip. Although quite distinct as a garden plant, still the general characters of the two are so similar that I suspect both may have come from the same parentage, if not from the same cross. I can only suggest *C. insigne* and *C. Harrisianum* × as

insigne type, while the varnished appearance of the sepals and lip show an approach to *C. Harrisianum* ×. Of course the name is intended only as a fancy one, not as a Latin specific one. *R. A. Rolfe.*

ORCHID NOTES AND GLEANINGS.

DOWNSIDE.

AFTER seeing the large number of *Cattleya Trianae* spoilt by fog it is a pleasure to see Mr. W. Lee's *Cattleya*-house bright at this season with many fine varieties of that plant. The view along the house discovers many hundreds of fine flowers, the frequently noted named varieties, such as *Osmani*, *Leeana*, *Dayana*, *Backhousiana*, *Emperor*, *Emiliae*, *eboracensis* *superba*, *alba*, *virginalis*, *Russelliana*, &c., standing out prominently even among a very beautiful class of undistinguished varieties. Among the light varieties *C. T. bella* with white sepals and petals, and pale rose lip; and *C. T. Vesta*, white with bright crimson front to the labellum, are both superb examples. Ranged along the centre of the *Cattleya*-house are many very fine and well sheathed *Laelia purpurata*, and *L. elegans*; and on one side are flowering the remainder of the *Laelia* aneeps, among which *L. a. Veitchiana*, white with lilac-blue colour on the lip, is unsurpassed in its way, as are *L. a. Dawsoni* and *L. a. Schroderei* in theirs. The last is a very charming flower, with bluish sepals and petals—the latter crimson fethered, and a bright crimson lip. *Laelia (Brassavola) glauca*, *Cattleya Walkeriana*, and a fine show of *Celogyne cristata*, in all its varieties, were also in bloom in the *Cattleya*-house, and in the lobby the commencement of the flowering of the collection of *Vanda tricolor* and *V. suavis*, *Chysis Chelsoni*, *C. bractescens*, *Cnidium splendidum*, *Epidendrum Endresii*, *Laelia harpophylla*, *Celogyne conferta*, *C. sparsa*, and *Sarcophilus Hartmanni*.

Among the *Dendrobies* the true *D. nobile nobiliss* is the king, as the *D. splendissimum grandiflorum* of Messrs. Veitch is likewise the best of the *Ainsworthi* section, for strength of growth (often 2 feet 6 inches), beauty of flower, and on every other point; their hybrid, *D. enosmum leucopterum*, too with translucent milk-white flowers, is beautiful in the extreme; *D. luteolum chlorocentrum* also is finer than the type. The other *Dendrobies* in flower were various varieties of *D. nobile*, *D. Lowianum*, *D. Ainsworthi*, *D. Leechianum*, *D. endocharis*, *D. Kingianum*, *D. Wardianum*, and other species flowering at this season.

Of *Cypripediums* in bloom were noted the rare and curious *C. (Selenipedium) Lindleyanum*, in *Orchids of Roraima*, p. 298, which has an apparently never-ending succession of flowers. *C. politum* ×, *C. hybridum* ×, *C. chloroneurum*, *C. Meirax* ×—these are all hybrids of *C. venustum*, and very handsome when well grown. Among the *Sedeni* strain *C. S. candidulum* is a beautiful flower, as free to grow and bloom as the commoner form, and that is no slight recommendation. Also in bloom were *C. microchilum* ×, *C. barbatum* *Warneri*, *C. grande* ×, *C. Harrisonianum nigrum* ×, &c.; and with them were some well bloomed *Odontoglossum Roezlii*, *Zygopetalum rostratum*, many varieties of *Calanthe Regnierii*, *Saccolabium curvifolium* *luteum*, *S. gemmatum*, *Dendrochilum glumaceum*, *Epidendrum cariniferum*, and other minor but interesting things.

The new *Phalenopsis*-house contained a good show of bloom, and here, as in other places where it has been tried, the best possible account is given of the benefit to the plants from an undergrowth of foliage plants such as *Tradescantia*, *Pellionia*, *Fittonia*, *Cyrtodeira*, and other subjects not liable to harbour insects. Certain it is that in a house so arranged a healthy, moist atmosphere is always assured. The bulk of the flowers were borne by *P. Schilleriana* and *P. Stuartianum*, and with them are some good examples of *P. amabilis*, *P. rosea*, *P. Sanderiana*, and one *P. intermedia* *Portei*. *Aerides*

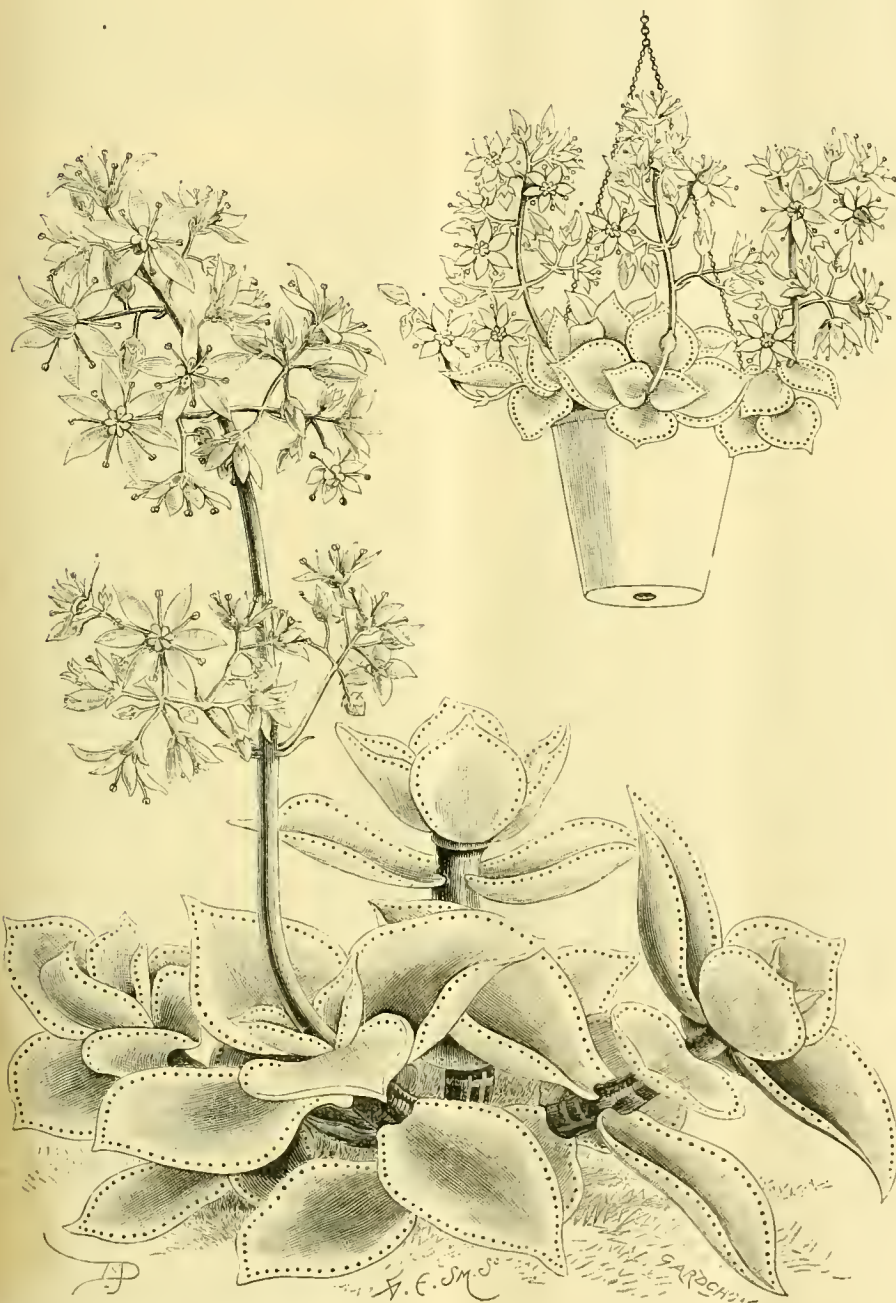


FIG. 47.—*CRASSULA LACTEA*: FLOWERS WHITE. (SEE P. 296.)

Godseff, the excellent assistant of Mr. F. Sander. *H. G. Rehb. f.*

CYPRIPEDIUM ELECTRA, *n. hyb.*

This is a pretty hybrid of *Veitchian* origin, and of the same type as the one recently described by me as *C. Galatca*, and like that one the record of the parentage has unfortunately been lost. The chief differences consist in the very broad white border of the upper sepal, and the circumstance that the spots are almost

the most likely parents. The leaf is quite pale glaucous green, with darker reticulations. Upper sepal green, with very dark brown spots, almost confluent in lines, and a very broad pure white border. Petals varnished, veined, and reticulated with purple-brown on a paler ground, and with a few small dark spots on the inner half near the base. Lip shining purple-brown. Staminode much like that of *insigne*, and with the characteristic tooth. The general shape of the flower is of the

Lecanum and the pretty *Angraecum citratum* also contribute to the show in this house.

The cool-houses have their plants in their usual order, the *Masdevallias* being especially good. There is a fine representative collection of them at Downside, and there are always some interesting things in bloom among them, even when the season of the showy ones is not on. A noble example of *M. Shuttleworthii* presents this plant in its true aspect, and stamps it as one of the most beautiful of the neat-growing *Masdevallias*. *M. melanoxantha* has fleshy flowers of a dull red; *M. Veitchiana grandiflora* is the grandest of all coloured *Masdevallias*; *M. triangularis* neat and floriferous, and the several brilliant orange and red forms of *M. ignea* invaluable for effect in winter and spring.

The *Odontoglossums*, on account of the dry nature of the soil and the powerful effect of the sun in this district, are said to give more trouble to keep free from thrips in this district than in some others; nevertheless the stock is in good order, and commencing the season's flowering well with *O. crispum*, *O. Pescatorei*, some pretty forms of *O. Wilckeanum*, and *O. Andersonianum*, *O. Rossii majus*, *O. ramosissimum*, and some showy forms of *O. odoratum*, which is really a handsome and useful Orchid, whose chief fault is that it has become common. The *Lycaste-house*, which is kept 5° warmer than the *Odontoglossum-house*, has a fine display, in which, of course, the several plants of *L. Skinnerii alba* are the most attractive, although two or three which have just escaped being white, by being a pure pink, are very handsome, especially the one named *delicatissima*. *Odontoglossum Cærstedii*, with its snowy-white flowers, and the scarlet *Sophranitis*, also form beautiful objects in this house. *James O'Brien*.

ORCHIDS AND OTHER PLANTS OF RORAIMA.

Mr. Im Thurn, in his account of the plants observed during the Roraima expedition, recently published in the *Transactions of the Linnean Society* (July, 1887), speaks thus of the Orchids of the swamp district of Roraima half way up the mountain:—

"*Selenipedium Lindleyanum* (Rehb. f.), with huge branched flower-stems, each bearing many blooms, the whole plant—flower, leaf, and stem alike—velvety in texture, and of various shades of one colour, the colour of sunlight as it falls through green young Beech leaves; the beautiful *Zygopetalum Burckii* (Rehb. f.*), with flowers seeming like gigantic, pale coloured Bee Orchises (*Ophrys apifera*, Huds.), but far sweeter in scent; in great abundance the rosy-flowered *Pogonia parviflora* (Rehb. f.), which recalls in habit our English wild Tulip (*Tulipa sylvestris*, L.); and to mention but one more among many, *Epidendrum elongatum* (Jacq.), its stems varying in height from 1 to 8 feet, its *Verbena*-like clusters of flowers varying in colour in different plants, some pale yellow, some fawn colour, many pure rich pink, dark purple, and even mauve. This last-mentioned Orchid, it may be noted in passing, is one of a group to which I shall presently refer.

"The effect of the whole is as of an alpine meadow, coloured in early summer by innumerable flowers of the brightest and most varied tints.

"If this tall vegetation be anywhere parted by the hand of the curious traveller, underneath it is seen a carpet of other low-growing plants—*Pæpalarthus Schomburgkii*, *P. flavescens*, *Drosera communis*, a pretty little Orchid, *Spiranthes bifida*, Ferns, *Lycopodiums*, and sphagnum-like mosses.

"One, perhaps the most remarkable plant of the swamp, has not yet been noticed. It is the South American Pitcher plant, *Nelamphora nutans* (Benth.) which grows in wide-spreading very dense tufts in the wettest places, but where the grass happens not to be long. Its red-veined pitcher leaves, its delicate white flowers raised high on red-tinted stems, its sturdy habit of growth, make it a pretty little picture wherever it grows. But it attains its full size and best

development, not down here in this swamp, but up on the ledges on the cliff of Roraima, and even on the top.

"The vegetation of the drier rocky patches is very different. A few shrubs of from 4 to 8 feet in height, a very few stunted and goarled trees are there, a few single specimens of the one Roraima Palm (*Geonoma Appuniana*), which, as will presently be told, is much more abundant higher up; but more abundant are very dwarf shrubs of curiously alpine aspect, such as *Gaultheria cordifolia*, and various trailing plants, such as a Blackberry (*Rubus guianensis*, a Passion-flower, or a few Orchids and Ferns.

"Of the Orchids the most noteworthy is *Oncidium nigratum* (Lind.), its delicately thin but wiry and much-branched stems, 5 feet high or more, seeming to float in the air a crowd of innumerable, tiny, butterfly-like flowers of cream-colour and black; but two others (*Zygopetalum Burckii* and *Epidendrum elongatum*), which we have already seen in rank luxuriance in the wetter parts of the swamp, grow also on these drier parts, but are here much reduced in general habit, though with larger and brighter-coloured flowers.

"Of the Ferns the most striking are a beautifully delicately cut *Schizaa* (*S. dichotoma*, Sw.), and a very remarkable *Gymnogramme* (*G. elephoglossoides*, Baker), of which more hereafter.

"*Cattleya Lawrenceana* is doubtless the one collected by the Schomburgk brothers, and enumerated by Richard Schomburgk as *C. punila*, for it appears to be the only representative of this genus occurring on this side, at least, of Roraima, and this was the only side visited by the Schomburgks. It grows apparently not high up on the mountain, but on the gnarled tree trunks, close to the water, in the clefts through which the Kookenaam and some of its small tributary streams flow, at a height of about 3700—4000 feet above the sea. At the time of our visit Mr. Siedel, an Orchid collector, having set the natives to work to collect this plant for him, I have seen ten or twelve of these people come into camp, afternoon after afternoon, each laden with a basket (a good load for a man) full of these lovely plants, many of them in full flower. One day, I myself, having gone down to the Kookenaam to bathe, gathered, just round the small pool I chose for that purpose, two most glorious clumps of this Orchid, the better of the two having five spikes of flower, of which one bore nine, each of the others eight, blossoms; in all, forty-one of some of the largest and finest-coloured flowers ever seen on a single small plant, the roots of which easily lay on my extended hand." Full descriptions of this *Cattleya* have been given in the *Gardeners' Chronicle*, 1885, vol. xxiii., pp. 374, 375; and vol. xxiv., p. 168.

CYMBIDIUM EUBRNEUM.

The culture of *C. eburneum* is not so well understood as it ought to be. The plants thrive best when placed in a shady part of the house; in fact it likes to be shaded from the sun by larger plants. It should be grown in good turfy loam, with leaf-mould and sand, and requires plentiful supplies of water at the roots. Under these conditions I have grown small plants with one growth, so that in a few years they produced plants with twenty or more large blooms. One we had last year produced thirty-six blooms, and it was grown in a 12-inch pot. Specimens require repotting every two years. *J. Douglas*.

SARCOCHILUS HARTMANNI.

This interesting little Orchid, introduced from Australia in 1877, is still but rarely seen, although its flowers are distinct in appearance, and both pretty and freely produced. It is easily grown, succeeding perfectly in a mixture of fibry peat and sphagnum, and occupying a moist and rather shady position in the cool-house. The sepals and petals are white, each having numerous reddish-brown spots at the base; the small labellum is three-lobed, the centre lobe being somewhat saddle-shaped, while the side-lobes, which are striped with reddish-brown lines, stand erect on each side of the column. The flowers measure three-quarters of an inch in

diameter, and are borne on stout spikes carrying over a dozen flowers. *W. Bean*.

CELOGYNE CRISTATA WITH SEMI-DOUBLE FLOWERS.

Mr. W. Bull kindly sends us a flower of this species with three well-developed lips, one in the ordinary position, the other two occupying the place of the two outer lateral stamens, which are usually suppressed; thus, according to the Darwinian notation the parts of this flower, are arranged as in the margin; A1 being the normal stamen, A2, A3 being the lateral stamens here developed as supplementary lips within the normal lip, L. We understand that the plant produced similar flowers last season.

MR. SOUTHGATE'S ORCHIDS AT SELBORNE, STREATHAM.

A pretty display is made here under Mr. Salter's management, *Dendrobiums*, *Trichosmas*, *Pilumnas*, *Celogyne*, *Cypripedium*, and *Odontoglossum*, forming the bulk of the species in bloom. Of the first-named we observed a fine large piece of *Farmeri heterocarpum*, lighter than the type; noble nobilis, *endocharis*, the *Veitchian* hybrid; a beautiful light form of *Findleyanum* and *Ainsworthii roseum*. Of *Celogyne*s in flower there were *Sauderiana*, a fine piece, 3 feet across, growing on a raft near the roof; in this position Mr. Salter says that the plant is a rapid grower, and indeed it so appeared, and full of healthy, strong growths; *C. cristata alba* was showing flower. On specimens of *Pilumna fragrans* numerous spikes of flower were showing, as was also the case with a grand variety of *Phaius tuberculatus*. *P. grandifolius* has been hybridised with *P. tuberculatus*, the result of the operation being a promising-looking seed-pod, which raises great expectations.

We noticed various seedlings Orchids—very minute, but thriving—on the sphagnum of the larger pots. *Cypripedium hirsutum*, an almost perennial flowerer, was nicely in flower; this is still one of the most interesting of the *Cypripedes*; sepals purple, the other parts of the flower green, and every part of the plant covered with soft brown hairs. The brightest gem of the collection was undoubtedly *Lælia flammea* ×, a flower with orange throat, petals and sepals, and crimson lip, the flower measuring nearly 3 inches in full diameter. This is another of Messrs. J. Veitch & Son's raising, and apparently *L. harpophylla* has had something to do with its origina. Plants of *Angraecum citratum* in baskets were in full bloom. Numbers of species and varieties of *Odontoglossum*, with some few of the earliest *Masdevallias*, were showing flower. Mr. Southgate's little place is always in good order, and there is never a lack of objects of interest in the various houses.

DENDROBIUM CREPIDATUM.

This is one of the most easily grown and floriferous of *Dendrobes*. The pseudobulbs are from 12 to 15 inches long, and at each node, for the greater part of their length, produce two or three delicately coloured flowers. The sepals and petals are oblong in shape, and overlap each other; the lip is almost orbicular, and the whole flower (measuring an inch across) is of a pure glistening white, with the exception of the lip, which has a yellow patch in the centre. The underside of the column is also streaked with a few bright rosy-purple lines. This species succeeds well in a basket under the usual *Dendrobium* treatment, that is to say, in the growing season, a high temperature and abundance of moisture in the atmosphere and at the root, with a gradual abatement of the conditions as the pseudobulbs finish their growth, finally removing the plants to a cool, airy, and light situation, where they should stay until the latter part of the year, when the flower-buds begin to push, and when a more liberal treatment will again be needed. *W. B.*

DENDROBIUM STRELOCERAS VAR. ROSSIANUM.

The flowers of this variety are pure white, while the form and curiously twisted petals are like those of the typical form. *Lindenia*, t. 124.

* This is represented on the Organ Mountain* by *Z. Mackayii*, Hook.

WANTED.

SEEDS.—For the Montpellier Botanic Garden, seeds of *Planera aquatica*, *Cabomba*, *Reaumuria*, *Limoniastrum*, *Biebersteinia*. Address, Professor PLANCHON, Montpellier.

SAPONARIA CONCAVA ANGLICA.—M. PLANCHON, the Professor of Botany at Montpellier, continues to inquire for this plant. It was described by GERARD in the sixteenth century in Northamptonshire, and was, it is said, cultivated in gardens formerly, but is now lost. It is a variety of the common Soapwort, *Saponaria officinalis*, with alternate leaves and gamopetalous corolla.

MESEMBRYANTHEMUM.—Where can I obtain specimens of the following species?—*M. ellipticum*, truncatum, testiculare, octophyllum, obtusum, fissum, digitiforme, minutum, perpusillum, obconellum, turbiniforme, reniforme, nuciforme, nobile, truncatellum, fibuliforme. W. SIDER, *Botanic Garden, Marbyrg, Hesse, Germany*.

BOOK.—Wanted, the second edition of CARMIÈRE's *Traité Général des Conifères*, 1867. Apply to Editor, *Gardeners' Chronicle*.

ASPLENIUMS.

In this extensive genus there are many very elegant species, which for effective decorative purposes are among the most useful of all Ferns. When good plants are once established, they keep in character much longer than many Ferns, and they bear exposure well. It takes longer for plants to attain to a useful size than in the case of some of the *Pteris*, *Adiantums*, &c., and spores do not germinate so readily. However, this is not of much consequence, as many of the most useful sorts are viviparous, and plenty of young stock may be obtained by taking the bulbils, or small plants, from the fronds; but as these tiny plants on the surface of the fronds add additional beauty and attraction, they should only be removed when extra stock is required; as where young plants are much in demand a few old plants should be reserved for the purpose of providing material for propagating from. It is sometimes recommended to peg the fronds down on some suitable soil for the young plants to root into before removing them from the fronds; but this is not necessary if proper care be taken of them after they are removed. The pots, or pans, should be prepared before taking the young plants off. They may be filled three-parts full with any ordinary compost used for Ferns, and surfaced over with a little specially prepared compost, which should consist of peat, loam, and sand in equal parts, with the addition of a little sphagnum moss cut up finely, or dried and rubbed through a sieve. Sufficient space should be left for the pots to be covered with glass after the plants are in; they may then be treated as spores usually are. In the case of those sorts that have to be propagated from spores, it will be a great chance if there is not a crop of some other sort of Ferns come before the Aspleniums, and these must be taken out as they appear, otherwise they will prevent the spores of the Aspleniums, which do not germinate so quickly, from making a start by overgrowing the surface of the pots.

In the culture of Aspleniums (as with most other Ferns), to succeed well it is essential that they should be grown on freely from a young state; for when once allowed to get stunted, through not potting them on as they require it, they never start away so freely afterwards. In potting the plants they should be kept down, leaving only the crown of the caudex free from the soil. New roots are produced from the upper part of the caudex, and if the plants are not potted low enough the new roots appear above the surface, and often perish before they can penetrate the soil; and if this is allowed to go on, the plants gradually become weaker, instead of getting stronger with age.

If the young surface roots are in good condition when the plants are repotted, a great portion of the

old roots that have become matted at the bottoms of the pots may be removed, thus giving more room for new soil, and a better opportunity of keeping the plants confined to reasonable size pots. As far as I am aware, no important additions have been made to the Aspleniums recently, either in garden varieties or new species. It is remarkable that in this extensive genus there are so few varieties that have originated under cultivation. A long list of useful sorts might be enumerated, but for decorative purposes the old *A. bulbiferum* is the most popular, and is grown extensively for market work. *A. divaricatum* is another that finds much favour. *A. Fabianum*, somewhat like *bulbiferum*, with longer fronds and of more erect growth, is a desirable sort. *A. laxum pumilum*, though not so extensively grown as the above, is one of the most elegant of the genus. It forms a very handsome plant, and the peculiar glaucous shade of green is very attractive. *A. foniculaceum* is another useful sort, with finely divided fronds of a deep shiny green. *A. flaccidum*, when well developed, is a very effective Fern, and particularly adapted for basket-work, the long drooping fronds having a very graceful appearance. *A. Colensoi* is another useful species, of compact habit; *A. Hookerianum* is synonymous with the above. Of species which require stove treatment, *A. cicutarium* is one of the most elegant; this is not viviparous; *A. formosum* is another very beautiful species, but very tender; *A. Baptistii*, *A. novæ-caledoniæ*, and *A. viviparum*, are also desirable species. *Pteris*.

PLANT NOTES.

ANTHOLYZA BICOLOR (CUNONIANA).

This interesting bulbous Iridaceous plant is now flowering freely, its tall erect spikes of scarlet and yellow flowers rising well above the Iris-like foliage, which grows about 3 feet high. The flowers are rather singular; the perianth, which is six-cleft, is about equally divided, both in length and colour; the three inner pieces, which are yellowish, although united to the three outer or upper pieces, yet they are only half the length of the upper, which are of a bright scarlet colour, and arching neatly over the three stamens, which extends to just under the point of this hood-like arrangement of the corolla; the anthers are dark brown, and, being attached to the filaments by their backs, look rather pretty. The plant is of easy culture—indeed, it is nearly hardy; and as it flowers early in the year without any forcing, it comes in very handy for conservatory decoration. Good free loamy soil suits it best, and 9 or 10-inch pots well filled with bulbs give the best results. The latter part of summer is the proper time to repot, as the bulbs are then at rest. After potting, water sparingly until growth is well advanced. Weak liquid manure, however, is beneficial as the plants approach the flowering stage. When flowering is over, see that the plants do not suffer, as on the proper maturation of the foliage will depend the quality of the flowers for next year's display. At no time should they have more than greenhouse temperature, and always give plenty of air. They are benefited by being placed out-of-doors during summer, laying the pots on their sides. *F. Ross*.

GESNERA ELONGATA.

This is a perennial woody species of Gesnera, growing to a height of 5 feet, and forming a well branched shrub, with medium-sized downy foliage and axillary flowers. When well grown the branches develop three to four flowered umbels from almost every leaf axil; each flower being 1 inch long by a quarter of an inch wide, tubular, and flame-red coloured. By a little management it may be had in flower almost all the year round, as is shown by what it does at Kew, where during the whole of last year it might have been seen flowering in the T-range, and a large plant of it is now in flower there. A variety of it with dull red flowers is figured in the *Botanical Magazine*. It is easily propagated from cuttings, and when the plants get scraggy they may be cut back to the old wood, from which new growth will soon push.

STRELITZIA AUGUSTA.

A specimen of this, 25 feet high, is now in flower in the Palm-house at Kew. The stem at the base is naked, ringed, and $4\frac{1}{2}$ inches in diameter, and from a height of about 6 feet from the ground the large sheathing-based leaves are arranged in two regular rows to the top, where the leaves spread out like a fan. The petiole is about 6 feet long, and the blade 4 feet by $1\frac{1}{2}$ foot. The inflorescence is developed at about 14 feet from the ground, and it springs from the angle formed by two of the leaf-sheaths. There are two spikes, one on each side of the stem; the larger one has a stout stalk 2 feet long, bearing two large boat-shaped deep purple bracts, 1 foot long by 3 inches in depth, from which the flowers project, developing in quick succession till a compact cluster is formed. Each flower is 9 inches long, and is composed of three rigid lance-shaped, nearly equal white sepals, and two united halbert-like petals about the same length. These petals enfold the stamens, and the stigma projects beyond them. In the *Botanical Magazine*, t. 4163, the petals are figured and described as being white, but in the plant under notice they are slate-blue. Is it possible that the artist has blundered in making the whole of the flower white, or is the plant now flowering at Kew a blue petaled variety? *W.*

A VISIT TO THE DURBAN BOTANIC GARDENS.

(SEE SUPPLEMENTARY SHEET.)

LEAVING Maritzburg (2200 feet altitude) by rail we ascend about 1000 feet in the space of 20 miles. Owing to the drought little is to be seen in flower. The most noticeable being the fine golden *Gladiolus aurantiacus*, and the lovely scarlet *Cyrtanthus angustifolius* dotted about on the greensward. Standing above them was *Sparaxis pendula*, with its most graceful drooping snowy blooms, also *Scilla natalensis* in good form, a figure of which appears in the *Botanical Magazine*, t. 5379. The flowers are bright blue, and thickly set on a spike of from 3 to 5 feet in length. *Gazania serrulata* opens its golden eye to the sun in company with *Senecio speciosus*; *Gomphocarpus albens*, like a *Lily*, and the beautiful and common snow-white *Cynium adoense* mingled with purple patches of the lowly *Gardenia scabra*. From hereabouts the view is a splendid one; sheer down from the rails a valley sinks deeper still till the large *Acacia horrida* is reduced to lowly herbs; then rising again, some 15 miles away, the ground swells up into Table Mountain, which in contour is not unlike its famous brother at Cape Town. On its bush-clad sides and flat grassy top I once found some good specimens, including a fine bluish-white-headed *Selago*, a large-flowered deep purple *Osbeckia*, and a pale pink species, also *Alberta magna*, a large shrub of the *Rubiaceæ*, with panicles of intense scarlet flowers.

In one spot, close to the railway we passed a few *Tritoma caulescens* with flower-stems quite 7 feet high. Now, rapidly descending, we spin down some 3000 feet in 40 miles, leaving the region of the Apple and Pear, and entering that of the Mango and Banana. The flora gradually changes from that of undulating grassy hills to that of bush-clothed ravines; following these clumps of trees appear, scattered about. Here are *Phoenix reclinata*, *Strelitzia augusta*, and *Sponia guineensis*; finally, when nearing the coast, the train glides into an impenetrable jungle composed of huge trees of various species of *Ficus*, with *Albizia fastigiata*, *Syzgium cordatum*, and many others which were unknown to me, intermixed with flowering shrubs, such as *Oncoba Kruissiana*, *Psychotria capensis*, *Burchellia capensis* a very fine form; *Gardenia globosa*, *Pavetta* species, *Jasminum* species, and on the very verge of the coast, *Carrissa grandiflora*, the Natal Plum. In sandy peat, in open places, I detected the fine golden *Lissoschilus speciosus*, a small yellow *Disa*, a showy pink *Chironia* or *Orpium*, the pretty rose *Rhamphicarpa tubulosa*, a stately white *Cynium*—*C. tubatum*, a root parasite—and a

very showy golden-yellow *Lagarosiphon*. In pools I saw *Nymphaea stellata*, a plant not seen near Maritzburg.

Established about twenty-five years ago the Durban Botanic Gardens are situate on a gentle slope 2 miles from the town and sea at an elevation of 100 feet only. In extent they occupy some 50 acres, of which half is under cultivation, and the remainder primeval forest. The soil is a poor brown sand of great depth; of loam, as the word is generally understood, there is none, the splendid vegetation being due to suitable conditions of heat and moisture. There is a good supply of water, since the gardens enjoy a share of the river, which has been diverted to supply the town. White ants are a scourge, and a never-ending fight is carried on against them.

Thanks to the zealous Curator, Mr. J. M. Wood, and his superintendent, Mr. J. Wylie, I was enabled to take a leisurely survey of the collection of plants—an assemblage so rich and interesting that I can only notice the most remarkable. It is very pleasant to wander at will in these deep romantic woods, all the while the hoarse murmur of the Indian Ocean ever sounding, never ceasing—a very marked contrast to the bracing up-country scenery and climate, for Natal has every zone within her boundaries, from the strictly tropical to a point where, 6000 feet up on the slopes of the Drakensberg, snow lies for days together in winter.

The combination of plants most diverse in habit first draws one's attention in these gardens. Here is *Monstera deliciosa* clinging to the trunk of *Acacia Lebbeck*, hard by *Petræa volubilis* blooms under the shade of a huge *Juniperus bermudiana*. Further on an aged plant of *Aristolochia ornithocephala* has well-nigh strangled a lofty *Ailantus glandulosa*, whilst a *Bougainvillea* takes undisputed possession of a *Brachychiton*, and *Russelia juncea* is a mass of bloom at the foot of *Bixa orellana*, which last is fruiting.

A neat unheated conservatory contains a good collection of stove foliage plants, some good Orchids and Ferns; amongst the latter was a *Platycerium*, which came, I was told, from the east tropical coast; certainly I have never seen this Fern growing within the colony. Adjoining is a fernery, also unheated; the walls are brick, and the roof is formed of narrow tarred strips of Bamboo fixed an inch apart, which admits a half-light, very suitable for the subjects grown beneath. A few Australian Tree Ferns, a rich collection of exotics, foliage Begonias, Fuchsias, and Orchids, attached to blocks suspended from the roof, all look in good health. In some open frames are a few choice native plants. Leaving the houses, we come to the splendid collection of trees and shrubs dotted about on the lawns, and these constitute the main attraction of the place. The Palms, towering skywards, are very fine; a splendid plant of *Caryota sobalifera* [of which we shall publish an illustration in a future number], in perfect health, contrasting with a dwarf *Hyphæne*, the only Palm native to Natal save *Phoenix reclinata*; *Cocos plumosa*, 20 feet high, is fruiting as well as *C. nucifera*; *Raffia ruffia* is represented by a good specimen, 37 feet high; and *Oreodoxa regia* is nearly as large. Here is a huge clump of the majestic *Ravenala madagascariensis*, seemingly quite at home. All the following are thriving:—The curious *Regelia pinnata*, *Spathodea speciosa*, *Poinciana regia*, *Pinus Benthamiana*, *Castanospermum australe*, in bloom—fine; two or three huge *Laurus camphora*, and a large *Ficus indica*, exhibiting its aerial roots, forming columns.

A few really beautiful Australian trees are *Araucaria Rulei*, A. Bidwilli, A. Cunninghami, A. excelsa, and a *Dammara australis*, 40 feet high. Scattered here and there are seldom seen plants, as *Xanthorhea basilis*, a fine *Artocarpus integrifolia*, in fruit, a unique *Cupressus prostrata*, 80 feet round; *Dracæna Draco*, 10 feet; *Tanghinia venenifera*, the Ordeal tree of Madagascar, in flower; *Aloe dichotoma*, *Dasylirocn acrotrichum*, *Pandanus utilis* [see Supplement] fruiting; a few rare Bamboos with yellow and black stems, and some truly imposing *Encephalartos* with heads 14 feet across. *Franciscea uniflora* blooms

heavily here, as does *Meyenia erecta*. I was attracted by a fine form of *Moræa iridioides* with flowers fully 4 inches across. A few beds of bulbs looked very bright—*Ornithogalum thyrsoides*, *Val-lota purpurea*, and *Sparaxis bulbifera*. Roses can hardly be grown, owing to the love white ants have for their roots; *Crotons*, *Acalyphas*, and *Dracænas* bedded out are well coloured.

Passing down into the nursery I saw large numbers of grafted Oranges, Mandarin and common, seedling Mangos, *Grevillea robusta*, *Thuia compacta*, *Juniperus*, *Eucalypti*, *Pinus insignis*, and some fine varieties of *Hibiscus rosa sinensis*. Here is a plantation of *Manihot Glaziovii*, "Ceara scrap," three years old and 10 feet high. I must mention a rubber plant of *Millettia caffra*—*Umzimbiti* is the native name—from the very hard wood of which the well-known Zulu sticks are made. In a sequestered corner is a collection of Transvaal plants, several of which were new to me, in particular a *Crinum*, with good deep pink flowers. Last, but by no means least, is the very complete herbarium, which I must thank for much valuable information. It has been formed by Mr. Wood, and consists of over 4000 species, carefully named as far as practicable, beautifully mounted and in fine condition. R. W. Allam, Maritzburg, Natal.

BEGONIA LUBBERSII.

This is a new Brazilian Begonia, introduced accidentally into the Brussels Botanic Garden with the stem of a Tree Fern. It has an erect stem with peltate, obliquely lanceolate leaves, green, with mottled silvery blotches on the upper surface, claret coloured beneath. The flowers are white. For the rest the illustration (fig. 48) must tell its own tale. The plant was originally described by our lamented friend, Professor Morren, whose loss comes home to us almost daily. The plant is dedicated to M. Lubbers, the talented Curator of the Brussels Botanic Garden, and is well spoken of in the *Revue l'Horticulture Belge* after eight years' observation by Count de Kerchove. The plant is offered in commerce by M. Pynaert of Ghent.

ROOT DROUGHT IN WINTER.

As soon as the great importance of thorough drainage dawned on cultivators not a few of them rushed into the opposite extreme of keeping their plants too dry, especially throughout the winter months. This was only a natural, though doubtless in not a few cases it has proved a most mischievous reaction.

Possibly more plants have suffered and perished through having an impossible dormancy forced upon them through drought than through excessive supplies of water; while as to fruit crops, it is more than probable far more have been dried than flooded off. Besides the flooding off is more or less problematic, while the drying off is absolute matter of demonstration to all cultivators of experience. The *contretemps* of fruit-bud dropping is most common among stove fruits. I firmly believe that it mostly originates in dryness at the roots. No doubt at times it is atmospheric or severe depressions of temperature chill the buds to such a degree as to lower their vitality and loosen their hold of the branchlets, or the frost or winds may be so severe or strong as to virtually destroy or wither up the more vital portion or substance of the blooms on embryo fruit. But fruit-buds are mostly safe from such catastrophes or contingencies under glass. On the other hand, very few fruit blossoms in the open air succumb to drought. The natural rainfall in our climate, unless shed off by artificial means, suffices to prevent such losses. But the case is widely different with internal fruit borders or plants in tubs and pots. On or in these water is given or withheld at will. Often it is withheld too soon, and too long to enforce early and higher maturity of growth in the autumn. When to this is added a long spell of drought throughout the winter, a very arid condition of roots results. When this is carried to excess either in degree or duration, there can hardly be a doubt that

this unnatural dryness becomes one of the most fruitful sources of bad-dropping.

Possibly the buds are virtually starved off for lack of food and moisture. The sap may become too thick and dense to move or flow freely to supply their urgent wants in time. Before such temporary failures can be made good the connection between bud and plant may be irrevocably severed. This is the more likely; as, notwithstanding all the nonsense that has been written on the rest, sleep, and dormancy of plants, it seems certain that nothing analogous to the obvious meaning of these words occurs among them; on the contrary, it seems possible that root-force is abnormally active during the so-called dormant season, and certain that the fluids of plants are never at absolute rest unless inspissated or frozen into solids. The former process may be accelerated if not caused by the forcible method of water. Against such fearful risks of excessive drought there are no corresponding advantages to the plants. It is even doubtful how far drought at the root hastens or lengthens the maturity of the wood and buds; that it favours the growth of fungus among and on the roots is admitted by every experienced cultivator. It also favours the growth of warts and canker, as well as hardens the bark and lessens the size of the roots. All this either fetters healthy function or favours disease, therefore excessive root-drought ought to be avoided. So far as known, moisture at the roots of our fruit trees is good, not evil—it neither injures nor kills. On the contrary, it keeps the fruit-buds fully supplied with food and water, and so strengthens their hold on the plant when it passes through the critical setting period in safety. For one bud flooded off probably a hundred are starved off. Our natural water supply is not excessive. It is not water at the roots, but stagnant water that is to be warred against; and the art of thorough draining consists in setting and keeping the water in motion among the roots, not in shedding it off the surface of the land, or in leading it by the shortest cut, away from its natural ministry of aid for the roots, into the nearest ditch or river. D. T. Fish.

PLANT PORTRAITS.

APPLE COURT PENDU RÉGÉNÉRÉ, *Bulletin d'Arboriculture*, January.

HYACINTHUS CORYMBOSUS, *Bulletin Soc. Toscana di Orticultura*.

IRIS VARIEGATA, *Illustrierte Monatshefte*, January.

MARICA CERNUEA, *Garden*, January 21.

NERINE FOTHERGILII, *Illustrierte Monatshefte* January.

ORONTIUM AQUATICUM, *Revue Horticole*, February 16.
PEAR PIERRE TOURASSE, *Bulletin d'Arboriculture*, January.

SPÆRLEA EMORVI, *Gartenflora*, 1888, t. 1266.
A perennial Malvaceous plant, with palmately-lobed leaves and axillary clusters of small pinkish-orange flowers.

ROSES.

SOME NEGLECTED ROSES.

TEAS AND NOISSETTES.—There is no question as to the value of this section of Roses, and of its popularity—a popularity which has greatly increased of late years; it is popular alike with the exhibitor and the bouquetist; one has but to visit Covent Garden to see how large a portion of the Roses there seen are of this class, and, indeed, one may say that two of the number—the one a Tea and the other a Noisette—*Niphetos* and *Maréchal Niel*, "hold the fort." It has been found out that Tea Roses are neither so tender nor so difficult to manage as it used to be supposed. The increase in the growth is borne witness to by the fact that the National Rose Society has inserted in their schedule a Tea and Noisette division, and that is largely and admirably filled; but it is this very popularity as an exhibition flower

that is likely to put into the background some Roses which do not fulfil the exhibitor's exacting demands, but which, nevertheless, are admirable for the garden. Some are considered, and are, too loose—they have too few petals, and consequently when placed in the heated tent or room soon show the "eye," and fatally injure the box; others, again, are too small, but are exquisitely beautiful. It is mainly, however, I think, amongst the climbing Teas and Noisettes that these now somewhat neglected Roses are to be found; the Gloire de Dijon race, the type itself, and those which have sprung from it, seem to have elbowed out by their great vigour and large flowers many which I am sure are equally deserving of a place either for a wall

but withal, its rich apricot colour is so fresh that I would advise its retention—in bud it is especially beautiful.

Bougère.—An old Rose, as it was raised by Bougère in 1832, and was formerly universally grown and I think deserved its position. It is a bold striking Rose for its class, its colour a bronzed-pink, the petals very thick, and the plant remarkably hardy. Perhaps some over-fastidious exhibitors would say "Not suited for us." That may be so, but there is no Tea Rose I think more worthy of a place than this once popular, but now almost forgotten flower.

Narcisse, N.—I have a vivid recollection of a fine plant of this in the front of a house at Maidstone. It certainly did not there deserve the character

It is a full Rose, yellow, with a deeper centre, of good form and substance.

Marcelin Rhoda.—A very pretty Rose, hardly up to the exhibitor's standard, but its peculiar shade of yellowish-white makes it a desirable variety.

Rève d'Or.—I must claim the honour of being the foster-father of this Rose; it reached me with a few others in the terrible time of the Franco-German War. It was six weeks on its way, and I naturally supposed it was dead; it, however, survived, was planted against my house, and has often been described by me and seen by some of my friends; it is a most rampant grower, almost evergreen, and most floriferous. When my plant was in its glory, before the terrible frosts of 1880 and 1881 punished it so, it was a sight to behold. Taking a certain space of it and multiplying the number of blooms with the space occupied by the entire plant, I believe there were not less than 3000 blooms upon it. Its colour is a fawn-yellow, somewhat like Madame Falcot, and when it was thus in full bloom and the sun shining on it, it was a glorious sight. I had feared that it was all gone, but it has again shot up from the old stem, and is now rapidly pushing its way to occupy its former space. I should say the aspect in which it is planted is due east, and probably had it been in a more favourable position it would not have suffered so much as it did.

Claire Carnot, N.—This is a Rose I confess to having known but little of until I saw it in Mr. George Bunyard's nursery at Maidstone. It is not unlike Celine Forestier, but is a better and more fragrant Rose.

Countess of Limerick.—Of this Rose, too, I knew nothing until I saw it in Messrs. Cooling's stand of Roses at Bath last September, and afterwards at their nursery. It is a perfectly shaped Rose, white, slightly suffused with pink, and I think is worth looking after. I do not know its origin nor can I find it in any catalogue.

Laurette.—Another but little known Rose. We are in the habit of seeing it exhibited in East Kent by Captain Knight and Mr. Wakley, but I had seen it nowhere else until I saw it with Messrs. Cooling, whose foreman spoke very highly of it. It is a very pretty yellowish-white Rose, with the edges tinged with pink; in fact, one might describe it as a refined *Homère*.

Celine Forestier, N.—There is, I think, some fear of this very pretty Rose being pushed on one side, but as a climbing or pillar Rose it well deserves a place. It is small, and the eye is apt to come queer, but with all that it is so free and so bright that it ought to be grown. How well I remember my old friend John Standish's delight when he first saw it with Trouillard, Le Roy's foreman, at Angers, and how equally (perhaps more so) delighted Trouillard was when he accepted the liberal offer made to him for its purchase; in gratitude for which he wanted us to take some tea made with cold water! All who recollect John Standish will readily imagine in what light he regarded the compliment paid him! I shall always like the Rose for the pleasant associations connected with it, but independently of that it ought not to be a neglected Rose.

As I have said with regard to hybrid perpetuals so I would say with regard to Teas and Noisettes. There are perhaps others that will suggest themselves to Rose growers, but I have been anxious not to overload my list, but merely to suggest the names of some flowers which I thought have been undeservedly neglected and which merit better treatment.

With regard to the remarks of your correspondent, "Rosa," I would venture to differ on a few points. Let me take the *Roses seriatim* :—

Auguste Mie.—I hardly think that, with the many beautiful glossy pink Roses, we need retain this, which was always somewhat capricious as to opening.

Jules Margottin.—I do not think "dear old Jules" is as yet to be considered a neglected one; it does not so often figure in the exhibition-stand, and is by the National Rose Society relegated to the garden Roses, but I think it is to be met with in most



FIG. 48.—*BEGONIA LUEBERSII*. (SEE P. 300.)

or as pillar Roses. Amongst the Teas which are in danger of being altogether shut out from the garden are the following :—

Homère.—This is a very vigorous and at times a very pretty Rose, although uncertain, as it is npt to show a hard eye, but when caught good is really very pretty. It has a curiously crumpled edge, and the slight pink edging, which is characteristic of it, adds to its beauty, while its great vigour of constitution justifies its claim to being considered a good garden Rose; it is sufficiently good and strong in growth to make it a pillar Rose.

Madame Falcot.—The colour of this Rose ought to make its retention in our gardens a necessity, but it unfortunately is too thin, and woe to the exhibitor who trusts to it for his stand, it is sure to open itself, and shew its eye, before the day is half over; in the same way it very soon opens too fully in the garden,

given to it of a moderate grower, and the owner of it was often able to cut flowers suitable for the exhibition stand, but its pretty bright yellow flowers are under any circumstances very attractive.

Lamarque, N.—This Rose, raised so far back as 1830, has very inadvertently fallen into disfavour, yet its white flowers, with their delicate tinge of sulphur in the centre, of good size and sufficiently full, ought to ensure it a place as a climbing Rose, either on a wall or as a pillar Rose.

Triomphe de Rennes, N.—This flower was, and I think deservedly so, a great favourite with my old friend, Mr. Radclyffe, and some may call to remembrance the fine plants he had of it in front of his cottage at Okeford Fitzpaine. It is supposed to be a seedling from Lamarque, but is not so much of a climbing Rose. The blooms are produced, as in most Noisettes, in clusters, and are often very large.

gardens, and if it is in danger of being shut out, your correspondent's word may help its retention.

John Hopper.—Here I am quite persuaded your correspondent is in error; it is still retained in the National Rose Society's catalogue of exhibition Roses, and is much praised therein. It is an early-flowering Rose, and I do not think is often absent from stands at the early shows; its one fault is that its colour soon flies. I have a peculiarly fatherly interest in this Rose, for it was at my instance that Mr. Ward pushed it, after having been passed by the Royal Horticultural Society when first shown.

Duchess of Sutherland.—I have also a sentimental regard for this Rose, and hope it may be retained, although it is hardly a perpetual Rose. And so with *La Reine*, which is so bad a flower to open, when caught very good, but seldom giving satisfaction.

Centifolia rosea ought to be retained. The same may be said of Fisher Holmes, but I do not think this is in danger of being cashiered.

Duchesse de Caylus, a very beautiful Rose, but a difficult one to keep; delicate in habit, and although still retained on the list of exhibition Roses, of no value as a garden Rose, owing to these defects.

Madame Knorr and Madame Laffay are, I think, doubtful, for I think we have others which may well be grown instead of them. *Wild Rose*.

It is to be hoped that the remarks of "*Rosa*," in last week's *Gardeners' Chronicle*, p. 236, may be the means of inducing rosarians to notice some of the neglected Roses mentioned. May I be allowed to state that at the first Grand National Rose Show ever held, and which took place at St. James' Hall, London, on July 1, 1858, I was the winner of the 1st prize for amateurs—a very handsome silver cup, value 10 guineas (schedules were different then)—for twenty-four single blooms. The names of the Roses in my stand would now, as "*Rosa*" observes, "only beget a bewildered stare," and the plants are now probably only to be found in old-fashioned gardens like mine; yet many of the Roses are, even at present, not surpassed by new-comers for beauty and fragrance. Here are their names:—

H.P.—Auguste Mie, Baronne Prevost, Duchess of Sutherland, Général Jacqueminot, Jules Margottin, *La Reine*, Madame Laffay, Charles Lefebvre, Lord Raglan, and William Jesse.

Bourbon.—Souvenir de la Malmaison.

Gallica.—Ohl, and Boule de Nanteuil.

Hybrid China.—Coupe d'Hebe, Paul Ricaut, Brennus, and Chénédolé.

Tea.—Adam, Souvenir d'un Ami, Gloire de Dijon, Viscomtesse des Cazes, and Niphetos.

Noisette.—Lamarsque, and Cloth of Gold. *J. Borslase Maunsell*.

CULTURAL MEMORANDA.

THYRSACANTHUS RUTILANS.

This pretty stove plant is of erect habit, but has numerous long panicles of drooping bright crimson tubular flowers, which appear during the winter months. Cuttings put in now in a mixture of loam and leaf-soil—two parts of the former to one of the latter, with enough sand added to make it porous—and placed in a warm propagating pit or hotbed, will soon take root, after which they should be potted singly in 60's in the same kind of compost, but adding a little half-decomposed cow-dung; afterwards return them to their old quarters, or to some shady place in the warm house, for a few days, until they get established, when they can be removed to a shelf near the glass, as they have a tendency to become tall when far from it. This item in growing *Thyrsacanthus* should not be omitted. Shift on into 5-inch pots when it is required, and this sized pot will be quite large enough for them to flower in. When they have filled the pot with roots weak liquid manure with a little soot added may be given them twice a-week. The plants are often infested

with brown scale, which can best be removed with a sponge and clear tepid water, being careful not to injure the foliage, as this is one of the attractions of the plant. *C. Ensoll*.

HANROTHAMNUS ELEGANS.

Cuttings of the young growths taken off now and inserted in pots filled with light sandy mould, watered, and put into heat, will soon make roots; they should then be potted singly into 3-inch pots, in a mixture of four parts fibry loam and one of sweet leaf-mould and sand, keeping the plants in a warm frame until established, after which they will do very well in the greenhouse or hot-water pit near to the glass. Before the roots become matted the plants should be shifted into larger pots until they are finally placed in their flowering pots, when frequent supplies of weak liquid manure should be given at the roots, with occasional surface dressings of Beeson's manure before watering, when the plants approach the flower period. *H. W. Ward*.

NICOTIANA AFFINIS.

This sweet-scented greenhouse annual should be grown by every one having a hotbed and a greenhouse at command in which to raise and grow on the plants. A plant or two when in flower will fill a large-sized house with fragrance late in the afternoon and throughout the night, and the fragrance emitted from a plant set here and there in a bog bed, or shrubbery border, is very refreshing to breathe at eventide during the summer and autumn. Seed sown at once in light sandy mould, covered lightly and put in heat, will soon come up. When they are up, keep the pan near the glass to prevent drawing, and when large enough prick out, at 2 inches apart, in shallow pans, filled with a mixture of three parts light sifted loam and one of leaf-mould, with a sprinkling of sand; water, and put back in heat and shade from sun until the roots have taken to the soil, when it should be discontinued. As soon as the leaves of the plants touch they should be potted off singly into small pots, afterwards shifting them into 4½-inch, and at last into 6-inch (the flowering) pots as the roots require more room. Syringe the plants overhead morning and afternoon while in heat, to prevent the attacks of red-spider. Plants intended for transplanting out-of-doors should be hardened off when well established at the same time as the ordinary bedding plants are. A pinch of seed should be sown at the end of July to raise plants for flowering during the winter and spring months.

ACHIMENES.

The present is a good time to start the tubers into growth. Place them about 1 inch apart in well crocked seed-pans filled to within 2 inches of the top with light sandy mould, and cover them to a depth of half an inch, placing the pans in heat and watering slightly. In a fortnight the young plants will appear, and when they are 2 inches high they may be transplanted 2 inches apart into pots ranging in size from 4½–8 inches in diameter; employing a compost consisting of three parts light loam and one of leaf-mould and pulverised cow-dung, with some sharp sand added. Put the plants after they are potted in a position near to the glass in any structure having a night temperature of about 65°, and then give sufficient tepid water to settle the soil about the roots. When the plants are 5 inches high pinch the points out to cause the growth of the laterals. Attend to the plants in the way of giving water at the roots as required and syringing the plants overhead morning and afternoon on bright days until they come into flower, when it must be discontinued and the plants gradually subjected to an airier atmosphere. Support the plants with neat sticks where necessary. The plants in 4½-inch pots look best without sticks: the flowering shoots hanging over the edge of the staging, &c., being very effective. The following are among the most useful varieties grown, namely:—*Ambroise Verschaffelt*, fine white with dark starry centre;

Advance, flowers reddish-purple, light spotted eye, shaded towards the edge; *Belmontensis*, large, violet-purple colour, with light centre; *Longiflora*, large blue; *Leopard*, bright magenta-rose, with a well spotted throat; *Patens*, blue; *Rose Queen*, rose-lake in colour, shading to deep purple, with an orange throat; *Firefly*, very large deeply fringed rich magenta, yellow eye, dotted with maroon. *H. W. Ward*.

THE APIARY.

GENERAL HINTS.

Snow on the hills, snow in the valleys, no posts in or out, and one or two articles on the apiary lost, such has been the order of the day lately. Snow never does bees any good. In the first place it must never be allowed to accumulate on the hives, but must be brushed off at once, or it will be sure to penetrate somewhere. Snow will always find the weak spot, or make one. Then, very often while snow lies on the ground, the sun comes out brilliantly, and the intense light caused by the snow and the sun combined, entices the bees out of their hives, only to fall in the snow. Once there, they rise no more. Moral: shade the entrances with boards. Though we like to keep entrances open to their full width, so as to keep the hive dry, yet, rather than lose our bees, we would nearly close the entrance, as in robbing time, and shade the remaining small aperture. Only this week we noticed a case where this was neglected, and the consequence was heaps of bees in the snow. This not only decimates the hive, but may cause the death of the remainder through loss of heat.

Food.—I do not on any account recommend the use of syrup yet, and no manipulation of the hives ought to be allowed. If you fancy food is required, gently lift the quilt and see if there is much sealed honey in the neighbourhood of the brood nest. If there is a scarcity lose no time but supply candy at once. It is not worth while for the small bee-keeper to make candy if his time is of much value. Snowdrops are fully developed in this locality, but weather has prevented them being much used by bees as yet. However, on the disappearance of the snow, the early blossoms of the fruit trees will appear, and these with the opening Crocuses, will, we hope, give our bees a start. Though February was so cold, there have been times during the winter when the bees have had a cleansing flight. *Walter Chitty, Pewsey, Wilts.*

PLANTS AND THEIR CULTURE.

SHADINGS.—There are numbers of plants grown under shading, many of which might be grown equally well without it, provided air, water, and fire-heat be regulated to suit the altered conditions of cultivation; for without shading being used more of air and water, but less of fire-heat, would be required. These conditions are particularly applicable to large plants in roomy houses—such as winter gardens, Palm-stoves, and any houses containing a fairly large volume of air. Plants grown for their flowers under this kind of treatment flower much more freely; and foliage plants will have more brilliant leaf markings, and more substance in the leaves, which become better matured, and better fitted to withstand the rough treatment they are frequently subjected to, and the plants will endure a low temperature for a much longer period without injury than shaded plants. But some kind of shading is indispensable to success in certain cases, as with plants in small pots, which stand on shelves or are otherwise exposed to the rays of the sun. Then there are plants with soft thin leaves, which, having but a small amount of reserve material, depend on constant supplies of water to maintain growth.

Although shading plants is beneficial in some cases, yet we find that shading reduces the activity of life in a plant—that is, a lesser quantity of food is taken up in a given time than would be the case were no shading used. In making use of shading what should be aimed at is, not so much to shut out the sun's rays as simply to break and divide them; and for this purpose I do not know of any-

thing better than those loosely woven fabrics that are sold under a variety of names; but, whatever the name, the space between the threads should be about one-eighth to one-sixteenth of an inch. This will permit the sun's rays to penetrate the material, yet, owing to the movement of the shadow cast by the thread, they will not remain sufficiently long in one place to do injury to the most tender plants. The shading should never be fixed, but should be attached to the ridge of the house outside, and a wooden roller provided by which it can be wound up when not required. It is an improvement if it can be so arranged that a clear space can be kept between the shading and the glass. This may be done by putting up a temporary framework. Where it is necessary to use some wash as a fixed shading, never use more of it than is actually required, and avoid all coloured shadings, more or less debilitating effects following their use. Perhaps one of the best washes is that made from size and flour. This is put on the glass evenly with a white-wash brush, and stippled over with a brush before it gets dry.

Nepenthes.—These are found to do best when hung up in a warm moist atmosphere and avoiding the high temperatures sometimes recommended. A temperature of about 75° and a maximum amount of light and air whilst making growth, is well suited; during the winter months they will withstand a temperature of 20° less. Some plants flower profusely suspended in baskets in the aquatic-house in a temperature during winter of about 50°, and during the summer of a tropical one, no shading being employed, but exposed fully to the rays of the sun, which no doubt consolidate their tissues. That *Nepenthes* bear without injury both extremes of temperature is a fact which raisers of new varieties might note with advantage. Old plants, which are getting too large or leggy, may either be cut down, or the tops lowered over the sides of the baskets. This lowering will induce them to push out new growths from the base. If the tops are cut off they may be utilised for cuttings, which root without difficulty. Cut them up into lengths of from two to three joints, and insert them in a propagating frame with cocoa-nut fibre refuse. But as the young roots are very brittle, and break readily when potted, I prefer to put them in singly, in small thumbs, using light fibrous peat, placing a pinch of sharp sand at the base of each cutting, and tying the leaves up to a stick so as to prevent the cuttings from moving. The last is important, as I have seen many failures through the cuttings not being properly held firmly in the soil. The soil best suited for *Nepenthes* to grow in is fibre of pure peat, a few pieces of charcoal, and fresh sphagnum moss. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

CHRYSANTHEMUMS.—Plants intended to flower in the open air may now be planted out, those of the previous year's growth in pots being well adapted for this purpose. Incurred and pompons are the best varieties, Japanese being rather too tender, except in the most favoured localities, and against warm walls—a position which suits all the varieties. Turn out the old stools and reduce the balls to one-third of their bulk, and plant firmly in good turfy loam and leaf-mould, and see that they do not suffer during dry weather from want of water. Plants intended for lifting in the autumn and flowering indoors should be shaken out and repotted firmly in the same sized pots, mixing with the compost used a moderate quantity of bone-meal, and plunge to the rims in an open sunny border.

Seed Sowing.—The following may be sown in well drained pans, and placed in a warm house or hotbed, viz.:—*Perilla*, *Chilian Beet*, *Amaranthus*, variegated *Maize*, *Nicotiana*, *Salvia argentea*, and *Cineraria maritima*. If hotbeds are made use of, attend well to ventilation as soon as the seeds have germinated, and cover up at night. Much caution in watering will be necessary in the early stages of growth. The undermentioned seeds may be sown in frames filled to three parts with warm manure, which should be well trodden down, and a bed of finely sifted loam, leaf-mould, and sand, 4 inches thick.—*Ten-week Stocks*, *Asters*, *Zinnias*, *Phlox Drummondii*, *Helichrysum*, *Salpiglossis*, *Scabious*, and *Pyrethrum Golden Feather*; the last-named may also be sown on warm borders outside in southern counties, and if a frame can be placed over the seed bed for a month, all the better.

Sub-tropical Bedding Plants.—From seed sown in January young plants of *Acacia lophantha*, *Solanums*, &c., may now be potted off singly into thumb-pots in a soil similar but somewhat rougher than that in which they were sown. Let them remain in a high temperature, be well syringed overhead in sunny weather, and shifted into larger pots before becoming pot-bound. Pot off young plants from subsequent sowings as soon as they are large enough. These subjects require liberal treatment in the early stages, the object being to obtain plants of large size by the time they are planted out, as their season of growth outside is usually of short duration. *J. Horsfield, Heytesbury.*

THE ORCHID HOUSES.

CYMBIDIUMS.

NEARLY all the *Cymbidiums* possess a strong constitution, and will endure a wide variation of treatment, as is proved by their growing in a cool house for some years before showing signs of declining in health. I have before now by way of experiment, placed some plants of *C. Mastersii* in the East Indian house, and others with the cool *Odontoglossums*; both remained in health, the former increasing more than twice as fast as but not flowering so freely as those in the cool house. I find the intermediate or *Cattleya* house the most suitable place for the plants when growing and flowering. *C. eburnea* grows and flowers freely in the warmest house. A few years back it was thought by some, that to grow *Cymbidiums* properly the compost should consist chiefly of loam, but for such species as *C. Parishii*, *C. Lowianum*, *C. giganteum*, *C. Hookerianum*, *C. Mastersii*, *C. purpureum*, and *C. aloifolium* I prefer equal parts of lumps of peat and loam, to which may be added a small quantity of dry cow manure broken small, some half decayed leaves of Oak, and a good sprinkling of coarse sand to keep the compost open. *C. eburnea* I have found to grow best in fibrous peat with the other ingredients named. The section which possesses thin leaves requires the leaves to be sponged occasionally to keep in check red-spider, it being never safe to syringe these plants much, the water causing the centre of the growths to rot. *C. Woolford, Downside.*

THE HARDY FRUIT GARDEN.

APRICOT TREES.—On frosty mornings the blinds should be left down till the thermometer rises above freezing point, covering the trees again in the afternoon about 6 o'clock, or before that time should the air be frosty. It will not be advisable to leave the trees exposed at night after this date in warm districts, but in colder localities they may be exposed at night for some time longer, unless very sharp frosts threaten. In the west there has been but little sunshine for the last three weeks, and this together with the low temperature have retarded the opening of the bloom-buds, but a few warm days will soon cause them to expand.

Grafting.—All trees which it is intended to graft may now be headed back, and when clay is used for the operation it should be prepared, taking care to mix chaff enough with it to prevent undue cracking. Where there is much grafting to be done, some form of grafting-wax will be found a very suitable substance to be used instead of clay. Now is the time for anyone possessing healthy Pear trees, but whose fruit is almost worthless, to test the experiment of double grafting the trees; but the selection of kinds to use for the purpose will depend in a great measure on the stocks, and the sorts already worked on them. I have practised double grafting with great success here, and I will touch more fully on the subject next week. *A. Ward, Stoke Edith Gardens, Hereford.*

THE ORCHARD HOUSE.

In our earliest house the fruit is now well set, although the weather has been most unfavourable. I attribute such success to keeping the atmospheric conditions right. The house is of course heated with hot-water pipes, and with these the night temperature was kept up to 50° and 55°, with a small amount of air on back and front both night and day.

The atmosphere itself was comparatively dry. We had a rabbit's tail tied to the end of a stick, and drew daily the fur over the blossoms. Peaches and Nectarines set, perhaps, more readily than any other stone fruit. Plums are next to them, and, as a rule, they set very well; but when mixed with Peaches and Nectarines I have found, in cases when there was a bad set, that the Plums are generally the worst. Apricots are worse than Plums, which will set their fruit when trees of the Peach, Moorpark, and Apricot have failed to do so. Apricots in an unheated orchard-house should usually be in bloom about the middle of March, Peaches and Nectarines about the end of March or early in April. In the case of unheated houses much depends upon the weather. In some districts the sun may scarcely be seen for ten days or a fortnight; with this, and continued cold weather, blossoms can scarcely be expected to set well. Pears and Cherries are the most shy setters; both of these, when grown under glass, require a dry atmosphere kept in motion by open ventilators even at night, and this is not possible during sharp frosts unless there is some sort of heating apparatus. Another way of setting the fruit is by tapping the tree two or three times, so as to scatter the pollen. In the case of pot trees which have been surface-dressed to the depth of 2 or 3 inches the inexperienced cultivator may be deceived at this season by the state of moisture in the fresh compost; that may be wet enough, but the portion underneath, which is full of active roots, may be too dry; and if this be the case the buds will certainly drop off. Any one having such trees would do well to carefully examine their condition. The blossoms are now expanding in the late house, and although the weather is cold we have plenty of sunshine by day, and a little heat in the hot-water pipes is sufficient to keep the temperature up to 40° at night with a little air on. A dry atmosphere is essential for the setting of the blossoms, especially for Pears, Cherries, and Apricots. If there is room in the house for one only of the three last-named fruits, Pears ought to have the preference. These can be grown to large size, and of excellent quality, from pot trees. Amongst late varieties the best for pot-culture is *Josephine de Malines*. I have also had *Beurré Rance* of good quality, and also *Chaudmont*. It is a decided advantage, too, to have *Williams' Bon Chrétien* and *Louise Bonne* of Jersey ripe two or three weeks before they can be obtained from the open borders. The trees do not require much syringing, and ought to be in a part of the house by themselves. *J. Douglas, Ilford.*

THE KITCHEN GARDEN.

SEEDLING PLANTS.—The early sown *Celery* will now be ready for pricking out into boxes or pans, and afterwards placed in a frame with a moderate bottom-heat, and near the glass. Carrots and Turnips in frames should be thinned out as soon as possible, leaving the former 3 inches and the latter 6 inches apart. Peas and Beans that were sown in pots and since have been grown in cold pits or houses, should be planted out after being gradually hardened off. Peas succeed best if planted in shallow trenches and the sticks put to them at once, sticking some branches of evergreens by the sides of the rows for a few days.

Potatoes.—A few sets of early varieties should be planted in a sheltered position, such as the foot of a south wall or by the sides of forcing houses or any similar position where they will get a little protection; a large amount of soil is not necessary for them, and a nice crop that will be of great service may be grown in a border 18 inches in width if the soil be light and rich. In such borders the plants can easily be protected from frost after they are up by placing a few branches of evergreens in front of them whenever frost threatens. If no such position be available it will be advisable to plant a few in cold frames, when they will succeed those grown on hotbeds. In the warmer parts of the kingdom not quite so much caution will be necessary.

Seeds to Sow Outside.—Early Carrots, Milan Turnip, Spinach, Leeks, Brussels Sprouts, Cos Lettuce, Alexandria or Paris White; Cabbage Lettuce, Paris Market; Cauliflowers, Early London, Asiatic, Eclipse, Autumn Giant; Peas, and Parsnips. With the exception of the two last these should all be sown on south borders or similar warm positions, and Early Beet, Marjoram, and Basil should be sown in heat for planting out afterwards. *W. H. Divers, Ketton Hall, Stamford.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	MAR. 12—Chambre Syndicale of Ghent.
TUESDAY,	MAR. 13—{ Royal Horticultural Society - Science, Fruit, and Floral Committees.
THURSDAY,	MAR. 15—Linnean Society.

SALES.

TUESDAY,	MAR. 13—{ Imported and Established Orchids, at Protheroe & Morris' Rooms. Roses, Shrubs, and Other Plants, at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	MAR. 14—{ Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. Lilium auratum, Roses, and other Plants, at Protheroe and Morris' Rooms. Nursery Stock and Greenhouse Plants from sample, at Protheroe & Morris' Rooms.
THURSDAY,	MAR. 15—{ Orchids in Flower and Bud, at Stevens' Rooms. 10,000 Lilium auratum, &c., from Japan, at Stevens' Rooms.
FRIDAY,	MAR. 16—Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	MAR. 17—Bulbs, Roses and other Plants, at Protheroe & Morris' Rooms.

The Food of the People, and Railway Rates.

ONE of the most important features to producers and buyers touched upon by Mr. D. TALLERMAN in his paper on "Available Food for the People" (page 234) had reference to the "Railway Difficulty, and how to Deal with it." What is required is an economical system of carriage and parcel-delivery by railway, and this all parties should unite in seeing embodied in the forthcoming Railway Bill. Mr. TALLERMAN thus traced the growth of the monopoly held by the railway companies:—"It must be borne in mind that upon the formation of railways it was understood that they would construct their lines, and that the public would provide trucks and traffic, and pay a toll for the use of the engines and rails. This would have tended to a healthy competition, and led to the adoption of a reasonable tariff of rates by those engaged in the trade. It did bring into existence a number of carriers, who collected and delivered the traffic, paying station to station rates; but in the course of time the railways bought out the carriers and also the bulk of the lands; and having thus secured the control of the traffic, claim the right to charge, not only the maximum rates allowed them by their

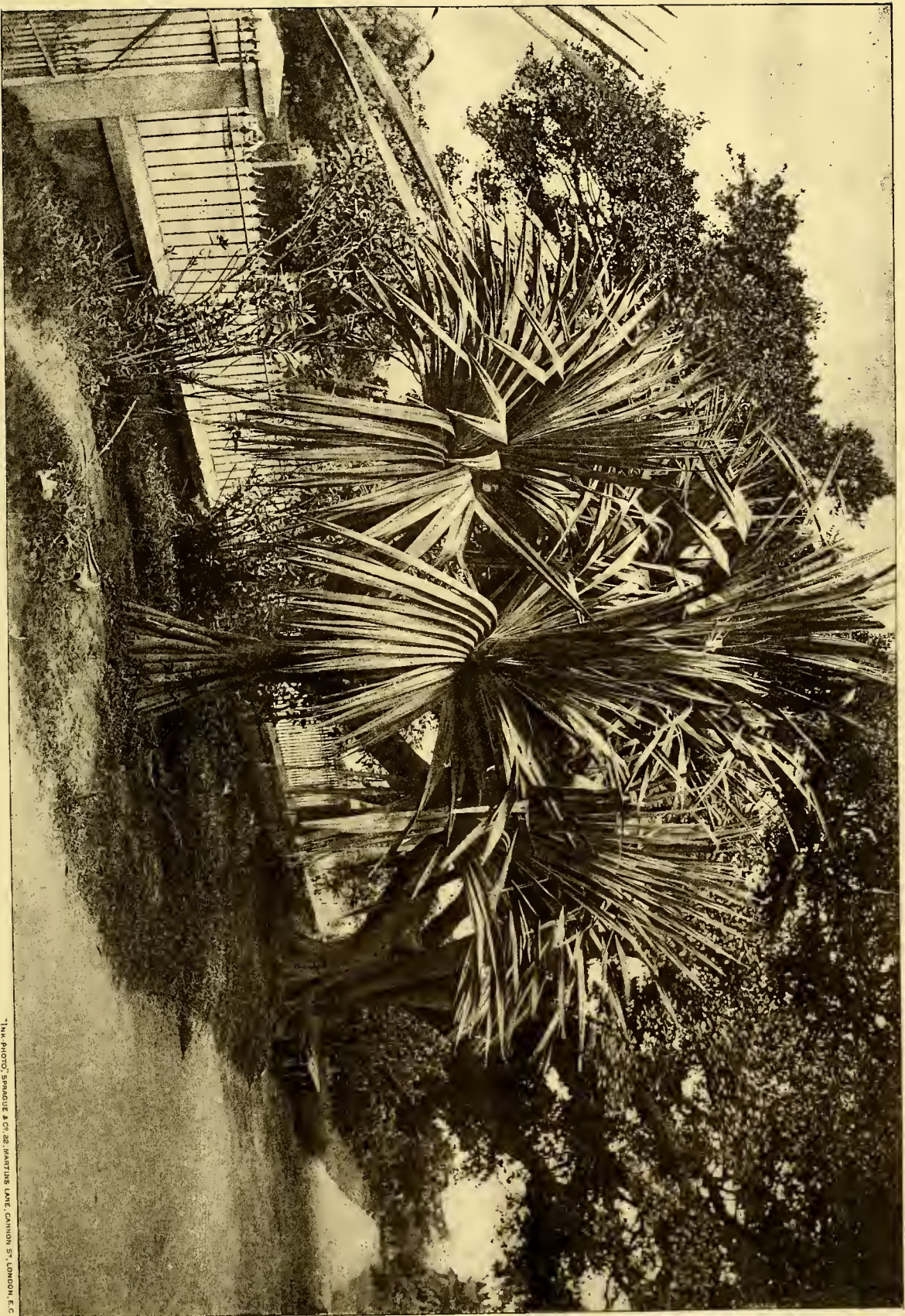
various Acts, but also for every service incidental to the collecting, proper retention, weighing, and delivery of goods, and, in addition, a terminal charge for the use of their stations where the goods arrived." The various charges, which are new, and in some instances illegally made, virtually enable the companies to levy whatever they please upon the goods placed in their hands—which they invariably do, basing their rates, not upon the services rendered, the amount of the traffic, and the distance travelled, but on the class of goods, and what, in their opinion, the traffic is able to pay. In their classification food products are invariably in the fifth or highest class; but exceptions are made to the rule in the case where the railway has to enter into competition with water-carriage, and in connection with goods from abroad. These are principally collected by carriers whose own agents, to a large extent, deliver their own goods, pay a through or truck rate on the Continent, and who can use whatever line they please on this side. It will thus be seen that the railway companies have virtually assumed the right, at their will and pleasure to tax the food of the people to any extent they feel disposed.

Seeing that the metropolis is placed in an anomalous position by the eight railway companies, and also by the Corporation, "who conduct the markets so as to render them monopolies in the hands of a few favoured traders, to continue levying charges in the form of excessive rates, commissions on middlemen's profits, &c.," Mr. TALLERMAN urges that its people should insist upon and not rest satisfied until they have acquired free and open markets, where farmers, if they wish, can legitimately enter with their produce, and not be charged a higher rate of carriage than would leave a fairly remunerative rate on the cost of its conveyance. These high rates for transit operate to render it unproductive, to raise many articles in those portions of the country that are any distance from the centres of population, and virtually prevents a large extent of land being brought into cultivation." "An examination of the Agricultural Returns disclose many facts that are painful to contemplate. Market gardens and orchards, the yields from which are beneficial to the people and should be profitable to the farmers, can only be found in the counties immediately adjacent to the metropolis, and even the fruit-growers of Kent find that the railway charges for bringing their produce to London frequently absorbs the bulk of what is received for it." Mr. TALLERMAN'S remedy for the existing state of things is to insist upon railways conducting their operations upon the basis upon which they were established, and to compel them to haul produce at a reasonable truck-rate, and to take up such a position as would not only compel them to do so, but prevent them again, by means of their combination, acquiring a position of undue influence. To attain this end steps should be at once taken to prevent an extension of the present position by dealing with the future, and Parliament should pass a Standing Order that no Railway Act of any kind or character should be passed for the construction of any new lines or the extension of any existing lines unless a clause providing for a truck and train rate be embodied in it. Further, in order to render nugatory the efforts of the railway combination, and result in the establishment of reasonable rates for home-grown produce, it is advisable to pass such a general Act of Parliament as would enable local authorities to provide spaces and to make connections with railways in their several districts, so that trucks

with produce can be run direct into them, and their contents disposed of by the owners without incurring the cost of loading or unloading, and thus defeat the right to charge for terminals, unnecessary services, &c. Also, to enable local authorities to make auxiliary lines or tramways to be in connection with the railways, over which they should have running powers. The effect of these auxiliary lines and open spaces, which should be confined solely to home-grown produce, would be that the farmer in a district could so arrange that railway trucks could be loaded on or close to his farms, and be run right into what would serve as a market, with the least expenditure of labour and at a nominal cost.

In the discussion which followed Mr. W. H. LE FEVRE, C.E., said that the island of Jersey paid the whole of its debt by the proceeds from the trade done in fruit and early Potatoes exported therefrom. He said that he can get vegetables to his house in London from Jersey at a cheaper rate than from Cornwall, and he attributed that result to the fact that there was a sharp competition for the traffic between the Great Western and South-Western Railways, to the benefit of the producer and consumer alike. In fact, he had proved that goods could be brought to London from the Channel Islands at a cheaper rate than from districts distant only 20 miles from London. Mr. E. CLEMENTS, of the Railway and Canal Traders Association, Eastcheap Buildings, E.C., dwelt upon the importance of cheap transit, and especially in reference to the food of the people. It is a public question of the first moment, having such a direct interest to all classes of consumers. The difference in a railway rate frequently means the whole profit obtained. He gave a few remarkable instances of differences in rates of transit; thus, assuming that an acre of land will produce $4\frac{1}{2}$ quarters, or 1 ton of Wheat, the railway rate from the East Coast to Birmingham is 22s. 4d. per ton, but from Cardiff to Birmingham only 8s. 4d. per ton—the difference, 14s. per acre. In the case of Potatoes, supposing 1 acre produces 7 tons, the rates of carriage are the same as in the case of Wheat—the difference, 14s. per ton, or £4 18s. per acre, or, on 100 acres, £490. These facts are furnished in the evidence of Mr. FLINN, given before the Royal Commission on Trade. Grain from foreign parts is conveyed from West Hartlepool to Newark at 9s. 2d. per ton, English grain at 15s. 10d., or 72½ per cent. in favour of foreign stuff; the excess in this case, 6s. 9d. per acre. Cattle are conveyed from Newcastle to Leeds at 48s. 6d. English, and at 31s. foreign; to Wakefield at 51s. 6d. English, and 63s. foreign; to Manchester, 31s. foreign, 44s. 3d. English. But here is something more remarkable still. Potatoes and fruit are conveyed from Selling, Kent, to London, a little over 50 miles, at 23s. 4d. English; from France, *via* Selling, through rate, 20s. foreign. Foreign cheese is conveyed from Liverpool to London at 25s.; Cheshire cheese, picked up *en route*, at 42s. 6d.!

In the face of these facts, a thorough revision of the rates of railway transit as between English and foreign goods is absolutely necessary, but we fear it can only be done by sending to Parliament men thoroughly alive to its necessity, and by endeavouring to act upon public opinion in the way Mr. TALLERMAN is doing. We need hardly add, that this is one of the many questions which the Royal Horticultural Society has entirely neglected in the past, but one in which it should have a voice in future, and which should be taken in hand by a Commercial Committee, formed for the purpose of dealing with affairs of public interest.



THE PHOTOGRAPH BY A. C. 32, MARTIN LANE, CANNON ST., LONDON, E.C.

ROYAL HORTICULTURAL SOCIETY.—We are informed that at a meeting of the Council held at South Kensington on Tuesday, 6th inst., the agreement as to the lease of the premises at 111, Victoria Street, S.W., was finally settled, and a sub-committee was requested to see the details of furnishing, &c., promptly carried out, as the exhibition on March 13 will be the last held at South Kensington. Reports were received and adopted from the Finance and Chiswick Committees whereby it is hoped that both increased economy and efficiency may be introduced into the Society's work. It was resolved to ask the advice of the Fellows' Committee on the following subjects, viz.:—1. The appointment of local secretaries in the provinces; 2. The best mode of affiliation between local societies and the Royal Horticultural Society; 3. The desirability of petitioning the Government to include Horticulture with Agriculture under the new Government Board. The next meeting of Council was fixed for March 13.

TUESDAY NEXT.—The last meeting of the three committees at South Kensington will be held on Tuesday next. A Council meeting, and a meeting of the Fellows' Committee will also be held on the same day, and in the evening Mr. LLEWELYN will discourse on Sikkim Rhododendrons at the Horticultural Club. In the fitness of things, of course, this discourse should have been before the Royal Horticultural Society, but we are an anomalous people, and the Club has taken up work which the Royal Horticultural Society has allowed to drop out of its own hands.

CHISWICK.—The proposition to retire to Chiswick, advocated by some of our friends, has been duly considered, on commercial principles, but nothing was said publicly in its favour, *en temps utile*, as the French say; now, when it is too late, the proposition is revived, but business men know that such a step is impracticable. If all the operations of the Society were to be conducted there for one season no doubt expense would be lessened, but at the cost of life—the result would be paralysis for a year, and at the end the Society would, to use a Hibernicism, wake up dead. Town offices were felt to be an absolute necessity, and some means of getting money even more urgent. There would be next to no chance of getting this at Chiswick, while already the mere notification of removal to more central quarters has brought in an accession of new Fellows. Nevertheless, it is felt that one or more great gatherings should, if possible, be organised in the coming summer at Chiswick.

FINANCE.—The Finance Committee has been sitting with somewhat melancholy result we fear. Mr. DEAL, the Secretary of the Fellows' Committee should certainly have been added to this Committee.

GHENT QUINQUENNIAL REQUIREMENTS.—Great preparations are making for this exhibition. Among other things, the Directors are desirous of getting together a collection of the same species of plants that were exhibited at the first exhibition of the kind in 1808. Among the plants which are required are the following:—

<i>Jasminum glaucum</i> of ATTON	<i>Ceanothus discolor</i> .
= <i>J. ligustrifolium</i> , rivulare, or <i>Nyctanthus glauca</i> , LINNÆUS.	<i>Aphelandra cristata</i> = <i>Justicia pulcherrima</i> .
<i>Rosa portlandica</i> = <i>R. rufo-angulata</i> .	<i>Andromeda acuminata</i> , ATTON = <i>A. lucida</i> , JACQUIN.
= <i>Cinéraires cruenta</i> .	<i>Phylla plumosa</i> , WENDL. = <i>P. papillosa</i> or <i>exelsa</i> .
<i>Sedum angustifolium</i> .	<i>Phylla spicata</i> = <i>P. oleoides</i> .
<i>Erythraea silvestris</i> = <i>Pancratium amboinense</i> .	<i>Portlandia acuminata</i> , WILLD.

Any one who possesses one or other of these plants is specially requested to communicate with M. CHARLES SPÆ, Chaussée de Bruges, 261, Ghent.

THE BOULEVARD ASSOCIATION.—This useful metropolitan body still continues its good work, and has now taken in hand the strip of land which skirts the moat at the Tower of London. There is not much width in the space at the disposal of the authorities, and what there is lies at a considerable depth below the surrounding roadway, making it a work of some difficulty either to plant shrubs or form grassy slopes

which are likely to remain green in hot weather, owing to the excessive steepness of most of them. The idea to be carried out is that of an undulating bank 8–10 feet in height, and skirting the railings, the top only to be planted with shrubs. On the level ground at the foot a walk of good width will be formed, and on the north side, where a drinking-fountain is found, a rockery will be formed. The north-eastern part of the grounds is perhaps of an average width of 40 yards, and here there will be winding walks, flower beds, and shrubberies. The steepness of most of the banks seems to require that the major part of them should be planted with *Periwinkle*, *Ivy*, *Cotoneaster*, *Creeping Berberis*, *Veronica*, *Butcher's Broom*, rather than to be turfed down. The first cost would be more, but the keeping afterwards less.

LINNEAN SOCIETY OF LONDON.—A meeting will be held on Thursday, March 15, at 8 P.M., when the following papers will be read:—1, "Monograph of the *Telephorea*," by Mr. GEORGE MASSEE; 2, "Descriptions of Three New Marine Algae," by Mr. EDWARD A. L. BATTERS; 3, "Exhibitions of the Os frontalis of a Hornless Stag, with Remarks on such Abnormality," by Mr. J. E. HARTING.

SOCIETY OF AMERICAN FLORISTS.—The programme of subjects to be discussed at the meeting in New York in the ensuing summer is given in the *American Florist*. Each subject will be treated of by some expert selected for the purpose, and others will be requested to make comments on the subjects:—

1. Roses. From the growers' standpoint.
2. Roses. From the retail florists' standpoint.
3. Ferns, Palms, and other decorative plants. From the growers' standpoint.
4. Ferns, Palms, and other decorative plants. From the retail florists' standpoint.
5. Flowering plants most valuable for market purposes.
6. Modes of heating, with their relative cost of construction and operation.
7. Nomenclature.
8. Mutual interests of the retailer and the grower in the National Society.
9. Soils and fertilisers.
10. Landscape gardening for suburban homes.

WHICH PLANT SHOWS ITS LEAVES EARLIEST?—The common Elder is one of the very earliest to unfold its leaves. On this account we turned to Prof. HOFFMANN'S "Phenological Charts," just published, and found that the Elder occurs wild throughout the whole of Europe, including the southern parts of Sweden and Norway, but not in Russia, extending thus over almost precisely the same area as the Blackthorn, *Prunus spinosa*, which, however, is much later coming into leaf. Honeysuckles, which belong to the same order as the Elder, expand their leaves very early; and *Lonicera tartarica*, either wild or as a cultivated plant, has nearly the same area as the Elder. The Birch, Bird Cherry, Red Currant, Raspberry grow all over Europe and up to the North Cape, but they are not so early as some of the plants already mentioned. *Deutzia scabra*, *Ribes*, *Solanum crispum* from Chile, *Photina*, many of the *Spiræas*, and other Rosaceous plants may be mentioned as plants which unfold their leaves early. It is hence clear that this precocity is not an affair of latitude or altitude only. The subject is one of practical importance as regards stocks for grafting.

"BOTANICAL MAGAZINE."—The March number contains coloured figures of

Vanda sanderiana, Rehb. f., t. 6983, now sometimes called *Esmeralda sanderiana*, and well-known to Orchid growers. It is also figured in *Gardeners' Chronicle*, vol. xx. (1883), p. 440.

Primula geraniifolia, Hook. f., t. 6984,—A species in the way of *P. mollis*, but the crimson corolla lobes are short and rounded, with a broad sinus between them.—Eastern Himalayas.

Mesembryanthemum Brownii, Hook. f., t. 6985.—A new South African species, with opposite linear glaucous pustulate leaves; flowers about 1 inch

across, deep lilac coloured, fading off into reddish-brown. Two of the sepals are larger than the other three, and provided with a short awn near the apex on the dorsal surface.

Heleniopsis japonica, Baker, t. 6986.—A hardy Japanese herbaceous plant, with tufted oblanceolate glabrous leaves. The flower-stalk rises from the centre of the tuft of leaves for a height of 4–6 inches, and bears at the summit a nodding raceme of flowers like those of a *Scilla*, but of a rosy-pink colour.

Onosma pyramidalis, Hook. f., t. 6987.—A handsome Japanese herbaceous perennial plant, from the Western Himalaya, with tufted basilar leaves, the stem leaves being sessile, lanceolate-hirsute, and terminal clusters of vase-shaped flowers, like those of a *Symphytum*, but of a rich scarlet colour.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.—It is intended to hold this year three shows—a spring, summer, and autumn. Over £500 in prize money to the last two shows will be given by the Executive Council of the International Exhibition of Glasgow. The spring show will be held in the City Hall, March 28; the summer show, July 11, and the autumn show, September 12, will both be held in the International Exhibition. The competition is open to exhibitors from any part of the United Kingdom, but the prizes are not too high, and are not likely to tempt Southern cultivators to go so far.

PLANTÆ DAVIDIANÆ.—M. FRANCHET has lately published in the *Nouvelles Archives du Muséum* the second part of his enumeration of the plants collected by the Abbé DAVID in Eastern Tibet. Some of the species, as those of *Rhododendron* and *Primula*, have been previously published in the *Bulletin of the Botanical Society of France*, and commented on by us. A *Shortia* is described from Tibet. The plant known in gardens as *Rhyacospermum jasminoides*, but more correctly as *Trachelospermum*, was met with in Eastern Tibet creeping over the rocks. *Habenaria Davidi* is described as a very beautiful species. *Rhododendron Davidii* is remarkable for its flowers being in long racemes instead of in close trusses.

MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY.—The following is an extract from the report of the meeting which appeared in the *Manchester City News*, March 3:—

"The final meeting this session of the Manchester Horticultural Improvement Society was held on Thursday evening, March 1, in the Memorial Hall, Albert Square. Mr. BRUCE FINDLAY, the President, in the chair. Mr. ROBERT KERR read a paper on the *Rhododendron*. Prior to the introduction of the *Rhododendron*, the evergreen shrubs of our landscapes and gardens were very few, and no plant has so altered the face of the country and all our gardens as the *Rhododendron*. Only 120 years had elapsed since the first arrival of *Rhododendron ponticum*, which came from Gibraltar, but the investigations of botanists proved that this was not the original habitat of the plant, as it had migrated from Asia Minor (one province of which is called Pontus), either by natural agency or by the hands of man in his westward progress, as the shores on the Mediterranean were gradually colonised from the East. About 1750 a general interest in the improvement of gardens began, and *Rhododendron ponticum* was eagerly cultivated and propagated; so much so that by the close of the century this now old-fashioned species had been planted freely by all the great landed gentry, with what beautiful effect was very evident at the present day. Our colonists in New England and Canada, partaking of the old tastes and likings for all that was beautiful, began to send specimens of their flora to the mother country. The first *Rhododendron* sent here appears to have been a tall straggling species, to which, from its being supposed to be the largest of its race, the name of maximum was given. The present glorious race of *Rhododendrons* had been raised as clearly and absolutely by the highest form of gardening as was the finest marble statue the work of the sculp-

tor's hands. He feared that too many of those people who saw these splendid plants at our exhibitions and in our gardens failed to realise the fact that they did not grow in any part of the world as wild or native plants, but were the result of skill and knowledge in improving even Nature itself. To Messrs. WATERER & GODFREY and Mr. CUNNINGHAM must be awarded most of the praise for these results, and he regretted very much that the real history of these now indispensable plants would much of it be lost, for little was recorded in the gardening papers, and it was greatly to be desired that a history should be written something like that of the Clematis by the late Mr. MOORE, of Chelsea, and the late Mr. JACKMAN.

CONIFERS ON THE MEDITERRANEAN COAST.—Dr. HENRY BENNET writes from Ventimiglia:—

"I have read with great pleasure and interest the article in the *Gardeners' Chronicle* of February 25, on "Conifers on Chalky Soils. It seems to me a step in the right direction. I am not acquainted with any didactic work that takes up the subject of horticulture and arboriculture on the practical basis of soils. What are the plants, shrubs, or trees that are peculiar to chalky, to sandy, or to peaty soils, and require these soils for their full and healthy development? I presume that nearly all plants will thrive on good loam, but in chalky, sandy, or peaty soils good loam is often difficult and expensive to get. Sooner or later the plants artificially planted in it get to the substratum soil of the country, which disagrees with them, so they droop and often die. I have always felt the want of such a work, my two gardens having been, the one in Surrey, on the Bagshot sands; the other on the Genoese Riviera, on limestone rocks, with very little vegetable soil in either except specially imported. I was very glad, therefore, to read the article in question, which quite corroborates my own experience; but I think I may add a large tribe of Conifers to those named—that of the Cupressus. All the Cupresses that I have planted here on my lime rock have lived. Some have done very well, others less so; but apparently more owing to excessive dryness of climate and to want of sufficient soil, than to the soil itself being antipathetic to them, and the same Cupresses planted on terraces within a few feet of the lime soil, and with artificial moisture, have done very well. Firstly I would name *Cupressus macrocarpa* or *Lambertiana*, for I presume they are mere varieties of the same tree; it does splendidly all along the limestone coast from Marseilles to Genoa, wherever it gets plenty of soil and a moderate amount of moisture, forming a rather low tree with wide-spreading lower branches. Following on the same lines as one of your late correspondents I am endeavouring to drive mine up by cutting the lower branches. This I used to do in Surrey on the Bagshot sands with great success. The *Cupressus sempervirens* var. *fastigiata*, usually called here pyramidalis, rising up like a Poplar, is quite at home in a lime soil all over the Mediterranean. It is planted as a protection against winds, and in cemeteries universally, arriving at its full development in such soil everywhere. The *Cupressus* that does the best with me is the *Cupressus excelsa*; *C. pendula*, *C. glauca*, *C. elegans*, all do very well, form very handsome trees, and grow as luxuriantly as the paucity of soil and the extreme dryness of the climate in summer admits. The *Cupressus Macnabiana*, as it is called here by nurserymen, grows vigorously and healthily, but more as a bush than as a tree. The soil and climatic conditions of the Riviera already suit the constitution of these trees, indeed, I am gradually driven on my soils to plant Cupressi to the exclusion of other Conifers, always excepting the Pious *Halepensis* or *Aleppo* Pine. This latter everywhere covers the lime rocks of the islands and shores of the Mediterranean, and may be considered the Mediterranean Conifer *par excellence*. The *Pinus maritima* also does very well in the rocky arid regions of the Mediterranean, the climate evidently agreeing with it, but the soil must be sandy or partly sandy. Wherever a sandy or a silicious soil appears it flourishes, but it does not appear in masses in purely limestone regions. I have several doing well on my limestone rocks, but I believe they have found out some of the pockets of sand which occasionally exist in these rocks, for they are the survivors of a hundred planted; the *Halepensis*, on the contrary, grows everywhere like a weed, with little or no soil, its roots penetrating into the crevices of the rocks. The *Abies Pinsapo*, or Spanish Fir, does moderately well in the Mentone district, but dies with me, probably because the rocks are too arid and too dry. The *Cupressus californica* does well, but it is with me a straggling, badly-grown

tree, and I am gradually eradicating it. The *Thuia gigantea* does well; it covers the limestone rocks of the Atlas Mountains in Algeria. The Junipers do well here as bushes. I have formed one into a handsome tree, 16 feet high, by constantly pruning off the lower branches—the plan, I believe, by which tree *Rhododendrons* are formed. All the Conifers hanging on the sides of the rocks have a tendency to form bushes, no doubt owing to the full and constant exposure of the lower branches to the sun and air; but this tendency I find can be counteracted by cutting away the lower branches, beginning when they are quite small, and cutting several feet from the ground. In most trees, I believe, the larger branches appear within 10 or 15 feet from the ground, and if they are cut off the tree runs up in height without forming large branches. The Junipers which cover the limestone rocks in this region, flourishing in the lime soil, are *J. oxycedrus*, *J. communis*, *J. nana*, *Willd.*; *J. phoenicia* (*Ardoino's Flora*)."

BIRMINGHAM GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—This thriving Society still continues to increase in point of numbers, about thirty new members having been added since the commencement of the year while, the library and other property has increased so rapidly that it has been thought advisable to appoint trustees, consequently a summoned meeting of members was held on Tuesday evening, February 28, at the Midland Institution, when the following were unanimously elected for a period of six years:—Sir THOMAS MORTIMER KNIGHT, H. F. OSLER, Esq., Mr. W. B. LATHOM, Mr. W. JONES, Mr. J. POPE, and Mr. J. CROOK, the whole of them being members of the Association. Their new bookcase, too, which it was thought would furnish sufficient accommodation for several years, has been found sadly too small it was therefore resolved that a much larger new bookcase should be ordered at once, in order that several kind offers of books may be accepted before the close of the spring season. Mr. T. F. RIVZAS will read a paper on the "Cultivation of Fruit Trees in Orchard-houses," at their next meeting on Tuesday, March 13.

ROSE SHOWS IN 1888:—

- June 30.—Eltham and Reigate.
- July 3.—Bagshot, Canterbury, Diss, and Hereford.
- " 4.—Croydon.
- " 5.—Bath, Farningham, Hitchin, and Norwich.
- " 6.—Sutton.
- " 7.—Crystal Palace (National Rose Society).
- " 10.—Ipswich.
- " 11.—Tunbridge Wells.
- " 12.—Winchester.
- " 17.—Leek and Ulverstone.
- " 18.—Birkenhead.
- " 19.—Helensburgh.
- " 20.—Darlington (National Rose Society).

INSECTS AND FUNGI IN CROPS.—Mr. CHARLES WHITEHEAD, the Agricultural Adviser, has, says the *Times*, presented his first annual report—that for 1887—to the Lords of the Committee of Council for Agriculture. The report, which is now published as a Parliamentary paper deals with insects and fungi injurious to the crops of the farm, the orchard, and the garden. It has been prepared in consequence of an arrangement to publish an annual account of the diseases and disorders that have affected the crops during each year, with descriptions of the insects, fungi, and other causes of plant affections, and of other matters connected with agriculture that have been referred to the Agricultural Adviser. Detailed particulars of the various attacks are to be added, and the means of prevention which should be taken and remedial measures likely to be useful. Cultivators are invited to send accounts of unusual attacks of all kinds, as well as to apply to the Department for information upon all points in connection with the diseases of cultivated plants, and with regard to seeds and fruits and the treatment of crops. As Mr. WHITEHEAD's appointment was only confirmed last July, and it was not decided to publish an annual history, of this kind till late in the autumn, the descriptions and records of the attacks upon crops given in this year's report are few. During 1887 the diseases and disorders

of cultivated plants were not in any degree unusually prevalent or excessively injurious. The attention of cultivators with regard to insect pests was chiefly directed to the Hessian fly, which spread over a considerable part of the eastern counties of England and Scotland, though it has not yet been discovered in Wales or Ireland. The loss occasioned was not very important, and it is hoped that in consequence of the peculiarly variable climate of this country the fly will never be very destructive in Great Britain. Much more damage was done to crops by other insects, chief among them being the riband-footed corn-fly (*Clorops tenipus*) and the corn saw-fly (*Cephus pygmaeus*), whose injuries to Wheat and Barley plants have been unprecedented. In some districts much harm was done to Turnips by the Turnip aphid. In parts of Kent and Sussex the Hops were attacked by an insidious fungus called the Hop mildew (*Podosphaera castagnei*), allied to the fungus that is so dangerous to Vines in France and Germany. There was also a great deal of sickness in Clover, caused by the eel-worm (*Tylenchus devastatrix*). For these pests remedies have been found suggested in the report.

WIRE.—The price of wire arches and fencing is likely to go up, indeed those who are in want of the commodity may have some difficulty in procuring it, owing to the great demand for wire-fencing in Australia in consequence of the plague of rabbits. We are credibly informed that no smaller quantity than 100,000 miles of wire fencing 42 inches high has been ordered in this country, and one firm alone has undertaken a contract for 25,000 miles. Happy wire-workers!

THE QUESTION BOX.—The Society of American Florists has established a "question box." Replies to the questions will be contributed at the ensuing general meeting in New York. Among the questions already received for discussion at the New York meeting of the S.A.F. are the following, which we insert as a hint to the new Council of the Royal Horticultural Society:—

Can plants of *Ixoras* and other stove plants be grown so that the flowers may be sold at a profit?

Is the sale of *Chrysanthemum* flowers an injury to the cut flower trade?

What is the best method of preserving wood in greenhouses?

What qualifications are necessary to become a commercial florist?—a private gardener?—a landscape gardener?

How can we prevent excessive waste of fuel?

Is the practice of suddenly advancing the price of cut flowers injurious to the trade?

What can be done to render horticultural exhibitions of greater benefit to the trade?

Is a wholesale cut flower market desirable in large cities, and if so, which is the best manner of conducting them?

Which are the best six Carnations for florists to grow?

How many varieties of Tea and hybrid Tea Roses are necessary for the general grower to have, and which are the best varieties?

Which are the most profitable varieties of H.P. Roses for forcing?

Which are the best Ferns for the general retail business?

Which are the best varieties of *Chrysanthemums* for cut flowers?

Which are the best Orchids for florists?

What is the best method of propagating *Acacia pubescens*?

Which method of circulating hot-water in greenhouses has been proved by actual experience to be the best?

What are the best materials to use in building a flue?

Which varieties of recently introduced Roses are suitable for forcing?

Have greenhouses constructed entirely of iron and glass been satisfactory in this country?

Are we not going to extremes in carpet-bedding?

Is the mail trade an injury to the general trade?

TRADE NOTICE.—We learn that Mr. JOHN MATTHEWS, of the Royal Potteries, Weston-super-Mare, will very shortly retire from business.

PUBLICATIONS RECEIVED.—*Classified List of the Plants Growing in the Royal Botanic Gardens, Ceylon.* By H. TRIMEN, M.B., F.L.S. (Colombo: J. A. SKEEN.)—*How and What to Grow in a Kitchen Garden*

of One Acre. By DARLINGTON and MOLE. (Philadelphia, U.S.A.: W. ATLEE, BURPEE & Co.)—*The Flora of West Yorkshire*. By F. A. LEES. (London: LOVELL REEVE & Co., 5, Henrietta Street, Covent Garden.)—*Dawn of Day*; and *The Child's Pictorial*. (London: S.P.C.K.)—Royal Institution of Great Britain: "Diffraction of Sound." By Lord RAYLEIGH. "Exploration of Masai Land." By JOSEPH THOMSON, F.R.G.S.—*The Crysanthemum Annual*. (London: 171, Fleet Street, E.C.)

BOOK NOTICE.

ALLOTMENTS. By the Rev. W. Tuckwell, M.A. (Jarrol & Sons, 3, Paternoster Buildings, London.)

How important is the question of allotments to the working man regarded outside of Parliament and politics, is evident from the discussion of the topic found on every hand, and to which a notable addition is furnished in the pamphlet before us. We find here the opinions, not of any mere theorist, but of a thoroughly practical writer, although found in the person of a clergyman. The Rev. Mr. Tuckwell, Rector of Stockton, Rugby, is a very advanced parson, and a staunch party politician; but most wisely, he does not allow his party proclivities to disfigure his pamphlet. His sympathies with the labouring classes are evidenced plainly, and as the life owner of some 200 acres of glebe land in his parish, he has, without the sanction of his Bishop, who was opposed to the scheme, converted this large area into allotments of diverse extents; and although the crops and working are partly agricultural, and the experiment has been in operation but two years, with a very dry summer to be encountered, still capital results are shown, which gives the reverend author the fullest right to discourse upon a question with respect to which so many are anxious, and yet comparatively so few are fully agreed. It is with exceeding interest we read Mr. Tuckwell's description of the evolution out of stony moorland at South Taunton, on the borders of Dartmoor, solely through the persistent energy and untiring exertion of the labourers, of some 200 acres of splendid allotment land—of the way in which it was drained, fenced, and cultivated—of the contest between the occupiers and the officials of the Cornwall Duchy, and of its final deliverance from the Duchy grip on payment of a sum of £104. Fifty years ago the land was rated at 4*l.* per acre, now it is rated at 20*s.* per acre. Then one-third of the inhabitants of South Taunton were paupers, now only three are so classed. Then crime was abundant, and immorality was excessive; now all is changed for the best, and this, too, through a piece of almost wild moorland. If such important pecuniary and social results followed in this case, why may not similar good follow in myriads of cases in which, through allotments, the labourer may be made to feel that he has a stake in his country, and a spur to the improvement of his social condition.

Mr. Tuckwell defines an allotment to be, not a holding, which furnishes a complete livelihood, but rather such an area of ground as a man can work to his aid and benefit during spare hours. He refers us to the Enclosure Act of 1845, which provides that certain portions should be set apart for labourers' allotments, but the matters seem to have been lost sight of. The present demand has been awakened by improved education and greater political enlightenment, hence the new and remarkable interest shown in the subject. The author holds that allotments should not exceed in rental the average agricultural rent of the district, that they should be held under a sort of perpetual tenure, or, at least, that dispossession should follow in the case of residents, only from gross neglect in culture, or serious misconduct; also that no hard-and-fast line should be drawn as to area, as he has found at Stockton that whilst some could cultivate two acres well and profitably, others could only manage one-fourth that area. It is desirable also that the land should be near to the labourers' cottages, but that

may not in all cases be easy to secure. An ideal rural village would probably show areas of half an acre to two acres of land attached to each cottage, with a common run for cow pasturage, and a wide expanse for the village green; but we are just now more concerned with villages as they are, hence allotment ground must be obtained with what convenience offers. Mr. Tuckwell becomes far less practical when he labours to show that such odd crops as Tobacco, Flax, Beet for sugar, woad for the dyer, Stramonium, strangely termed a native English plant, and recommended as a cure for asthma; Teasel, &c., would prove profitable. We think in Potatoes, Peas, Cabbages, Carrots, Onions, and other well-known garden crops, allied to some corn and cows' and pigs' food, the allotment holder would find his best returns.

The writer makes little reference to fruits, but he has looked at the subject more from a farmer's than from a gardener's aspect. Allotments for town artisans are advocated, but these must largely be extra-mural, and in the vicinity of railway or tram-car stations. To improve the general gardening knowledge of the working classes elementary school training is advised. Obstacles to that desideratum are, however, many. The pamphlet closes with a reference to the Allotment Act of last year, from which Mr. Tuckwell does not expect much, because of its complex construction. We cordially commend this new addition to the allotment discussion to the attention of our readers.

TREES AND SHRUBS.

TREES FOR THE CHALK.

I SHOULD like to add to Mr. Webster's list of trees suitable for chalky soils (p. 231), knowing how important it is to have as full a list to choose from as possible, short though it may be when every suitable tree is included in it. No coniferous trees are better for the chalk than the Mount Enos (*A. cephalonica*) and Spanish Firs (*A. Pinsapo*), and they represent well the conical or pyramid style of coniferous tree. The Pines that flourish perfectly are *Pinus insignis*, *austriaca*, *excelsa*, and *Pinaster*; but, of course, due notice must be taken of the tenderness of *P. insignis* in cold districts. The grassy-green of the *insignis* is, I think, brighter on the chalk than on the other soils, and contrasts strongly with the heaviness of the Austrian Pine, than which no tree could possibly thrive better on the poorest of chalk soils. *P. Pinaster* is not a favourite with me, but I should plant it especially in coast districts. *P. excelsa*, a favourite with every one, may be planted in the thinnest of soils, and even in exposed places, though it is grateful for shelter. Another Conifer that thrives to the greatest perfection on chalk is the Monterey Cypress (*Cupressus macrocarpa*), and it is invaluable on account of its luxuriant verdure and dense growth. If it does behave at all differently on chalk than on other soils, it is denser in growth, but in windy places it does not rise so high. Some of the finest Monterey Cypresses I know are in a small garden near Goodwood, where the soil is all chalk, and just in the teeth of the wind. The Nootka Cypress (*C. nutkaensis* alias *Thurypopsis borealis*), does well on chalk, but is not so fine as on a better soil. It soon gets thin, and has a ragged appearance. The Deodar and the Atlas Cedars do admirably, but they both dislike exposure on such thin soils. The Lebanon Cedar, too, is quite a chalk lover, for finer than those at Goodwood could not be seen, and equally fine are those at Wargrave, in Berkshire, where on a hill exposed to the full south-west are some gigantic trees, yet the soil is pure chalk, with only a top skin of good soil about 9 inches deep. The Lebanon Cedar stands exposure well if the soil is chalky or otherwise poor, but if good the trees are of quicker growth, and more liable to injury by wind and snow. The Sequoia gigantea, as Mr. Webster says, does well in some places on chalk soil, but it is not to be depended upon, and I believe that chalky soils vary considerably in different localities in regard to their chemical nature, which has an effect upon certain trees. Last autumn I made a tour of the principal places for

trees on the chalky south downs of Sussex with the view of seeing the trees which flourished there, and I was struck with the luxuriance of some Sequoias in one place, while at another place, not 5 miles distant, growing in what appeared to be the same kind of chalky soil, the trees were wretched. There are about a dozen large coniferous trees that may be relied on for planting in chalk, in addition to the Yew, which is quite at home on the poorest of chalks. The deciduous trees and shrubs that thrive on chalk are not so limited, and I was surprised to find what a large number of species (quite an arboretum, in fact) there are at a place I am engaged upon now, in the heart of the Sussex south downs, the glory of the place being the evergreen Oak, which is beyond all evergreens the tree for windy chalk downs. As a select list of flowering deciduous trees and shrubs that I observe do well on chalk I may send you a list. W. G.

PHILLYREA VILMORINIANA.

We have frequently had occasion to mention the excellent qualifications of this comparatively new evergreen shrub and may now add to its reputation by stating that not only is it hardy, but that it is capable of withstanding the smoke-laden atmosphere of towns. We have had it under observation for the last three years in a town garden, where the proportion of impurity in the atmosphere is very large, but not large enough to hurt this handsome evergreen. *Skimmia japonica* is equally indifferent to cold and smoke.

NURSERY NOTES.

MESSRS. J. LAING & SONS.

TUBEROUS BEGONIAS AND OTHER SUBJECTS.—In the propagating department of this nursery tuberous Begonias are the plants mainly dealt with at this season of the year. Although propagation by cuttings is resorted to when any particular plants are to be increased in number, that of raising from seed is preferable, so true from seed come the various colours, and so free growing are the plants thus raised. The first and chief sowing was made in January, and the earliest have been pricked off into square or round pans already, some 500 in a pan of 9 inches square, of which 80 per cent. will grow and form flowering tubers this season; the loss of 20 per cent. arises sometimes from a growth of moss on the surface of the soil, and at others from the presence of salts in the materials of which the pans are made. Before the plantlets quite touch each other they will be removed to other pans holding, perhaps, eighty of them, and finally into boxes of forty each, where they remain till the planting-out time arrives. The smallest Pea-like tubers of last season's raising that have been kept in small pots covered with cocoa-fibre go into pans and boxes in the same way as this year's seedlings, but at a slightly greater distance apart. Larger tubers than Peas are put into pots ranging in size from thimbles to 4*s.*

All this Begonia business is in full swing at the present time; the numbers intended to be bedded out will be far in excess of last year, and will probably reach 80,000. This is a sign of the growing taste for this plant as a bedder or pot plant, and especially in Scotland and America, whence great numbers are sent.

A new race of Begonias is to be found here destined to replace the Rex varieties. The habit is midway between that of *B. discolor*, *B. Evansiana*, respectively on the one side, and the Rex varieties on the other; this is remarked in the taller, more upright, shrubby growth, and in the deeply serrated leaves, which are also furnished in many instances with red coloured ribs, as in *discolor*. The variety Princess Clementine, figured in our last number, was of this new type.

Some varieties of Caladiums of fine markings we observed—some of the choicest of *M. Bleus'* raising,

amongst the number; *C. erubescens*, a dwarf growing variety with red and green leaves, and of about the stature of *C. argyrites*, is one of these. It should prove of value for small designs in indoor arrangements, as on the dinner-table, and for small vases, jardinières, &c.

Of other winter flowering plants in bloom, too apt to be overlooked by gardeners, were *Thunbergia Harrisii*, small plants in 32's, carrying many of their light blue *Convolvulus*-like flowers; *Clematis lobata* and *C. l. indivisa*, profuse flowering greenhouse climbers, with white flowers, identical in size, and differing merely in the leaf. In the stove many plants were observed of *Thysacanthus rutilans* either in flower, or showing their flower racemes. *Lasiandra macrantha*, a large plant, growing in a pot, had just gone out of bloom.

THE ALPINE GARDEN.

DIAPENSIA LAPPONICA.

This name occurs in the list of desiderata of the Cambridge Botanic Garden. A gentleman who was in Iceland during last summer gave me a plant, and if I find it still alive in May I shall be agreeably surprised, as it is an old plant, and has had its long tap-root cut nearly at the ground line, and I fear is hardly likely to throw out new roots.

This neat little plant is figured in *Edwards' Botanical Register*, as well as in the *Botanical Magazine*, but it does not seem ever to have been established long in cultivation. It is as close growing as the smaller species of *Androsace*, the flower being more like that of a diminutive alpine Pink. In Europe its distribution seems to be limited to Iceland and the northern parts of Scandinavia, but in North America it is found in the latitudes of the Alps and Pyrenees, as it occurs at elevations of about 6000 feet both in the Adirondacks and the White Mountains. The gentleman who gave me the plant says that in Iceland it grows in deep loam, with very tap-roots 4 feet long, and states that the flowers there are oftener bright pink than white; both the figures above referred to represent them as white. If young plants could be brought to England they might survive the cutting off of their tap-root, and give us a fair chance of establishing and reproducing from seed this very neat little plant. Seed from wild sources is always difficult to get in the case of such plants, which are deeply covered with snow almost before the seed is ripe; and, as I find to be the case with plants like *Arenaria verna* and *Silene acaulis*, which form similar long tap-roots, it is hardly possible to transplant old plants successfully. Plant collectors should bear this in mind, as they are almost always inclined to bring away the finest specimens. *C. Wolley Dod*, February 12.

FLORISTS' FLOWERS.

THE PHLOX: ITS PROPAGATION AND GENERAL CULTURE.

Of all herbaceous perennials this is one of the easiest to grow, and a plant put out in the border, in good soil, will grow and flower in the same place for a quarter of a century, the plants spreading out to a large size, the spikes becoming more numerous and smaller in size year by year. No good gardener would be satisfied with this system of culture, but if there is any love for his plants he would endeavour to bring them up to the highest point of excellence that they are likely to attain. Now, in the first place, the Phlox is a gross feeder, and can appropriate as much rich food as any other garden plant known to me; and this is supplied by trenching in, before planting, plenty of good farmyard manure. If this can be done early in the autumn, all the better; and the plants may be put out either in the autumn or early spring. I like to prepare our

own plants, and it is done in this wise. Take the cuttings in March—as soon as they are long enough, in fact. The shoots, when 2 inches long, may be slipped off with a heel, and be inserted singly in thumb-pots. They will root in a cold frame, or more quickly over a hotbed. When well-rooted, repot each into a 5 or 6 inch pot, and they will form excellent flowering plants for the greenhouse or conservatory the following autumn; each will give one spike of bloom. These are the plants which ought to be planted out in the border next season, and every one of them will produce from three to five spikes. It is marvellous how rapidly these plants send out roots, which in their turn extract the moisture and food properties from the soil. It is therefore necessary to mulch round the roots with some decayed manure, and to give copious supplies of water in dry weather. The stems must be supported with sticks in the early stages of their growth, else they are not unlikely to snap over close to the ground when exposed to the first high wind.

Some may consider that so much trouble is unnecessary, and that Phloxes can be readily propagated by digging up an old clump and chopping it in pieces with a spade. This is so, but such a rough and ready mode of treatment is not gardening in the highest sense, and the best results are impossible if the plants are managed in that way. The Phlox can easily be raised from seeds, which, of course, should be saved from the best varieties. It is easier to raise and flower the plants than it is to produce any distinct and good varieties; but if there are not many good ones in a large batch of seedlings, there are few bad ones. If the seeds are sown early in the spring on a hotbed, the plants will produce flowers the following autumn, and they will make a brave show in the garden. They will, of course, flower best the second year, either in the same place or replanted. *J. Douglas*.

THE PINK.

This is perhaps the most esteemed of all the hardy plants grown for forcing purposes. It is too late to look after the plants now for the present season, but those who are in possession of a stock of strong plants ought to place a few into the forcing-house every three weeks. Keep them free from insect pests, and close the roof glass, and as the flowers show colour let them be removed into the greenhouse to fully develop. As soon as cuttings can be obtained they may be taken off and struck in a hotbed—not where there is any very great heat, but where the heat has subsided. Early propagated plants are essential to the production of good specimens equally as for large heads of bloom. The young plants when rooted should be grown on in boxes, and managed so that they may be planted out about the end of May in an open well-manured piece of ground. The recent searching frost-wind has been very trying to young plants of laced Pinks out-of-doors, throwing them out of the ground, and altogether checking the little growth they made during the mild weather early in February. My own have been frozen hard, and many of them with the roots exposed. The weaker plants may succumb to it or be irretrievably crippled; in that case it is well to be able to draw from a reserve stock of plants wintered in frames. I recommend a pair or two of each variety to be planted in 60-sized pots in the autumn. They are invaluable to fill up any blanks caused by the weather, slugs, or grubs during the winter and early spring.

THE PANSY.

The growers and admirers of this lovely flower are now more numerous than ever. It is, like the Pink, easily grown, and is quite as liable to be injured by being thrown out of the ground during alternate frosts and thaws, and to be devoured by slugs and the leather-coated grubs. To have a good bed of Pansies early in bloom, the plants should be established early, and ought to be moderately strong in the autumn. If the roots have penetrated deep, and have firm hold of the ground, there is no danger of injury

from frost; but in case of accidents I always have a few in pots or boxes sheltered in cold frames. Spring planting must be trusted to in any case for the whole collection this year, it was so difficult to get the cuttings to produce roots during the hot dry weather about the end of summer last year. The Pansy more than the Pink delights in a rich deep porous soil, and a cool, rather moist atmosphere is most suitable during the summer months. The Pansy is a very good subject to grow in pots for spring flowering. In the early years of my florist experience they were popular as exhibition plants at the spring shows, and when bi-monthly shows of the Royal Horticultural Society were established the Pansy was one of the flowers invited, and very beautiful examples were exhibited by Mr. James, now of Farnham Royal, and others. The plants are placed in frames near the glass, and the flowers being protected from the weather are rich and clear in colour. They do not like peat in the soil, but good loam three parts, one part leaf-mould, and as much decayed cow-manure, suits them admirably. A specimen plant in an 8-inch pot will have from eighteen to twenty-four flowers or more open on it at one time. Chinese Primroses, Lily of the Valley, Spiræas, *Dieleytras*, and all sorts of hardy flowers, are invited at spring shows in these latter days, but not Pansies. Even at the great Northern exhibition, Newcastle-upon-Tyne, they are omitted. This should be rectified in the future. *J. Douglas*.

THE MELON-PEAR.

A good deal has been written about this fruit, which has been introduced from Guatemala into the United States. Those who advocate popular names will rejoice over this, which is neither a Melon nor a Pear, nor a compound of either! It is the fruit of a *Solanum* (*S. guatemalense*?) allied to the Egg-apple (popular names again!), the Aubergine, the Tree Tomato (*Cyphomandra betacea*), and not far off from the Tomato itself. Its use, therefore, would be as a culinary vegetable. The Editor of the *Orchard and Garden*, from which we copy the illustration (fig. 49), describes the fruit as somewhat larger than a hen's egg, pale lemon-yellow striped with purple, beautiful and attractive in appearance, and with a distinct spicy aroma. The flesh is pale yellow, seedless, with its exceeding sweetness tempered with acidity, and a flavour decidedly resembling that of the Musk Melon. Peter Henderson—and he ought to know—reports that he has tried it, and formed no high opinion of it; but for all that it might be suitable for some of our warmer colonies either as a fruit or a vegetable.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY. — I agree with every word Mr. Fish has said in reference to the absurdity of appointing an Hon. Secretary as an officer of the Society; this appointment has been in the past a great hindrance to the success of the Society. I do not refer to persons, but to a principle. I know when the state of affairs was something in this wise—the Society had a paid Secretary, a man of considerable energy, and who made many suggestions which had been carried out would, I believe, have been the means of promoting the interests of the Society—but, before his suggestions could reach the Council he had to consult this useless bit of furniture, the Hon. Secretary, and if the suggestions did not meet with the approval of this august personage nothing further was heard of the matter, and the result was that the paid Secretary in process of time lost all interest and allowed things to drift. It must be obvious to all that the senseless arrangement now in operation must engender a feeling of restraint on the part of the paid official. Would any member of the Council adopt such a suicidal policy in connection with his own business? My suggestion is, Get a good man; pay him well, and away with useless restraining influences. The plan proposed is unsound in principle, hostile to the interests of the Society, and opposed to its prosperity. *Observer*.

— The matter of gardeners' Fellowships is so important just now, that I am sure you will permit me to correct a couple of wrong impressions that the misplacement of a comma, and the omission of a word or two in my last letter, must have created. In claiming an equality of power or of status for gardeners, I also advocated that the privileges might be varied with the rate of subscription. The line—I forbear to quote the sentence, reads thus:—"I protested against any inferiority either of power or of status as the privileges"—place a comma after status and the meaning becomes plain. In the next sentence insert the words, "must be patent to all," after practical gardeners, and begin the next sentence with, "The Society has nothing to fear," &c. We have precedents for all I demand on behalf of my class in existing arrangements. Twenty-guinea Life Fellows, or the guinea annual subscribers, have half the privileges, and get all the power and status of the forty-guinea Life Fellows and the four guinea annual subscribers. Why not, then, give guinea Fellows half the privileges of two guineas, and half-guinea Fellows half the privileges of guinea ones? What could be more reasonable or just than such an arrangement? Of the ten privileges of Fellows the Society offers to its Fellows, the following four are those that should be equally enjoyed by all, whatever their rate of subscription or qualifications as honorary members:—1, Admission to all shows; 2, the right of voting at all meetings; 3, free admission to reading-room and Lindley library; 4, a copy of all the publications of the Society. Neither could there be any practical difficulty nor injury to the Society in allowing a few orders of admission, or the distribution of a fair proportion of choice scarce seeds and plants among the cheaper Fellowship. As to the charter, or charters rather, the major portions of them are already repealed by the force of circumstances or the irony of events, and there is nothing in the original charter that forbids justice being done to all classes of Fellows. For as it sanctioned that two-guinea Fellows should have half as much as four-guinea ones, and also that the privileges of one-guinea Fellows should bear some sort of relation to two-guinea ones it will and must also admit half-guinea Fellows to a quarter of the privileges of the two-guinea ones. This is all we claim, and desire to pay for with our money. *D. T. Fish.*

— As everyone in the country expected, the Royal Horticultural Society has come to grief. The Society was always offhanded with us country gardeners; we were not admitted to their cliques. When we went there no one knew us, and if we happened to make ourselves known to a nurseryman of the party they dropped upon us like "carrion crows" for an order. The Society, in fact, cast us off, and of it, I fear, it cannot be said, as Goldsmith, in his *Retaliation*, said of some one—

"He cast off his friends, as a huntsman his pack,
For he knew when he pleased he could whistle them back."

I fear the Royal Horticultural Society will have to whistle pretty loudly and often to recall some of those hounds whom they were in the habit of casting off so shabbily. Of the Royal Horticultural Society, surely it may also be said of them, as of the children of Israel, viz., "A remnant shall be left." With this remnant as a nucleus can they not make a fresh start? There is plenty of cheap land in the country, goodness knows. We read of cheap purchases in every day's newspaper. Lord Salisbury the other day bought a 500-acre farm for £10 per acre: surely the Royal Horticultural Society might do likewise. [It is too near to bankruptcy to do that. *Ed.*] On such space as that they could experiment *ad libitum*. Have it by all means near to a station, on, say, the London and North-Western, when it would be easily come-at-able by people from the northern part of the kingdom, when on their way to and from the great metropolis. Chiswick is too much out of the way; besides, there is no elbow-room there for expansion. Advertise for a piece of land on which may be found a variety of soils, such as light loam, heavy loam, and peat. Let the fresh start be hale and healthy, not a hole-and-corner business, as the history of the Royal Horticultural Society has shown it to be. Bad navigators as they have proved themselves to be, surely there may be found amongst them some experienced "mate" who has been taking quiet note of the different and many rocks on which they have split, and wrecked such a lot of money. With a fresh start—nothing but a fresh start—and a healthy crew can the old ship—not

a phantom one—be again launched. Thus healthily officered there will soon be plenty of recruits and willing cadets ready to join. I doubt the wisdom, in this case, of Solomon's proverb, "In the multitude of counsellors there is safety," but believe rather in the reverse one, viz., "That too many cooks spoil the broth." This leads to the suspicion, and hence to the conclusion, that had there been fewer cooks in the kitchen of the Royal Horticultural Society the soup to-day might have been all that was desired. *A Voice from the Midlands.*

— I am pleased to find so powerful a pen as that of Mr. D. T. Fish employed in condemning the proposed half-guinea Associateship of the Society without full member's privileges. Without doubt Mr. Fish in this matter represents the general opinion of gardeners in relation to this unfortunate proposal. Much as I desire to become a half-guinea member of the Society, I should with all possible contempt reject the offer of Associateship even for half a guinea on the degrading conditions proposed. I decline to admit that the Fellow who pays his guinea per annum brings to the Society more brains or professional knowledge or reputation than I do, merely because his circumstances in life enable him to pay double that which I can afford. I had

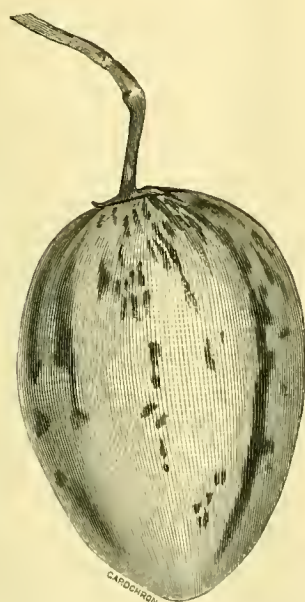


FIG. 49.—THE MELON PEAR (*Solanum guatemalense*), REDUCED. SEE P. 305.

far better in the matter of full and equal privileges become a member of the National Chrysanthemum Society, with a five-shilling annual subscription with the privilege of attending not only three or four fine exhibitions in the year, but also several floral meetings and the Society's biennial meetings, than pay double the amount to the Royal Horticultural Society for dubious privileges and be entirely debarred from the chief and only tangible one, that of taking part in the Society's business meetings. I declare that it is a monstrous absurdity to propose to provide representatives of the gardeners of the country in the shape of gardening members of the Council, and at the same time to shut out the mass of the gardeners from the right to vote in favour of their assumed representatives. Far better such an ignominious proposal had never been made. I beg to be allowed to call attention to the fact, that in the suggestions made to the council by the Fellows' Committee appointed in February, 1886, appears the following recommendation:—"The committee are of opinion that properly recommended working gardeners should be invited to become Associates of the Society at an annual subscription of half a guinea, such members to have the same privileges as the one-guinea members." That report was signed by Mr. H. J. Veitch, who is now a member of the Council; and as one who has always shown himself a real friend and respecter of gardeners, I hope he will have the courage to insist that not only shall there be the same voting privileges granted to half-guinea sub-

scribers as to subscribers of other amounts, but also that he will object to the diverse, invidious, and ridiculous nomenclature proposed of Fellows, Members, and Associates. *Spade.*

JANUARY WEATHER NORTH OF THE GRAMPIONS.—The past month (January) having been of an unusually mild character, as well as the early part of the present one (February), I am induced to send you a statement of the maximum and minimum temperatures up to this date, on the consideration that they may prove interesting to some of the readers of the *Gardeners' Chronicle* to compare with their own. Owing to the mild temperature accompanied with a good deal of sunshine vegetation had made considerable progress and was getting prematurely forward, until the 13th inst., which brought us a change of weather to frost and snow! Bees were seen working on *Garrya elliptica* on January 9, and on the 10th a spotted butterfly was sporting and sunning itself against a south wall of the garden. Bees were again out working on *Crocuses* and *Snowdrops* in front of my house on January 23. Clematis, Roses, Honeysuckles had well started into growth, and fruit-huds were also in a forward state when the frost came. Apricots, though having had a good protection of Fir branches and double matting put on at the commencement of frost, have now some of their flowers fully expanded, although we had 15° of frost on the night of the 14th and 15th inst., they are still uninjured, as the enclosed spray will show. [Plenty of flowers, and uninjured. *Ed.*] The subjoined is an extract from readings daily recorded here. This being a station for the Scottish Meteorological Society, instruments are all regularly tested, and may therefore be relied upon as being correct.

January.

	Max.	Min.		Max.	Min.
	°	°		°	°
1	37	31	17	39	28
2	39	29	18	38	22
3	43	31	19	34	19
4	53	41	20	45	25
5	49	43	21	50	37
6	49	35	22	53	42
7	53	42	23	53	41
8	37	48	24	53	43
9	58	48	25	45	36
10	55	47	26	38	31
11	47	35	27	36	32
12	48	29	28	37	31
13	46	34	29	38	31
14	42	35	30	42	30
15	46	30	31	40	37
16	40	31			

February.

	Max.	Min.		Max.	Min.
	°	°		°	°
1	35	29	12	26	24
2	45	27	13	25	23
3	43	39	14	37	20
4	48	35	15	34	16
5	53	44	16	29	17
6	51	45	17	39	32
7	46	37	18	36	30
8	48	32	19	43	23
9	46	37	20	43	33
10	37	29	21	43	30
11	36	24	22	45	31

J. Webster, Gordon Castle, Banffshire, February 23.

EUCHARIS AMAZONICA.—At Mr. Phillips' Royal Torbay Nurseries, Torquay, I lately saw a fine lot of this plant with dark green foliage, and studded with numerous spikes bearing large flowers. They were growing in strong retentive loam, bordering on clay, minus the usual auxiliaries mostly used in growing *Eucharis*. These plants are unfortunately badly infested with the mite. Yet I can well understand such robust health keeping at bay these pests; but as I looked on these plants and admired their beauty, growing with such vigour in strong loam, and comparing them with the many miserable samples I had seen lately in different parts of the country, struggling hard for a miserable existence in light soil, peat, rotten manure, sand, and in some instances

leaf-mould, literally eaten up with mite and fungus, the question which came in my mind was, to what extent may success or failure be due to the soil? But this I leave to others for an answer. I will only add that the employment of strong retentive loam, instead of the usual mixtures one so frequently sees used and recommended, may be worth the consideration of those who have healthy *Eucharis*, and wish to maintain them in that condition. *C. B. Keetley, Torquay.*

ALLAMANDAS DRYING OFF.—Your correspondent, "Mayflower," says Allamandas should not be dried off. Now I have never seen the Allamanda flower freely one year after another when treated as an evergreen. We have a plant here of *Allamanda Hendersoni* planted out in the stove, which flowers every year eight months out of the twelve, and has done so now for several consecutive years. We cut the plant hard back in January; it begins to bloom in May, and will continue blooming freely until December. We gather flowers from it every week during the summer and autumn months, and I have on several occasions gathered over 100 flowers from it at one time. *Thomas Newton, Campsall Hall.* [Do you not withhold water for some time before cutting the plant back? *Ed.*]

ROSE MRS. GEORGE BRUANT.—Through the kindness of Messrs. Cooling & Son, of Bath, I have received a bloom of this Rose, which is said to be a hybrid between *Rugosa* and *Sombreuil*. As far as I can see it has received but little from *Rugosa*. The foliage might suggest it, and Messrs. Cooling say it does; but the flower itself is a pure Tea, and deliciously fragrant. It is always difficult to judge a forced Rose; but while I have no doubt it will be seen in much better form, I very much question whether there will be much of the Japanese Rose in it. *Wild Rose.*

ARRANGEMENT OF HOT-WATER PIPES.—Mr. Watson does well to draw the attention of the readers of the *Gardeners' Chronicle* to the mismanagement of hot-water pipes. The plan he condemns of placing so many pipes in a body in any one part of the house, often under the stages, is an absurd arrangement, but when this method of fixing them is carried out in a vinery, it is almost worse there than in the plant-houses. In good-sized vineries—as, for instance, those which are three-quarter span in form, the ridge being, say, 14 feet high, and the width of the house 16 to 18 feet—it sometimes occurs that there are six rows of pipes to heat the house, or, if a larger one, eight rows. But where they are placed altogether, and in the front of the house, at a distance of from 2–3 feet from the front wall, and so that they rest in three rows, each one above the other, or four rows of pipes and the same number of rows one on the other, what can be the result of this arrangement? Why, the heat must, in the particular area above the pipes, be much greater than is good for the Vines, while the rest of the house is many degrees colder, simply for the want of a better distribution of the pipes. The Vines over the pipes are always much earlier in starting than those in any other part of the house—in fact, so much so oftentimes that two different methods of treatment in the same house would be an advantage. Many times I have seen the bunches of Grapes over the pipes ready for thinning while the bunches at the top of the house were not even in bloom. Under such conditions it is a wonder if the foliage over the pipes does not become infested with red-spider; indeed, it is seldom they do where the Vines are started at a time which obliges much firing to be employed when they are in flower. Anyhow much more labour is necessary to prevent a spread of this pest where the heat is centred in one place than where the pipes are arranged in a more rational manner. Of course there are two sides to every question, and some persons may say this is the most convenient way when the vinery has to be used for a variety of purposes—the growing of plants as well as Grapes; but even in such case it is not necessary to cluster them all in one part, for surely means could be found to divide and so arrange that the heat would be equalised throughout the house. Where the house is intended for a vinery simply the pipes should be spread about the house and over the top of the border. The first pipe may rest on the wall-plate, assuming there is one. This pipe will act as a warmer to the air coming by the front light. The Vines are generally planted near to the front wall, say, 6 inches from it; the next pipe should be 2 feet from the first, and the remainder the same

distance apart. The pipes can be supported by light iron girders let into the front wall of the house and supported by pillars at the opposite side of the border. In this manner the heat is equalised over the house, and there is seldom any difference appreciable in the growth stages of the Vines, and not nearly so much risk of the foliage being attacked with red-spider. *S.*

—Without coming in contact with them one would hardly credit the ignorance of some gardeners concerning the essentials conducive to the welfare of the occupants of a house. The climatological essential is the most important item to be considered in indoor gardening, and Mr. Watson does well to call attention to it at p. 235. I must endorse his opinion with regard to the equal distribution of heat in a house, and in order to obtain this object it is necessary that the hot-water pipes should be distributed over the whole surface, and not confined, as is now generally the case. Piping now-a-days is comparatively cheap, and the cost incurred by the addition would repay itself if only by the saving of fuel. The generality of plants should rest in the winter time; but this cannot be when, in order to keep the frost and bitter winds out of another part of the house, the plants in the vicinity of the pipes are overheated. This is an evil which ought at once to be remedied, especially at an establishment as Kew, which is visited by gentlemen and gardeners of every grade and nationality, most of whom expect to find horticulture, as well as things botanical, carried out in a practical and systematic way. *F. Ashton.*

BASIC CINDER.—In answer to "A. G. B." in last week's issue of this journal, respecting basic cinder, its composition and adaptation to vegetative uses, we may say, in the first place, that its chemical composition varies largely, according to the (a) composition of the pig-iron, (b) the extent to which the oxidation of the iron is carried during the process, (c) the proportion and nature of basic addition made to the charge, together with that of the furnace lining worn away. The average composition, however, may be stated as follows:—Phosphoric acid, 13 to 20 per cent; lime, 40 to 50 per cent; magnesia, 4 to 6 per cent; oxide of manganese, 3 to 5 per cent; alumina, 2 per cent; about 14 per cent. oxides of iron, and 8 per cent. of silica. The favourable action of phosphoric acid in the economy of plant-life is well known, and one of the most important points connected with Basic slag is, that it contains no sulphuric acid, and therefore it can be used with great advantage instead of superphosphate for root-crops on soils where the "finger and toe" disease is prevalent. Dr. Wagner says—"The more than 200 of experiments on different soils and plants most exactly observed, have shown that the finely-powdered slag is not only in the highest degree active upon moor and meadow soils, but also upon ordinary arable and garden soils, producing exceptionally high increase in crops." Fair plant-growth results have been obtained upon chalky land, but the best returns have been obtained by using this manure on peaty, sandy, loamy, and poorly calcareous soils. In poor soil it seems to equal superphosphate in its action, as not only the phosphoric acid but also the lime and magnesia are absorbed by the plant. Mr. Percy C. Gilchrist says, "In looking carefully at the experimental evidence of the value of this manure it will be seen that the beneficial action of the slag, like that of superphosphate, is very much aided by using with it other manures to give the necessary nitrogen and potash salts required by the soil, such as dung, nitrate of soda, sulphate of ammonia, and sulphate of potash. I can hardly too strongly insist upon this point. From experiments made at Rothamsted with basic slag it was found that when this manure replaced superphosphate double the quantity was required, that it did not act so quickly as superphosphate, but was more lasting in its effects. It should therefore be very useful as a manure for Vine borders, Roses, and fruit trees; also for Onions, Potatoes, and root crops generally. *J. J. Willis, Harpenden.*

RAT'S-TAIL FERN.—In your Notices to Correspondents of February 25, "G. P." wants to know the name of the Rat's-tail Fern. Seeing his inquiries remain unanswered, I would state that I have heard the name applied to the following Fern, *Hymenolepis spicata*, Presl. (syn. *H. revoluta*, Kunze, syn. *Achrostichum spicatum*, Linn., from the Malayan Archipelago) fronds linear, lanceolate, smooth, more or less of the upper portion abruptly contracted and revolute, forming a fertile linear spike. Whether

the term is a general one or not I cannot say. It certainly has a very "rat's-tail" look about it, and is probably what "G. P." inquires about. *John Fielden, The Museum, York.*

SCOTLAND.

GLASGOW INTERNATIONAL EXHIBITION, 1888.

This Exhibition, like that of Manchester held last year, has the advantage of standing in grounds already laid out. Glasgow, with the experiences of the past, has been or will be, able, with the help of the civic authorities, to erect at the outskirts of the West End Park a building capacious enough for all exhibits. The greater part of the park will form part and parcel of the Exhibition, the Exhibition grounds covering an area of about 12 acres, and that part of the park in connection therewith about 48 acres more.

Kelvin Grove Park, barring "The Green," is the oldest of all the Glasgow parks, and it is only a ten minutes' run from the principal railway termini of the city; moreover, it is one of the best laid-out of the city parks, having special features favourable for landscape art. The walks and drives over its undulating surface will form a very pleasing promenade for visitors. The building itself is to be erected in the low grounds at the south-west corner abutting on the Dumbarton Road, which connects Partick with Glasgow. The Kelvin winds through the grounds, and although it is not so pellucid a stream as it once was, the sewage which at one time befouled it has been diverted by means of sewers, and carried beyond the city boundary. The committee have resolved to deepen the Kelvin stream opposite to the buildings, for the better accommodation of naval models and life-saving apparatus. There is to be a length of 1500 feet and a width of 90 feet secured for this purpose, which will be deepened to an average of about 6 feet, and doubtless this will form not the least of the special features of the Exhibition. The Glasgow University buildings, the bases of which are about 150 feet above the bed of the Kelvin, surmount the rising grounds between the river and the railed-off space, and are, as the committee in their prospectus say, "well adapted for the effective display of electric lighting and pyrotechnic illuminations, as well as for the enjoyment of musical promenades and other entertainments which it is intended to provide." The adjacent space to the west and north of the main building will be available for special departments, chief among which will be machinery; and those who wish to exhibit living products of horticulture can have sufficient space for designs from Park Grove Terrace northwards, and up to the base of the Museum. This is likely to form a very interesting display, the ground being every way suitable for the purpose. The classification of exhibits invited under the heading of horticulture and floriculture, comprise:—1, Ornamental trees, shrubs, Conifers, flowers, illustrations of, and materials used in floral designs, &c.; 2, Hothouses, conservatories, vineries and their equipment, including plants; 3, Garden implements, vases, flower-pots, &c.; 4, Borderings for walks and flower-beds, park-seats, chairs, garden statuary, fountains; 5, Rustic arbours, houses, chairs, bridges, &c.

ARONICULTURE.

1, Timber and trunks of trees, abnormal growths with specimens of barks, leaves, flowers and seeds, ship timber, shingles, laths, staves, wood for street paving, ornamental woods used in design and furniture, dye woods, preservation of timber, illustrations of planting and protecting forests. 2, Collections, illustrations, and descriptions of destructive insects.

Of course, to make these look effective in whole or in part, would require some design and some method of arrangement—in fact, they need not all be necessarily in or about one place. What, for instance, would be suitable for a group in the main building

might not be effective outside, and *vice versa*. With proper distribution, however, if horticulturists and arboriculturists will aid the scheme by sending their wares it is found an impetus is certain to be given that will be felt by all who are interested in gardening and forestry. That there is no want of money in the concern is already well known, upwards of a quarter of a million being already subscribed. However, most of our projected showing in Scotland has hitherto been either killed or made unsuccessful by the want of a little genius and foresight in catering; and by being niggardly, as in the case of Edinburgh, and remunerating decently only after the venture has begun to pay. If exhibitors of all kinds will come forward and do their duty, judging by the calibre of those gentlemen at the head of the affair, they are certain not to go unrewarded. The "Entertainment Committee" is anxious to provide such a variety of entertainment during the Exhibition over and above general exhibits as will draw the people in their tens of thousands. Apart altogether from other auxiliary displays it has been decided to hold at least two great horticultural shows—one about midsummer, and the other in the autumn, with the view of exhibiting such products as catch the public eye—one we take it to be encouraging plant growing in pots, and the other chiefly for a display of the more prominent fruits, extending over three or four days on each occasion. Some impetus certainly is required in the West of Scotland, tempting prizes now-a-days being conspicuous by their absence, and as we know it is useless to trust to exhibitors either at home or from a distance for mere honour and glory. A.

FOREIGN CORRESPONDENCE.

BIARRITZ.

I LEFT London, snow lying thickly on the ground, and this was the case pretty generally along the line to Paris, which had its full share. At Bordeaux the snow was lying very thick; at Arcachon, from the top of the observatory, snow was to be seen all over the district. Dax was more favoured: there was a little here and there, which had disappeared by the morning. Whether the hot spring (158° Fahr.) had anything to do with the rapid disappearance of the snow was a question with me, as I walked some distance into the country and saw none. Soon after leaving Dax there was snow more or less, and at Bayonne there was a fairly good representation of a Scotch winter, and it has continued till this forenoon, when the wind changed, a little rain fell and the atmosphere, which was very cold, became moderately mild and the snow at Bayonne and Biarritz began to disappear, and if the thaw continues I may leave here by Thursday or Friday and get to the borders of Spain. Meantime, I have been hunting up other objects and amongst these at the Marquis de Folin's study I was introduced to the Bathysiphons (?) he has fished up from the briny deeps at depths of 600 metres. I next went to the shop of Mr. J. Moussempes, druggist, Biarritz, who placed before me three books in MS., by his cousin Pierre Thomas Ducourran, to me perfect marvels; and I would recommend all interested in literature who visit Biarritz to call and see these books. I hardly dare venture to describe them, as it would be impossible for me to do them justice; suffice to say that a greater exhibition of talent and industry I have never met with. The first volume is devoted to illustrations of the vegetable kingdom, the drawings perfect and the plants carefully and minutely dissected, nothing omitted, and these by thousands, crowded on the pages as if the artist had made up his mind to compress everything in the smallest compass without reducing. I turned over leaf after leaf and the further I went the greater was my astonishment. The next book I examined comprised birds, done in the same painstaking manner; and the third volume was devoted to fish, depicted with the same skill, and the same painstaking detail—all appeared to have been done from Nature, the colour-

ing was by the daughter. After the examination I asked Mr. Moussempes if his cousin had any other occupation, and he replied that he had devoted his whole life to these subjects. "And where is his herbarium of the plants?" I asked, "Swept away as rubbish," he replied. "And the books would have gone the same way had I not secured them, and I should like for the honour of my departed cousin that the world knew of them, and the man who produced them. I have his likeness here you see, and I wish some journal would give a record of his works and his life." At this point Mr. Moussempes disappeared for a few minutes, and when he reappeared from a recess behind his shop, I observed he was covered with dust, but he held up a handful of mouldy-looking weather-stained sheets with the cover loose; these he placed beside me with the remark, "You may like to see this," and, indeed, I did, as it was *Theatron Florum*, the first time I had seen it, and I was deeply interested in this ancient volume, published five years after our Parkinson's *Paradisus*. "Would he sell it?" I said. "No! I will sell none of these books," Peter Barr. February 28.

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

A NUMEROUSLY attended meeting of the committee of this Society took place at Anderton's Hotel, Fleet Street, on Monday evening last, the President (E. Sanderson, Esq.) in the chair; and among those present were Messrs. W. K. Woodcock, T. B. Hague, J. G. Newsham, and T. Udale, who had attended earlier in the day as a deputation from Sheffield to arrange the details of the provincial show in that town on November 16 next. A hearty resolution of welcome to these gentlemen was passed by acclamation, which was ordered to be entered upon the minutes. Mr. Woodcock returned thanks, and stated that the proposed provincial show of the National Society was exciting a great deal of enthusiasm in the town, and that the guarantee fund was being so generously subscribed to that it would exceed the sum named in the first instance. The representatives of the Tooting and Wimbledon Societies were also present. The minutes of the last meeting having been read, which set forth that for the future the Gold Medal of the Society would be of the value of five guineas; the Silver-gilt Medal, 25s.; the Silver Medal, 16s. 6d.; and the Bronze Medal, 9s. 6d., and that no affiliated society should be allowed to have more than ten medals without a special vote of the committee—some correspondence was read from York and other places relative to the provincial show. Mr. Lazenby, the Secretary of the York Society, expressing a desire to have the provincial show of 1889 in that city. The Finchley and Derby Chrysanthemum Societies were admitted to affiliation, and four new members were elected. The report of the sub-committee appointed to carry out the arrangements of the provincial show at Sheffield was read, and it set forth among other particulars that as the medals of the National Society are so highly appreciated by amateurs, several would be offered at Sheffield, but successful exhibitors would have the option of taking cash instead, if they desired. The report was unanimously adopted. The schedule of prizes is not yet complete. The schedules of the September, November, and January exhibitions of the Society at the Royal Aquarium were then submitted by the sub-committee appointed to receive them. In the case of the September show the Dahlia classes have been revised, and some set apart for amateurs only. The schedule of prizes at the great show in November has been considerably revised, and those who stage groups of Chrysanthemums, arranged for effect can now add an edging of Ferns or foliaged plants, provided such edging does not exceed a foot in width beyond the space marked out for the group. Quite a new feature has been introduced in the form of a Challenge Trophy for competition by societies—the 1st prize, a Silver-gilt Medal and £10; the 2nd, a Silver Medal and £5, which are offered for twenty-four Chrysanthemums, twenty-four incurved, and twenty-four Japanese, and the blooms may be the production of one or more growers at the option of the society competing. The definition of amateur has also been enlarged, and there are classes for amateurs

who do not employ skilled labour, and also for those who employ but one gardener only. The class for a collection of Grapes has been thrown out, and one for three bunches of Gros Colmar substituted for it. The schedule was adopted, together with that for the January show, and the proceedings closed with hearty votes of thanks to the President, Vice-President, and Secretary, as this meeting concluded what is regarded as the winter session of the Society.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE annual meeting of this Association was held on Tuesday March 6, at 5, St. Andrew Square, Edinburgh. There was a crowded attendance. Mr. D. P. Laird, President, occupied the chair. The eleventh annual report, which was read by the Secretary, Mr. Robertson Munro, stated that the Association had carried out its objects with such signal success that it might now be regarded as occupying a prominent position amongst British Horticultural Associations. During the year sixteen papers had been read, fourteen ordinary and one honorary member had been added to the roll, and fifty-three exhibits had been placed on the table by twenty-seven members. The financial statement showed a balance in hand of about £11. The office-bearers were then appointed as follows:—Hon. President, the Duke of Buccleuch; President, Mr. Alex. Mackinnon, Scoon Palace, Perth; Vice-Presidents, Messrs. D. P. Laird and Robert Morrison, West Register Street; Secretary, Mr. Robertson Munro; Treasurer, Mr. A. D. Mackenzie; Council, Messrs. Bell, Morton Hall; Simpson, Rosebank Cemetery; Morris, Hay Lodge; Hugh Fraser, Leith Walk Nursery; and Chapman, Easter Duddingston Lodge. The Chairman moved that the Association instruct their Secretary to send a letter of congratulation to Professor Bayley Balfour on his recent appointment in Edinburgh University. Mr. Malcolm Dunn intimated that book prizes or certificates would be offered by the Council to assistant gardeners for essays on various subjects, a list of which was submitted. The members were shown a new seedling Rhododendron by Mr. M'Hattie, Newbattle, and a Clematis indivisa by Mr. Mackinnon, Melville Castle. The last mentioned exhibit was 11 feet 2 inches long, and when cut possessed 900 blooms.

THE WEATHER.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MARCH 17. (AVERAGE OF FORTY-FOUR YEARS).

Mar. 11	42°·0	Mar. 15	42°·4
" 12	42°·1	" 16	42°·6
" 13	42°·2	" 17	42°·7
" 14	42°·3	Mean for the week ...	42°·3

THE PAST WEEK.

The following summary record of the weather for the week ending, February 27, is furnished from the Meteorological Office:—

"The weather has been fairer generally than that reported of late, although a good deal of cloud has prevailed in most districts.

"The temperature has continued below the mean in all parts of the kingdom, but at the end of the period the thermometer was rising briskly. Over Scotland the deficit has been 4°, and over Ireland between 4° and 6°; but in most parts of England it has been between 5° and 9°, and in 'England, S.,' as much as 10°. The highest of the maxima, which were generally recorded on March 5, ranged from 45° over the east and north of England to 53° in 'Ireland, S.' The lowest of the minima, which were registered on rather irregular rates, varied from 17° to 18° in Scotland, from 19° to 22° in Ireland, and from 18° to 26° over England.

"The rainfall has been very considerably less than the mean in all districts.

"Bright sunshine shows a decided increase on that recorded last week, the percentage of the possible amount of duration ranging from 21 in 'Ireland, N.,' and 22 in 'Scotland, E.,' to 37 in 'Scotland, W.,' and 40 in 'England, N.W.'"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending March 5.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	4 below	0	52	— 22	+ 107
1. SCOTLAND, E. ...	4 below	0	53	— 36	+ 41
2. ENGLAND, N.E. ...	5 below	0	49	— 45	+ 30
3. ENGLAND, E. ...	8 below	0	67	— 66	+ 107
4. MIDLAND COS. ...	8 below	0	63	— 72	+ 116
5. ENGLAND, S. ...	10 below	0	66	— 82	+ 164
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	4 below	0	44	— 41	+ 43
7. ENGLAND, N.W. ...	6 below	0	49	— 62	+ 61
8. ENGLAND, S.W. ...	9 below	0	54	— 116	+ 189
9. IRELAND, N. ...	4 below	4	39	— 48	+ 20
10. IRELAND, S. ...	6 below	3	38	— 80	+ 65
— CHANNEL ISLANDS	8 below	0	36	— 102	+ 108

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.
Principal Wheat-producing Districts.	Tenths of Inch.		Inch.	Percentage of possible Duration since Jan. 3, 1888.
0. SCOTLAND, N. ...	5 less	42	6.7	30
1. SCOTLAND, E. ...	4 less	35	3.8	22
2. ENGLAND, N.E. ...	4 less	29	2.3	35
3. ENGLAND, E. ...	4 less	28	2.4	33
4. MIDLAND COS. ...	4 less	24	1.9	28
5. ENGLAND, S. ...	4 less	25	2.5	27
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	7 less	27	5.4	37
7. ENGLAND, N.W. ...	6 less	32	2.4	40
8. ENGLAND, S.W. ...	8 less	29	3.1	35
9. IRELAND, N. ...	6 less	29	3.8	21
10. IRELAND, S. ...	7 less	25	3.9	30
— CHANNEL ISLANDS	6 less	38	3.6	33

NOTICES TO CORRESPONDENTS.

BOOKS: *W. G.* You can get the book from Bell & Sons, York Street, Covent Garden, London, W.C.

CAMELLIA LEAVES FALLING: *J. W.* We frequently have Camellia leaves sent to us looking exactly as yours do. Everything may be right with the cultivation, except that perhaps too much water was afforded them on being housed. Doing this can cause a layer of cells to form in the leaf-stalks just beyond the point of natural severance from the shoot. The watery cells are loosely packed together, making the leaf-stalk weak at that point, and unable to bear the weight of the leaf—therefore its fall. The obvious remedy is to restore the balance between absorption by the roots and transpiration by the leaves; that is at the period of housing, and afterwards also, to give much less water at the roots, and to let the plants enjoy all the air and sun possible. Many greenhouse plants suffer from this undue watering in

autumn and winter. Much better let them suffer from too little water. We may say that heavily smoking the house with either Tobacco-leaf or paper causes discoloration of the leaf. The bud dropping complained of follows, most probably, the loss of foliage.

DRAWINGS OF INSECTS: *S. H.* We do not know where you could procure these. See Miss Ormerod's *Methods of Insect Life*.

DRY ROT: *L.* See *Gardeners' Chronicle*, November 13, 1886. "Prevention is better than cure." Free ventilation, and the use of timber soaked in chloride of zinc or sulphate of copper. We fear, when once the dry-rot gets established under such circumstances, there is no cure.

ECHINIS BULBS: *J. F.* Your bulbs are swarming with the bulb or Echinis mite. Burn all bulbs so affected; you can do nothing else.

MEDICINAL PLANTS: *F. S.* We are of opinion that these will not pay as an article of commerce, the demand being very limited. There are at present very few growing them, and if a number of persons grew them the competition would lead to such a reduction of profit that it would pay no one as a speculation. To grow medicinal plants for use is quite another thing. It is not possible to buy drugs of such excellent quality as could be grown, because such quantities of inferior quality are exported from Germany at fabulously low prices as to exclude really good articles for commerce. Thus, if really good belladonna or aconite root be wanted, you must grow it yourself. Henbane leaves, owing to the difficulty of growing the plant and the uncertainty of its appearance, even in the wild state, lead to the obtaining at present a remunerative price, but the continuance of this would of course depend on competition. We know of no work on the cultivation of medicinal plants. We refer you to a few papers in the *Pharmaceutical Journal*, i., p. 812; v., pp. 350, 448; vii., p. 1017; viii., pp. 30, 301; xii., p. 237. *H.*

NAMES OF FRUIT: *L. Allegro*. 1, King of the Pippins; 2, Claygate Pearmain, probably; but we cannot be sure, the specimens are so much bruised.—*G. Phillips*. Bruised beyond recognition.

NAMES OF PLANTS: *A. Taylor*. *Cypripedium insigne*.—*T. Robertson*. *Struthiopteris germanica* probably; send fertile frond.—*G. W. D.* *Odontoglossum crispum*—a poor form.—*T. S.* *Dendrobium speciosum*.—*E. M. E. W.* *Phaius* (No. 1) *Wallichii*, (No. 2) *grandifolius*; *Franciscia calycina*. *Azalea* we do not name.—*W. A. F. I.* *Cyrtodeira fulgida*; 2, *Pelleouia Daveaniana*; 3, *Alocasia macrorrhiza*. We do not undertake to name *Roses*.

NITRATE OF SODA: *F. S.* This is not a good manure for the Pine-apple, as it tends to develop leaves and crown rot, and to keep the ball of earth too moist, by its power of attracting moisture from the air. 2. We do not know what would be a suitable quantity per gallon of water, but it would be very small; the dressing for grass land being at about the rate of 3 cwt. per acre.

ORANGE: *H. H.* The fruit is probably a seedling variety from a bitter Orange; cannot be identified as a cultivated sort.

PETROLEUM OIL AND VINES: *Leah*. Yes, the oil would seriously injure, and perhaps kill them. There is an Emulsion of Petroleum sold by some nurserymen and horticultural sundriesmen which would do all that you require, and is harmless.

PLANTS IN CULTIVATION: *G. L.* Impossible to say. Say 5000 species, with many more varieties; 4000 flowering plants.

PRIMULAS: *W. J. M.* We have not seen a better selection of *Primula sinensis* hybrids than those you sent. We know that the firm which supplied the seeds from which they were raised pays great attention to the cultivation of the *Primula*.

SEQUOIA, WELLINGTONIA: *W. T. J.* *Wellingtonia* is a garden name. The proper name is *Sequoia gigantea*.

"THE GARDENER": *L. M.* This periodical ceased to appear about the end of the year 1882.

CATALOGUES RECEIVED.

W. W. JOHNSON & SONS, Bridge Street, Boston—Vegetable, Flower and Farm Seeds.

W. HEAN, QUICK & CO. Barnstable—Seeds.
J. CARTER & CO., 237 and 238, High Holborn, London, W.C.—Farm and Grass Seeds.

JOHN ETHERINGTON DIXON, Gainsborough—Seeds.
DICKSONS & CO., 1, Waterloo Place, Edinburgh, N.B.—Farm Seeds.

W. P. LAIRD & SINCLAIR, 73, Nethergate, Dundee, N.B.—Agricultural Seeds.

THOS. KENNEDY & CO., 103, High Street, Dumfries, N.B.—Agricultural Seeds.

JAMES CARTER & CO., 237, 238, High Holborn, London, W.C.—Lawn Seeds.

LITTLE & BALLANTYNE, Carlisle—Farm Seeds.

F. AND A. DICKSON & SONS, Chester—Farm Seeds.

HOWDEN & CO., Post Office Buildings, Inverness, N.B.—Agricultural Seeds.

E. P. DIXON & SONS, 57, Queen Street, Hull—Farm Seeds.

SUTTON & SONS, Reading—Farm Seeds.

EDWARD GILLET, Southwick, Mass., U.S.A.—North American Wild Flowers, &c.

WILLIAM WATT, Cupar and Perth, N.B.—Farm Seeds.

WALLEN & SON, Ledeberg, Gand, Belgium—Cypripediums.

COMMUNICATIONS RECEIVED.—*J. H.*—*W. S. Marburg*.—Comte de K., Ghent.—*J. H. B.*, Ventimiglia.—*F. S.*—*E. H.* (many thanks).—*G. L.*—*S. H.*—*W. T. I.*—*H. E.*, Jersey.—*J. H. H.*, Trinidad (photos, not arrived).—*J. V. & Sons*.—*A. A. P.*, Brussels.—*G. H.*—*C. H.*, Copenhagen.—*H. H. D'O.*—*F. v. M.*, Melbourne.—*W. L.*, Glasgow.—*A. J. K.*—*C. B. P.*—*W. N. & Co.*—*W. F.*—*Truth*.—*E. Jenkins*.—*J. W. S.*—*D. D. T. F.*—*W. Bull*.—*M. J.*—*J. B.*—*J. C. Tonkins*.—*W. J. M.*—*C. W. D.*—*H. W. W.*—*W. M. B.*—*F. P.*—*E. S.*, Auckland.—*R. A. R.*—*Hugh Low & Co.*—*G. S. J.*—*F. S. & Co.*—*J. W.* (next week).—*J. Shrimpton* (nothing unusual).—*J. Bryan* (next week).—*A. B. Dryden* (next week).—*J. M.*—*J. C.*—*Sutton & Sons*.—*W. G. S.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, March 8.

[We cannot accept any editorial responsibility for the unjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. *ED.*]

No alteration. Market clear, with steady business. *James Webber*, Wholesale Apple Market.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Aralia Sieboldi</i> , doz.	6 0-18 0	Ferns, in var., doz.	4 0-18 0
<i>Azaleas</i> , per dozen	.24 0-36 0	<i>Ficus elastica</i> , each	1 6-7 0
<i>Bouvardias</i> , per dozen	9 0-12 0	Foliage plants, vari-	
<i>Cinerarias</i> , dozen	6 0-12 0	ous, each	2 0-10 0
<i>Cyclamens</i> , per dozen	12 0-24 0	<i>Genistas</i> , dozen	8 0-12 0
<i>Cyperus</i> , per dozen	4 0-12 0	<i>Hyacinths</i> , doz.	8 0-10 0
<i>Daffodils</i> , dozen	9 0-12 0	<i>Lily of the Valley</i> , 12 pots	15 0-18 0
<i>Dentzias</i> , per dozen	9 0-12 0	<i>Marguerites</i> , doz.	9 0-12 0
<i>Dracena terminalis</i> , per dozen	30 0-60 0	<i>Mirtles</i> , per dozen	8 0-12 0
— <i>viridis</i> , per doz.	9 0-24 0	<i>Palms</i> , in var., each	2 6-21 0
<i>Dielectric</i> , dozen	12 0-15 0	<i>Pelargoniums</i> , scar-	
<i>Epiphyllums</i> , doz.	12 0-24 0	let, per dozen	3 0-6 0
<i>Ericas</i> , various, doz.	9 0-18 0	<i>Primula sinensis</i> , per dozen	4 0-6 0
<i>Enonymuses</i> , in var., per dozen	6 0-18 0	<i>Solamums</i> , per dozen	9 0-12 0
<i>Evergreens</i> , in var., per dozen	6 0-24 0	<i>Spireas</i> , dozen	9 0-15 0
		<i>Tulips</i> (pots of), doz.	6 0-10 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Acacia</i> , or <i>Mimos</i> , per bunch	9 0-1 6	<i>Marguerites</i> , 12 bun.	3 0-6 0
<i>Anemone</i> , French, 12 bunches	2 0-4 0	<i>Mignonette</i> , 12 bun.	3 0-6 0
— <i>fulgens</i> , 12 bun.	6 0-9 0	<i>Narcissus</i> , paperwhite, Fr., 12 bunches	2 0-4 0
<i>Arum Lilies</i> , 12 blms.	4 0-6 0	— <i>various</i> , 12 bun.	1 6-4 0
<i>Azaleas</i> , 12 sprays	0 6-1 0	<i>Pelargoniums</i> , 12 spr.	1 0-1 6
<i>Bouvardias</i> , per bun.	0 6-1 0	— <i>scarlet</i> , 12 spr.	0 6-9 0
<i>Camelias</i> , 12 blms.	1 0-3 0	<i>Primroses</i> , 12 bun.	1 0-2 0
<i>Carnations</i> , 12 blms.	1 6-3 0	<i>Primulas</i> , double, 12 sprays	1 0-1 8
<i>Cinerarias</i> , 12 bun.	6 0-12 0	— <i>single</i> , 12 bun.	4 0-6 0
<i>Cyclamens</i> , 12 blms.	0 6-1 0	<i>Roses</i> , Tea, per doz.	3 0-8 0
<i>Daffodils</i> , double, 12 bunches	6 0-9 0	— <i>coloured</i> , dozen	2 0-4 0
— <i>single</i> , 12 bun.	8 0-18 0	— <i>red</i> , per dozen	4 0-9 0
<i>Deutzia</i> , 12 bunches	4 0-9 0	— <i>Safrano</i> , dozen	1 6-3 0
<i>Eucharis</i> , per dozen	4 0-6 0	<i>Snowdrops</i> , 12 bun.	1 0-4 0
<i>Gardenias</i> , 12 blooms	6 0-12 0	<i>Tuberose</i> , 12 blms.	1 6-2 0
<i>Heliotropes</i> , 12 spr.	0 6-1 0	<i>Tulips</i> , 12 blooms	0 6-1 0
<i>Hyacinths</i> , Roman, 12 sprays	0 6-1 0	<i>Violets</i> , 12 bunches	1 0-1 6
<i>Lilium longiflorum</i> , 12 blooms	6 0-9 0	— <i>French</i> , bunch	1 6-2 0
<i>Lily of Valley</i> , 12 spr.	0 6-1 0	— <i>Fr. Parme</i> , bun.	3 6-4 6
		<i>White Lilac</i> , French, per bunch	3 6-6 0

* Orchid bloom in great variety, but the demand not very good.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 2-sieve ... 2 0-5 0	Pears, per dozen ... 3 0-6 0
Grapes, per lb. ... 3 0-5 0	Pine-apples, Eng., lb. 1 0-2 0
Kent Cobs, 100 lb. ... 40 0-45 0	—St. Michael, each 2 0-5 0
Lemons, per case ... 12 0-21 0	Strawberries, oz. ... 1 3-2 0

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, p. doz. ... 6 0-...	Mustard and Cress, punnet ... 0 4-...
Beans, Kidney, lb. ... 3 0-...	Onions, per bushel ... 9 0-...
Beet, red, per dozen 1 0-2 0	Parsley, per bunch ... 0 6-...
Brus. Sprouts, lb. ... 0 6-...	Potatoes, per cwt. ... 4 0-5 9
Carrots, per bunch ... 0 6-...	—Kidney, per cwt. 4 0-5 0
Cauliflowers, each ... 0 3-...	Rhubarb, per bundle 0 4-...
Celery, per bundle ... 1 6-2 6	Seakale, punnet ... 1 6-2 0
Cucumbers, each ... 1 0-2 6	Shallots, per lb. ... 0 6-...
Endive, per dozen ... 2 0-...	Spinach, per bushel ... 4 6-...
Green Mint, bunch ... 1 0-...	Spruce, per bundle ... 1 0-...
Herbs, per bunch ... 0 4-...	Tomatoes, per lb. ... 2 6-...
Leeks, per bunch ... 0 6-...	Turips, per bunch ... 0 6-...
Lettuce, per dozen ... 1 6-...	
Mushrooms, punnet 1 0-1 6	

POTATOS.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton. Markets heavy at above prices.

SEEDS.

LONDON: March 7. — Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., state that there is now more business doing generally in farm seeds. With a continuance of the present favourable weather an exceedingly brisk demand would prevail. White Clover seed holders are now asking 2s. more money from the lowest point; other varieties kept steady. Perennial and Italian Ryegrasses move off at late rates. Sanfoin is getting scarcer; available stocks are now reduced to narrow limits. Spring Tares, both Koenigsberg and Gores, sell freely on former terms. Hemp seed remains very firm. Canary seed shows no quotable change. Scarlet Runners are eagerly bought as soon as offered. White Runners also have a quick sale. There is rather more inquiry for Blue Peas.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended March 3:—Wheat, 30s. 2d.; Barley, 29s. 9d.; Oats, 15s. 10d. For the corresponding week in 1887:—Wheat, 32s. 9d.; Barley, 25s. 1d.; Oats, 16s. 2d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: March 7.—Quotations:—Savoys, 5s. to 12s. per tally; Cauliflowers, 7s. 6d. to 14s. do.; Seakale, 2s. 6d. to 3s. 6d. per sieve; Spinach, 2s. 6d. to 3s. 6d. do.; Broccoli, 3s. to 3s. 6d. do.; Brussels Sprouts, 5s. 6d. to 7s. do.; Turnip-tops, 3s. to 4s. per sack; Greens, 5s. to 6s. per dozen bunches; Turnips, 3s. 6d. to 4s. do.; Carrots, 2s. 6d. to 3s. do.; Rhubarb, 3s. to 5s. per dozen bunches; Celery, 10d. to 1s. 6d. per bundle; Cabbage Lettuces, 8d. to 1s. 6d. per dozen; Leeks, 2s. 6d. to 3s. do.; Beetroots, 6d. to 10d. do.; Endive, 2s. to 3s. do.; Horseradish, 1s. to 1s. 6d. per bundle; English Onions, 12s. to 15s. per cwt.; foreign do., 10s. to 13s. per bag of 110 lb.; English Apples, 4s. to 7s. per bushel; American Apples, 14s. to 22s. per barrel.

STRATFORD: March 6.—Quotations:—Savoys, 10s. to 12s. per tally; Greens, 4s. 6d. to 5s. loose; Parsnips, 6d. to 1s. per score; Mangels, 21s. to 25s. per ton; Swedes, 22s. to 25s. do.; Watercress, 6d. per dozen; Apples, 7s. to 8s. per bushel; Carrots, 3s. 6d. to 4s. per dozen bunches; Beetroots, 8d. to 9d. per dozen; Sprouts, 3s. 6d. to 4s. per bushel; Rhubarb, 2s. to 2s. 6d. per dozen; Celery, 1s. to 1s. 6d. per roll; Lettuce, 1s. to 1s. 3d. per dozen; herbs, 4s. per dozen bunches; salads, 2s. to 2s. 6d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: March 6.—Adequate supplies, and rather firm market for best sorts. Quotations:—Regents, 70s. to 105s.; Magnum Bonums, 45s. to 105s.; English Rocks, 35s. to 70s. per ton.

SPITALFIELDS AND COLUMBIA: March 7.—Quotations:—Beauty of Hebron, 120s. to 140s.; Champions, 50s. to 60s.; Victorias, 50s. to 70s.; Regents, 60s. to 90s.; Magnum Bonums, 45s. to 70s. per ton.

STRATFORD: March 6.—Quotations:—Scotch Regents, 80s. to 105s.; English do., 70s. to 80s.; Beauty of Hebron, 108s. to 120s.; Magnums, 45s. to 55s.; do., light land, 55s. to 75s. per ton.

NOTICE OF REMOVAL

HORTICULTURAL SUNDRIES.

MISS J. SLAYMAKER, daughter of the late Mrs. Slaymaker, who for 43 years was Tenant of a Shop in the CENTRE AVENUE, COVENT GARDEN, begs to inform her Customers that she has

REMOVED HER BUSINESS OF FLORIST AND HORTICULTURAL SUNDRIES FROM COVENT GARDEN to 25, CATHERINE STREET, W.C.

(directly opposite the main entrance of Drury Lane Theatre), where the Business will be conducted on the same lines and with the same attention to the wishes of Customers and the Public as hitherto.

THE SHOWROOMS at the New Premises will be stocked with all the Latest Designs in BOUQUETS, WREATHS, CROSSES, BASKETS, &c., also all HORTICULTURAL and FLORIST REQUISITES. The favour of an early visit of inspection is respectfully solicited.

The New Premises are situated less than one minute's walk from the Flower Market and Central Avenue, Covent Garden Market, where Messrs. SLAYMAKER & Co. for nearly half a century have enjoyed the support which, with the increased facilities now at their command, they trust still to receive.

SLAYMAKER & CO.,

25, CATHERINE STREET, COVENT GARDEN, W.C.

CATALOGUES Free on application.

STANDEN'S MANURE.

Established over 30 years.

THIS OLD-ESTABLISHED MANURE is acknowledged by most of the leading practical Gardeners in the United Kingdom and the Colonies to exceed all others in general fertilising properties and staying powers. It promotes a rapid, healthy, and robust growth to plants generally. It is a clean and dry powder, with very little smell, which renders it particularly adaptable for ladies interested in plant culture.

TESTIMONIAL FROM AMERICA.

"We have used STANDEN'S MANURE for some years, and have never found any fertiliser so safe and valuable. Its action is literally 'magical.' We have tried it on unhealthy plants which seemed past recovery, and it has restored them to their natural vigour. However valuable other fertilisers may be, none can be compared to this. Camellias grown in the same pots for 10 years are as healthy as if just repotted.—C. M. Hovey, Boston, U.S.A., May 27, 1887."

Sold in TINS, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each; and in KEGS, at reduced prices, 28 lb., 12s. 6d.; 56 lb., 23s.; 112 lb., 42s. each.

May be obtained from all Nurserymen and Seedsmen in the United Kingdom and the Colonies.

SOLE MANUFACTURERS—

CORRY, SOPER, FOWLER & CO.

(LIMITED).

FINSBURY STREET, LONDON, E.C.

Bonea—Bonea—Bonea

CRUSHED BONES in all sizes for Vine Borders, Lawns, Potting, Grass Lands, &c.; also BONE MEAL for Poultry Feeding, Garden GUANO, dissolved BONES, and special MANURES for all purposes. For prices, apply to

HARRISON, BARBER, AND CO. (Limited), Garratt Lane, Wandsworth, Surrey, S.W.

CARSON'S PAINT

Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations. Non-Poisonous Paints for Inside Work, Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGEY YARD, LUDGATE HILL, E.C. BACHELOR'S WALK, DUBLIN.—Discount for Cash.

CARNATION SEED, Home-saved, from my splendid collection of named sorts, packet of 50 seeds, 1s.; collection of 12 varieties, 3s., post-free.

General SEED CATALOGUE free to all Customers. THOS. BUTCHER, Nurseryman and Seed Merchant, Croydon.

SUTTON'S SEEDS

GENUINE ONLY FROM SUTTON & SONS, READING

NATIVE GUANO.—Price £3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt. A 1 cwt. sample bag sent, carriage paid, to any Station in England on receipt of P.O. for 5s.

Extracts from Twelfth Annual Collection of Reports:—

NATIVE GUANO for POTATOS, VEGETABLES, VINES, and FRUIT.—G. COUSINS, Watton-on-Thames. "Used for Potatoes. Result: very excellent crop; remarkable size and good quality. Can highly recommend it."

D. WILLIAMS, Head Gardener to Rt. Hon. Lord Wimborne, Canford Gardens, Wimborne. "Used for Vines, Peaches, Strawberries, flowering plants, kitchen garden crops, with very good results. First-class manure for pot Strawberries."

NATIVE GUANO for ROSES, &c.—T. ST. CLAIR, Rose grower by appt. to H.R.H. the Princess of Wales, Strawberry Hill. "Used for standard and dwarf Roses. Result: excellent growth, fine bloom, and perfectly free from blight the whole season."

A. F. BARRON, Royal Horticultural Soc., Chiswick. "Without doubt a very valuable manure, and easy of application."

Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials may be obtained. Agents Wanted.

WOOD & SON'S

HORTICULTURAL SPECIALTIES, ORCHID FEAT. AND MANURES WERE AWARDED

15 CERTIFICATES OF MERIT 15 IN 1887.

W. W. & S.'s ORCHID FEAT: Special "A 1" Quality is used and recommended by all the leading Orchid Growers. Prices: Prepared, ready for use, 9s. 6d. per sack; ditto, turves, 7s. 6d.; ditto, per yard, 25s.

W. W. & S.'s Celebrated YELLOW FIBROUS LOAM, Splendid Sample now on offer. Per sack, 3s.; per ton, 16s.

W. W. & S.'s VINE MANURE—"LE FRUITIER." Prices: per ton, £17 10s.; 10 cwt., £9; 5 cwt., £4 10s.; 1 cwt., 19s.; 56 lb., 11s.; 28 lb., 6s.; 7 lb., 2s. 6d.

Condensed Farm yard Manure, 7s. 6d. per sack. Fertilising Moss, bags, 1s. and 3s. 6d.; per bush, 7s. 6d.

Composts, special for Exhibitors of Chrysanthemums, Ferns, Greenhouse and Stove Plants, Lawns, Vines, and Fruit, &c.

Potato Manure. "SUCCESS," for Exhibitors, 14 lb., 4s.; cwt., 17s. 6d.

Liquid Manure Powder, the "Perfect Stimulant," for Pot-plants, Roses, Flower-beds, Strawberries, Vines, &c., per 7 lb., 3s.; 14 lb., 5s.; 5 cwt., 12s.; cwt., 21s.

W. WOOD & SON, Wood Green, LONDON, N., Or of all Seedsmen and Seed Potato Dealers.

PEAT FOR ORCHIDS, &c.

Peat of first-rate quality, suitable for

ORCHIDS, RHODODENDRONS, AZALEAS, HEATHS, FERNS,

and other choice Plants, for Sale in any quantity at moderate prices either by the sack, or by the yard; also first-rate PEAT MOULD.—For printed particulars, apply, D. CAMERON, Forester, Mount Mascul Estate, North Cray, Foot's Cray, Kent.

SANKEY AND SON'S GARDEN POTS.

From Messrs. FISHER, SON & SIBRAY, Handsworth Nurseries, Sheffield.

"DEAR SIR,—We have pleasure in testifying that after having used your pots for the past twenty-five years we have found them all that could be desired."

From Mr. JOHN FORBES, Buelch Nurseries, Hawick, N.B.

"GENTLEMEN,—I have much pleasure in testifying to the unequalled satisfaction your pots have given me. The quality is all I could desire, and promptitude of dispatch wonderful."

ORCHID PEAT, best quality; **BROWN FIBROUS PEAT** for Stove and Greenhouse use, **RHO-DODENDRON** and **AZALEA PEAT**. Samples and Prices to **WALKER AND CO.**, Farnborough, Hants.

SAND, PEAT, LOAM, MATS, &c.

Coarse and Fine **SILVER SAND**, **Fibrous PEAT**, **Yellow Fibrous LOAM** (Top Spit from an Old Pasture), and **COCOA-NUT FIBRE REFUSE** supplied in large or small quantities upon Special Terms to Gardeners. New Archangel **MATS** (large size), 10s. per bundle of ten mats; Large Heavy Russian **MATS** 7s. per dozen; **RAFFIA** (for tying), 7s. 6d. per doz. lbs. Price LIST Post-free.

BRINKWORTH & SONS, READING.



GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d.
PEAT, best black fibrous ... 4s. 6d. " 5 sacks for 20s.
PEAT, extra selected **ORCHID** ... 7s. 6d. " 5 sacks for 35s.
LOAM, PREPARED COMPOST ... 1s. per bush, 3s. per sack
LEAF or **PEAT MOULD** (sacks included)
SILVER SAND, coarse, 1s. 6d. per bush, 14s. half-ton, 24s. ton.
RAFFIA FIBRE, best only ... 1s. per lb.
TOBACCO CLOTH, or **PAPER** ... 8d. lb., 24 lb., 18s.
SPHAGNUM MOSS, all selected, 3s. per bush, 8s. per sack.
CHUBB'S "PERFECT" FER- In BAGS.
TILIZER (the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c.) ... 1/6 3/- 5/- 8/- 14/- 22/-
CRUSHED BONES, or Bone Dust 1/2 2/- 3/6 8/- 12/-
VIRGIN CORK (Best Quality only) ... 3/- 5/6 10/6 17/6
RUSSIAN MATS, **RAMBOO CANES**, **PERUVIAN GUANO**, **NITRATE OF SODA**, **HORTICULTURAL CHARCOAL**, &c.
PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6s. each.
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 3d. each; 10 sacks, 11s.; 15 sacks, 15s.; 20 sacks, 18s.; 30 sacks, 25s.; 40 sacks, 30s.; Truck-load, loose, free on rail, 28s. Limited quantities of G., special quality granulated, in sacks only, 2s. each. Terms, strictly Cash with order. (Bankers, Union Bank of London.)

CHUBB, ROUND & CO., WEST FERRY ROAD, MILWALL, LONDON, E.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 26s. per ton, in 2-bushel bags, 4d. each.
YELLOW FIBROUS LOAM, **PEAT-MOULD**, and **LEAF-MOULD**, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, **GARDEN STICKS**, **VIRGIN CORK**, **TOBACCO CLOTH**, **RUSSIA MATS**, &c. Write for Price LIST.—**H. G. SMYTH**, F.R.H.S., 21, Goldsmith's Street, Drury Lane (late called 17A, Coal Yard), W.C.

GARDEN REQUISITES,

of best quality, as supplied to the Royal Gardens, &c.
BEST COCOA-NUT FIBRE REFUSE, 10 sacks for 10s., 15 for 14s., 20 for 18s., 30 for 25s.; two ton truck, 28s. Free on rail.
RUSSIA MATS, from 12s. to 18s. per dozen.
FINEST ORCHID PEAT, 7s. per sack.
BEST BROWN FIBROUS PEAT, 5s. per sack, 5 for 22s. 6d.
BEST BLACK FIBROUS PEAT, 4s. 6d. per sack, 5 for 20s.
COARSE SILVER SAND, 1s. 6d. per bushel; 14s. 2-ton; **PURE LEAF-MOULD**, 3s. per sack. [25s. per ton.
YELLOW FIBROUS LOAM 3s. per sack.
BEST MUSHROOM SPAWN, 4s. per bushel.
RAFFIA, **LABELS**, **STICKS**, **BAMBOO CANES**, **VIRGIN CORK**, **CHEMICAL MANURES**, &c.
SPHAGNUM MOSS, 6s. per sack. **CHARCOAL**, 8s. per sack.
SPECIALITE TOBACCO PAPER and **CLOTH**, each 5d. per lb. 25 lb. for 18s. Price List free by post.
W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

EPPE'S SELECTED PEAT

Is acknowledged to be the best for all kinds of CHOICE PLANTS, FERNS, HEATHS, &c.; and their
Specially Selected do. for Orchids, by innumerable unsolicited Testimonials. Rhododendron PEAT, LEAF-MOULD, LOAM, SAND, SPHAGNUM, COCOA-NUT FIBRE, CHARCOAL, &c., and all kinds of Garden Requisites, and NURSERY STOCK. For Price List and Testimonials, **EPPE & CO., RINGWOOD, HANTS.**

"BULWELL POTTERIES," NOTTINGHAM.

Carriage and Breakage Free on £10 Orders. Half Carriage and Breakage Free on £5 Orders. Samples (carriage free) gratis, prices free on application.

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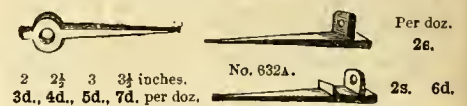
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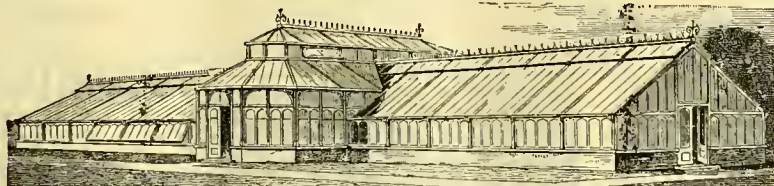
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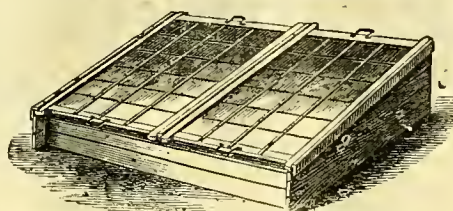
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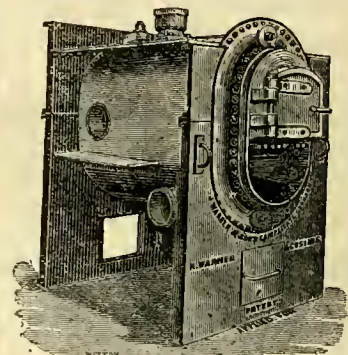
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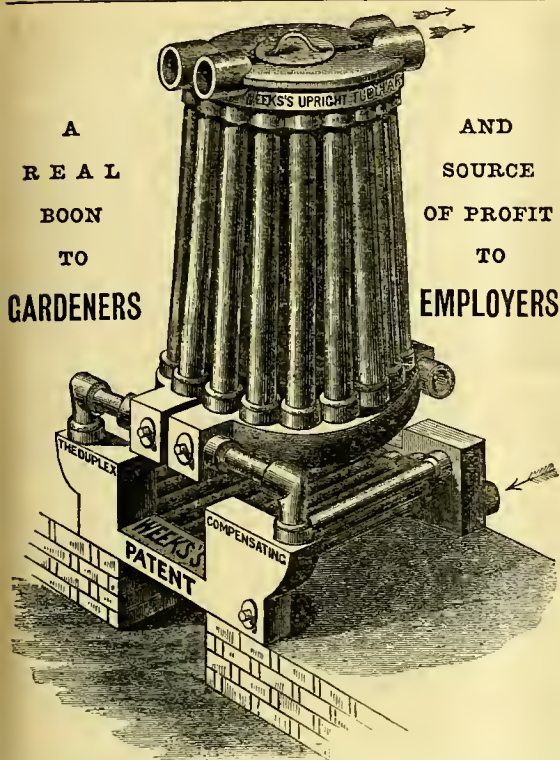
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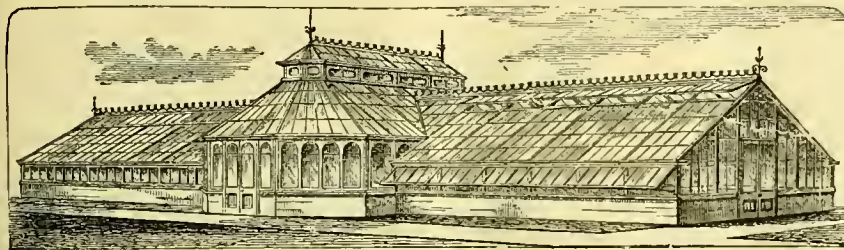
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1888.

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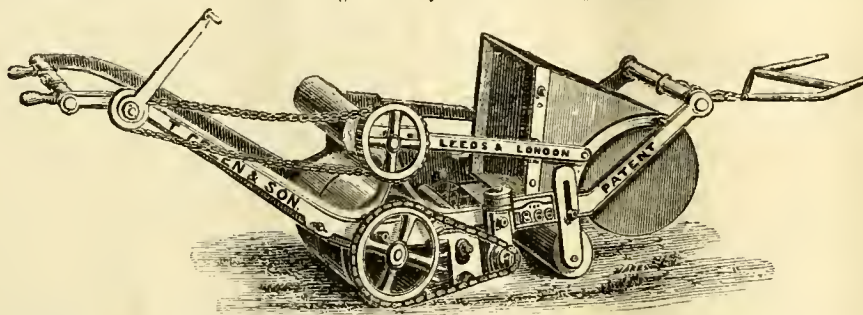
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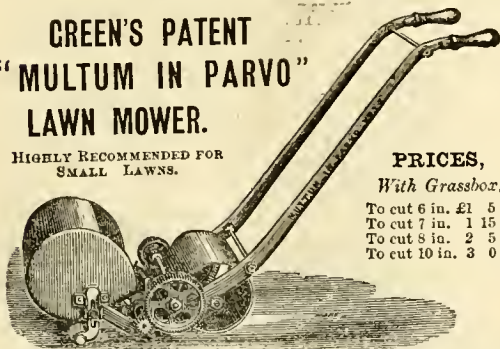
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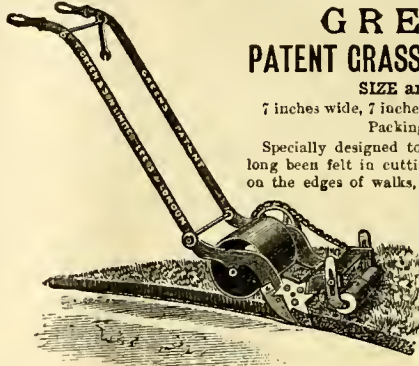
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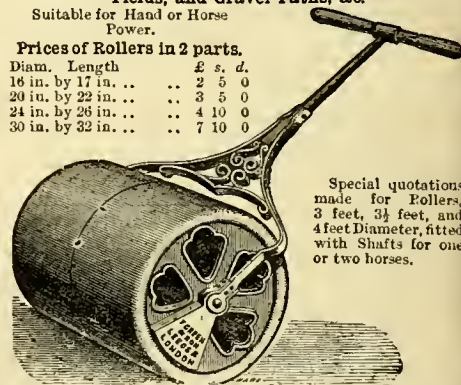
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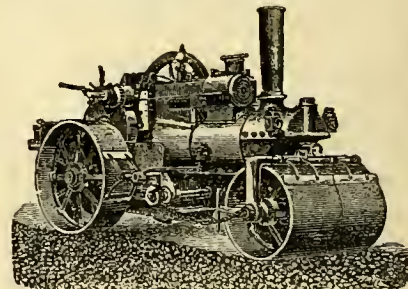


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The GARDENERS' CHRONICLE

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SATURDAY, MARCH 17, 1888.

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Post-Free, 3½d.

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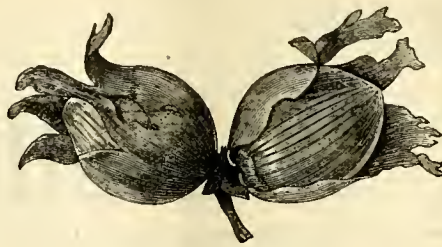
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ALDER, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.
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OAKS, 1½ to 2, 2 to 3, and 3 to 4 feet.
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FIR, Spruce, 1½ to 2, 2 to 2½, 2½ to 3 to 4, and 4 to 5 ft.

All these are stout, good plants, and properly rooted. The prices quoted will be very reasonable in order to clear. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

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Spring 1888.
NEW WHITE ROUND POTATO, WEBBER'S "EARLY WHITE BEAUTY." Awarded First-class Certificate, Royal Horticultural Society, September 21, 1887. (See *Gardeners' Chronicle*, January 28.) The many Testimonials received from well-known authorities speak so for the excellence of this splendid new white-skinned Potato, that a lengthy description is unnecessary. In short, it possesses every good quality. It is of handsome appearance, with shallow eyes, and the superior quality of Hebron, both for quality and productiveness, whilst its dwarf habit and extraordinary quickness of maturation make it invaluable for early work. It has been tried on all kinds of soil with most satisfactory results, producing in every case a fine crop entirely free from disease. Send post-card for illustration and read Testimonials. Price per lb., 1s.; 7 lb., 6s. Sample pound, post-free for sixteen penny stamps. Address, F. WEBBER, Quarry Hill Nursery, Tonbridge.

THE PARKS, &c., COMMITTEE of the METROPOLITAN BOARD OF WORKS will meet at the Office of the Board, Spring Gardens, S.W., on WEDNESDAY, the 28th day of March, 1888, and will then be prepared to OPEN TENDERS, by persons who may be willing to contract, for CLEARING OUT THE LAKE in BATTERSEA PARK, in the Parish of Battersea, in the County of Surrey. Persons desirous to submit Tenders may obtain Copy of Specification, Form of Tender, and other particulars, on personal application at the Office of the Superintending Architect of the Board, at Spring Gardens, between the hours of 9 A.M. and 4 P.M. (or on Saturdays between the hours of 9 A.M. and 2 P.M.), until Tuesday, the 27th day of March, 1888. The Tenders, which must be on the Form supplied from this Office, and be addressed to "The Clerk of the Board," are to be delivered at the Office before 4 o'clock on the last-mentioned day; and no Tender will be received after that hour. Any Tender which is not fully filled up in every particular will be rejected. The Committee do not bind themselves to accept the lowest or any Tender. J. E. WAKEFIELD, Clerk of the Board, Spring Gardens, S.W., 14th March, 1888.

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SMALL SHRUBS and CONIFERÆ.—Araucaria imbricata, 8 to 9 inches, 40s. per 100. Abies orientalis, 8 to 9 inch, 12s. per 100. American Arbor-vite, 10 to 12 inches, 50s. per 1000. Cupressus Lawsonii, 12 to 15 inches, 60s. per 1000. Cupressus erecta viridis, 8 to 8 inches, 40s. per 1000; ditto, 14 foot, extra, 12s. per 100. Cupressus stricta, 8 to 8 inches, 40s. per 1000; ditto, 1½ foot, 14s. per 100. Pinus insignis, 1 year, 4s. per 100. Pinus Cembra, 2 years, 10s. per 1000. Pinus Nordmanni, 2 years, 6s. per 100. Pinus excelsa, 1 year, 4s. per 100. Pinus canariensis, 1 year, 5s. per 100. Retinospora plumosa, 10 to 12 inches, 10s. per 100. Retinospora squarrosa, 6 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. Thuia Lobbi, 10 to 15 inches, 40s. per 1000. Thuiaopsis dolabrata, 8 to 8 inches, 4s. per 100; ditto, 12 inches, fine, 12s. per 100. Yew, English, 8 to 9 inches, 6s. per 100. Laurel, Portugal, 8 to 9 inches, 8s. per 100. Common Laurel, 12 to 14 inches, 35s. per 1000. Rhododendron ponticum, 4 to 6 inches, 60s. per 1000; ditto, 2 to 3 inches, 30s. per 1000. GARLES MITCHELL, Nurseryman, Stranraer.

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100 Herbaceous and Alpine Plants for 25s.

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BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain.

CATALOGUES gratis.

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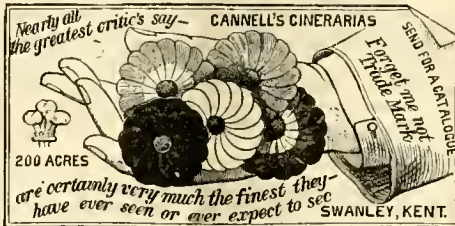


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PURE SNOW-WHITE AURICULA.—One of the most beautiful hardy spring flowering plants in cultivation. Two for 1s., free.

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SCABIOSA (Double).—A really fine hardy plant for garden decoration or cut flowers. Many fine colours. 1s. per dozen, free.

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FOXGLOVES.—Gloxinia-flowered, Dean's grand new large spotted varieties, very fine, twelve for 1s. 6d., six for 1s., free.

ALSO the FOLLOWING FREE-BLOOMING HARDY PLANTS: should be in every garden; all at 1s. per dozen, free:—Pure white Thrift, fine edging and spring flower; Malva moschata alba and rosea, beautiful pure white and rose, blooms all summer; Sweet Williams, the finest dark and giant Auricula-eyel; Arabis alba, white spring-flowering plant, beautiful variegated foliage.

STRAWBERRY PLANTS.—Selected crowns, transplanted, Black Prince Improved, British Queen, Alpha, Pauline, Sabreur, Viscontesse II. de Thury, Duke of Edinburgh, King of the Earlies, and other extra sorts. 3s. per 100, free. Also the Captain (Laxton's), twenty for 1s., free.

S. SHEPPERSON,
Florist and Seedsman,
PROSPECT HOUSE, BELPER,
DERBYSHIRE.

NATIVE GUANO of the "A B C" Process.

Proved the most Reliable and Safe Fertilizer for Garden use.

(Reprinted from the *Kingston and Surbiton News*, February 25, 1888.)

THE "GLENHURST" GARDENS IN 1887.

ABOUT this time last year we published the list of prizes taken by Mr. Waite, gardener to Colonel the Hon. W. P. Talbot, of "Glenhurst," Esher. The total number was 108, and that was regarded as a marvellous result when all the circumstances were considered, and especially having regard to the fact that the exhibitor did not shirk, but rather courted, competition with the best known growers in the kingdom.

In the course of a chat with Mr. Waite, whose fame as a grower of flowers, fruit, and vegetables—chiefly the two latter, perhaps—we gleaned a few bits of information which are put together in a connective form. We reprinted last year, from one of the horticultural journals, a full description of the "Glenhurst" gardens, which have recently been augmented by taking in more land for vegetable growing. The main object here is to get crops, fine and large—as the saying runs—in the ordinary season; and not to produce fruit and all vegetables by purely artificial means at unheard-of periods. Regarded in this light, Mr. Waite is doing good work, and by his experience may profit, for he is most communicative as to his method, and ever ready to show how it is done.

First he remarked that Mr. Waite has had charge of the "Glenhurst" grounds just over seven years, and being intimately acquainted with the soil and its peculiarities—for such do exist—he is able to treat each and every part in the way best adapted to help on its productiveness. Colonel Talbot has been in possession of the estate about five years, and with so sympathetic an employer as he has proved, the tiller of the ground is encouraged to do his very utmost.

To all enquiries as to the secret of his success, Mr. Waite replies, in effect, that it is a liberal and judicious employment of the artificial manure prepared by the Native Guano Company. Mr. Waite had not previously tried the native guano, being somewhat prejudiced against patent fertilisers because of the deleterious effects which follow upon a too free application of them. His experience was not gained all at once; it was the outcome of intelligent watching of results, and Mr. Waite's opinion now is that the native guano is far and away the best and safest compound of its kind. No amount of it will burn up and practically destroy growth, which is more than can be said of most other such articles; and therein is one of its greatest recommendations.

We asked how the powder was mostly used in the treatment of plants, and Mr. Waite thus described his mode:—If for flowers or Strawberries in pots, first water well, then sprinkle the guano over the surface of the earth, and water again twelve hours later. Thus, the powder absorbs some of the moisture over which it lies, and the second watering carries it right down to the roots without waste. The same system should be adopted with Vine borders, and all other crops. The peculiar property of the guano is plainly shown when applied to plants of the Brassica tribe. If spread over the surface, the roots work upward rapidly, and when the surface is moved there will be found quite a network of white fibres in search of nourishment. For Gloxinias this guano is unrivalled; they fairly revel in it, and those sent from "Glenhurst" last year were grand specimens, not only as to colour and size, but also in vigour. This last quality was exemplified by the same plants being taken to two shows, and carrying off 1st and 2nd prizes in good company.

For grass land and lawns native guano is equally valuable, and it has the advantage of being the cheapest dressing, when compared with others. Last year it was used here at the rate of 10 cwt. per acre, and heavy crops of grass resulted.

In walking through some of the houses our attention was drawn to some Vines of an early sort, including Black Hamburg, Madresfield Court, Muscat Hamburg, and Riton Muscat. These were all in a most healthy state, with an abundance of fruit showing; here the guano is freely used. The first crop of Strawberries, with berries set, also looked well, and had thriven exceedingly upon the doses of powder ladled out to them.

In the Mushroom-house guano plays an important part; the beds are freely watered with the powder in solution, and the crops that are cut are "prodigious." Mr. Waite uses Sutton & Sons' spawn, and in the last week of January he was fairly startled by the sight which met his eye one morning. There was a cluster of Mushrooms the like of which he had never seen before, so he lifted it out with the soil around. There were ten fungi, all of the size of a breakfast saucer, thick as to flesh and perfect in form, besides a number of smaller growth. The block filled a good-sized basket, and was sent to Bending, whence the spawn came. Messrs. Sutton had never had such a sample sent them, and it was photographed. Writing to Mr. Waite, Messrs. Sutton said, that whilst they knew they sent out good spawn, yet they were sure the cultivation must have been exceptionally good to obtain such results.

Evidence of preparation for the coming season was seen in various departments. The Chrysanthemums which are intended for the autumn shows look strong and healthy, and do well on the diet of guano, which is given without stint. In boxes, early Peas, a good distance apart, are being got ready for planting out in the open, where they are carefully protected for some time; and in frames, Cauliflowers, Celery, and

Carrots are being brought on. The culture of the Tomato is a special feature here, and a new house is being erected specially for that popular vegetable-fruit. Native guano suits this plant in every way, and its beneficial effect is to be seen in the hardy plant, now ready to put out, . . .

With regard to the list of prizes appended, which number 144 exactly, it will be seen in what company they have been taken. The most honourable awards, probably, are those gained at Kensington, where the best growers of the kingdom are represented. The shows at Chiswick, Liverpool, Southampton, Shrewsbury, and Maidstone, also excited keen competition; while few will deny that it was a "feather in his cap" to bring home the Silver Cup from the Crystal Palace for the best and most varied collection of vegetables, open to all England. It will be noticed that Mr. Waite pretty well swept the board in classes for which Sutton & Sons offered prizes. He has bought the bulk of his seeds from that noted firm for some years past, and pins his faith to what they send out.

READING SPRING SHOW.

First prize ... Six table plants.
Second prize... One dish of Strawberries.

READING SUMMER SHOW.

First prize ... Six table plants.
" " " " Six Peaches.
" " " " One dish of Peas.
Second prize... Collection of vegetables, six dishes, Fidler's special prize.

Third prize ... " " Sutton & Sons' " "
" " " " Three bunches black Grapes.

READING AUTUMN SHOW.

First prize ... Table plants,
Third prize ... Apples.
" " " " Twelve bunches of Chrysanthemums, incurved.

ROYAL HORTICULTURAL SOCIETY, KENSINGTON.

(Five shows: June, July, August, September, October.)

Third prize ... One Melon. Carter's prize.
Second prize... One brace of Cucumbers. " "
First prize ... One dish of Broad Beans. " "
Second prize... Three heads of Cabbages. " "
" " " " One dish of Tomatos. " "
" " " " One dish of Runner Beans. " "
Fourth prize... Collection of vegetables, 12 dishes. " "
Second prize... Three stems of Brussels Sprouts, Deverill's prize.

First prize ... Collection of vegetables. Fidler's prize.
Second prize... One dish of Peas.
" " " " One brace of Cucumbers. Sutton & Sons' prize.

" " " " One brace of Melons. " "
Third prize ... Two dishes of Peas. " "
First prize ... Three heads of Cauliflowers. " "
" " " " One dish of Broad Beans. " "
Fourth prize... Two dishes of Peas. " "
Third prize ... Six heads of Cabbage, two varieties. " "

First prize ... One dish of Tomatos. " "
Third prize ... One dish of Runner Beans. " "
Second prize... Collection of vegetables, eight varieties. " "

" " " " Six Beetroots. " "
Fourth prize... Six Carrots. " "
Second Prize... Six Parsnips. " "
First prize ... Collection of vegetables. Webb & Sons' prize.
Third prize ... One dish of Tomatos. " "

RICHMOND HORTICULTURAL SOCIETY.

Second prize... Six Fuchsias.
First prize ... Collection of vegetables, 12 varieties. Special prize.
" " " " Six early Feros. " "
" " " " Nine Gloxinias. " "
" " " " One dish of Tomatos. " "
" " " " Nine Gloxinias. " "

" " " " Collection of vegetables, six varieties. Sutton & Sons' prize.
" " " " Collection of vegetables, six varieties. Carter's prize.

Second prize... Plants of Tomatos, two.
Third prize ... Six bunches best Geranium blooms.

SHEPPERTON HORTICULTURAL SOCIETY.

First prize ... Six Coleus, distinct.
" " " " Six double Geraniums.
" " " " One brace of Cucumbers.
" " " " Collection of vegetables, twelve varieties.
" " " " Collection of vegetables, open to all England.
Second prize... Twelve Gloxinias, distinct.
" " " " Six Tomatos, one variety.

WIMBLEDON HORTICULTURAL SOCIETY.

First prize ... Collection of vegetables. Sutton & Sons' prize.
" " " " Collection of vegetables, twelve varieties.
Third prize ... One dish of Strawberries.

TWICKENHAM HORTICULTURAL SOCIETY.

First prize ... Collection of vegetables, ten varieties.
" " " " One dish of Tomatos, one variety.
Second prize... Twelve Roses, distinct.
" " " " One dish of Strawberries.
" " " " Twelve bunches cut Gloxinia blooms.
Third prize ... One Melon.

CHERTSEY DISTRICT HORTICULTURAL SOCIETY.

First prize ... Collection of vegetables, eight varieties.
" " " " One specimen Geranium.
" " " " One brace of Cucumbers.
" " " " One green-flesh Melon.
" " " " Twelve table plants.
Second prize... One dish of Strawberries.
" " " " Six Gloxinias, distinct.
" " " " Six British Ferns.
Third prize ... One scarlet-flesh Melon.
" " " " Twelve bunches Geranium cut blooms.

CHISWICK HORTICULTURAL SOCIETY, SUMMER SHOW.

First prize ... Collection of vegetables, nine varieties.
" " " " Collection of vegetables, six varieties. Carter's prize.
" " " " Collection of vegetables, six varieties. Sutton & Sons' prize.
" " " " Three dishes of Potatos.
" " " " Twelve Gloxinias, distinct.
" " " " Six table plants.
" " " " Two dishes of Strawberries.
" " " " One dish of Peas.
Second prize... Twelve bunches of cut Gloxinia blooms.
" " " " Six dishes of fruit, distinct.
" " " " One dish of Tomatos, one variety.
" " " " Six Coleus, distinct.

CHISWICK AUTUMN SHOW.

First prize ... Twenty blooms of Chrysanthemums, 12 in incurved.
" " " " Twelve blooms of Japanese Chrysanthemums, distinct.
" " " " Twelve Japanese Chrysanthemums, distinct.
" " " " Six incurved cut blooms, one variety.
" " " " Six table plants.
" " " " Collection of vegetables, six varieties.
Second prize... Four dishes of Peas, distinct.
" " " " Four dishes of Apples, distinct.
Third prize ... Three bunches of Grapes.

FELTHAM DISTRICT HORTICULTURAL SOCIETY.

First prize ... Best collection of vegetables.
" " " " One dish of Tomatos, one variety.
Second prize... Six button-holes.
Third prize ... Three bunches of Black Grapes.

ESHER HORTICULTURAL SOCIETY.

First prize ... Two bunches of black Grapes.
" " " " Collection of fruit, six varieties.
Second prize... Two bunches of white Grapes.
First prize ... Six Nectarines.
" " " " Collection of vegetables, open, 12 varieties.
" " " " " " 10 varieties.
" " " " Six dishes of Potatos.
" " " " One dish of Tomatos, one variety.
" " " " Twelve Onions.
" " " " One dish of Beans.
" " " " Six table plants.
" " " " Six Coleus, distinct.
" " " " Three Begonias.
" " " " Three exotic Feros.
" " " " Three stove and greenhouse foliage plants.
Second prize... Group of plants arranged for effect.
" " " " Six Fuchsias.
" " " " Nine Carrots.
" " " " One brace of Cucumbers.

LIVERPOOL HORTICULTURAL SOCIETY.

First prize ... Collection of vegetables, twelve varieties.
" " " " Six table plants.
Third prize ... One dish of Tomatos, one variety.

SHREWSBURY HORTICULTURAL SOCIETY.

First prize ... Six Carrots.
" " " " Six Parsnips.
" " " " One dish of Potatos.
" " " " One dish of French Beans.
Second prize... Collection of vegetables. Webb's prize.
Third prize ... Collection of vegetables, 12 varieties, distinct.

MAIDSTONE HORTICULTURAL SOCIETY.

First prize ... Collection of vegetables, not to exceed 30 varieties. Silver Cup.
" " " " One dish of Tomatos, one variety.
" " " " Three heads of Lettuce.
Second prize... Six Carrots.
" " " " One dish of Peas.
Third prize ... Three bunches of black Grapes.

CRYSTAL PALACE SOCIETY.

First prize ... Six dishes of Tomatos, distinct.
" " " " Collection of vegetables, open to all England. Silver Cup.
Third prize ... Collection of vegetables, 12 varieties.

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY.

First prize ... Collection of vegetables. Sutton & Sons' prize.
" " " " Nine table plants.

ROYAL AQUARIUM, WESTMINSTER.

Second prize... Eight table plants.
Third prize ... Collection of vegetables, six varieties. Sutton & Sons' prize.
Fourth prize... Collection of vegetables, six varieties. Webb's prize.

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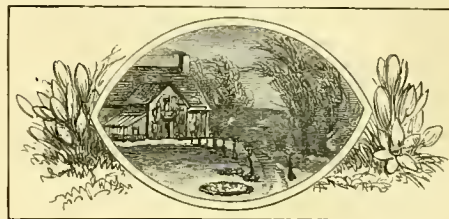
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 17, 1888.

A COVERED LILY BED.

THERE is, perhaps, no class of hardy plants which attracts the attention and tries the skill of amateur gardeners more than Lilies. Many complain that they know neither what kinds to grow, nor how to grow them; and I lately noticed an inquiry in a gardening journal—How can choice Lilies be grown in a cold part of England and on unfavourable soil? Whatever may be the capabilities of the climate and soil in any English county, there will everywhere be some Lilies which fail out-of-doors in that place, but which a covered bed, without any artificial heat, will bring within the range of practical gardening. Such a bed in my garden in Cheshire has proved a great success, and I wish my experience in this matter to be of use to as many gardeners as possible. The composition of the bed is of greater importance than the mode of covering it. I dug out a space 18 feet long and 12 feet wide, to a depth of 4 feet, the length stretching north and south, and secured good drainage at the bottom, laying it with a few inches of brick rubbish. The best staple of soil for the Lilies I wished to grow is peat, of which I used seven or eight loads, with about half as much good fibrous loam, adding leaf-mould, and a few barrowloads of finely broken stone, to keep the soil open. The strength of the soil is graduated from four-fifths peat at one end to nearly half loam at the other. It is covered by a double span frame, made of twelve ordinary pit lights, which rest upon brick walls standing 5 feet out of the ground outside, and 6 feet inside where the soil is left about a foot lower than the outer level to give more head-room. The outside height of 5 feet allows the lights to be easily drawn off and on so as to give the bed the full benefit of air, and of warm spring rains. As much ventilation as possible is given just above the ground line at the sides, by sliding wooden shutters. The door is at the centre of the south end, from which there is a narrow path through the middle of the bed. The lights must be made to bolt, as I learnt by experience, having had all

mine once blown off by a westerly gale. The total cost of this frame was something less than £15. The bed when once planted causes no further expense, either for cultivation or maintenance. Many things may be grown in it besides Lilies, especially Christmas Roses. I have about twenty plants of the variety *maximus* against the back wall, each of the plants giving during three months from the end of October an average of fifty flowers as large as any I ever saw.

But to return to Lilies, which in this bed get the benefit of shelter from wet in winter, from frosty nights in spring, and from burning sun when in flower, for at that time I paint the glass with lime and butter-milk. I will speak chiefly of those which fail with me outside. *L. Humboldtii* is the most conspicuous success. It produces heads of from twenty to fifty buds, but it is better to take off the top of the spike at an early stage, leaving about half the buds; in this way the flowers of those left become much finer. *L. Washingtonianum*, both the type and the distinct and beautiful variety *rubescens*, succeed admirably; so does *L. Parryi*, which ripens seed in abundance, the seed coming up where it falls, and making flowering bulbs in about three years. *L. Hansonii*, though hardy enough, is so early as to get its buds injured by frost outside, but succeeds well under shelter, flowering early in June. *L. Brownii*, too, seems quite contented; a bulb of it, after producing two flowers on one stalk for two seasons, failed to make any appearance at all the third year, but the next year it produced three fine stalks, each with two flowers. This habit of Lilies is well known to observant gardeners: the bulb occasionally collects strength and makes growth all underground for a season. I have found some terrestrial Orchids do the same. It is better not to be too curious about their condition under these circumstances, as the bulbs are doing their duty, and hate to be disturbed. Some of the varieties of *Lilium longiflorum* do very well in this same frame; they live out-of-doors with me, but rarely flower. I am surprised to find that *L. auratum* and *L. speciosum* deteriorate and die out in two or three years under glass, as they do in the open border. *L. Kramerii* fails. I think it wants greater warmth: the same is the case with *L. Neilgherrense* and *L. Wallichianum*. The Cheshire summer is neither hot enough nor long enough for them. *L. Batemannii* and the varieties of *L. elegans* are not very good, but do better than outside. *L. giganteum* requires a light to be removed that it may grow through the top, hence, as it does well without shelter, I no longer admit it. My frame of course requires an occasional smoking, especially as there are Macartney and Banksian Roses on the inner walls. A light dressing in spring renovates the surface of the beds, and helps the seedlings. All the bulbs, when planted, are surrounded with two or three handfuls of coarse river sand or some equivalent, and I often mix bone-dust with the soil below them, which seems to do good.

For the information of those who may be beginning to cultivate Lilies I make a brief mention of a few kinds which do well in the open ground in my indifferent climate. I grow many kinds in the mixed borders, where the clay soil is more or less modified by lighter material, and many in the middle of raised Daffodil beds, composed of good sandy loam. All the Lilies of *L. pardalinum*, including the best of them—*californicum*, do well almost anywhere, but best in peat. *L. giganteum* and *L. chalcidonicum* like warmth and shelter from spring frost, and then do well in either peat or light loam; so does *L. testaceum*. The Martagons are not particular, though the white variety has a tendency to degenerate into small bulbs. *L. canadense* dwindles away in peat, but does admirably well in the rich loam of the Daffodil beds, and from its variety of form and colouring, and spotting, is a most interesting Lily to cultivate. *L. superbum*, which approaches very near it in form and habit, fails with me everywhere. The hybrid varieties of *L. croceum*, which

figure in catalogues as "*umbellatum*," and under other names, are excellent for mixed borders, and succeed in any soil. *L. colchicum*, called also *monadelphum*, is perhaps the best hardy Lily to grow in a stiff soil. It does well in brick-clay, if well drained and well worked, and kept open with plenty of coarse sand. I grow many of this Lily from seed; the seedlings flower at three or four years old, and vary much in shade of yellow, in spots, and in the colour of the anthers. The common yellow Martagon (*L. pyrenaicum*) grows in any soil, but is not a choice Lily; the red variety is worth growing, being the most vigorous of the red Lilies. The more brilliant scarlet *L. pomponium*, the brightest of all, is a capricious Lily, sometimes flowering very well in large bunches, but at others shedding more than half its buds before they open. This is a constitutional fault, and as I find it has the same habit in every variety of soil, I attribute it to atmospheric influences. *L. candidum* and *L. tigrinum* I cannot boast about, for though I grow hundreds of both, they are never in the best form. The former wants a warmer soil than mine. The Tiger Lily does better than before, since I have planted it on very elevated beds in very sandy soil.

I may mention, as an instance of my difficulties of soil and climate, that nothing I can do will persuade the common Crown Imperial to flower with me. However, by perseverance I have contrived to get a good display of Lilies through June and July, so I advise other amateurs who have failed hitherto not to allow themselves to be beaten, for all can do as much as I have done.

I may add that I have several times tried this covered-bed treatment for the North American terrestrial Orchids, but without success, though the material for the trial was abundant and varied. We have still to learn how to grow these splendid plants in England, though my American correspondents will not believe in the difficulty. I thought they would do in this Lily bed, because indigenous seedlings of *O. maculata* come up in the peat and grow into large tubers, producing very fine spikes, and *O. foliosa* does fairly well. Vacant spaces in this bed may be filled up by many plants which will suggest themselves to gardeners, for instance *Heptacas* are now gay by the side of the central path, when their flowers are smothered by snowstorks outside. *C. Wolley Dod*, *Llandudno*.

NEW OR NOTEWORTHY PLANTS.

LAELIA ELEGANS TAUTZIANA, n. var.

This is the grand *Laelia elegans*, that has excited the admiration of so many orchidists, the treasure of Mr. R. H. Measures, of the Woodlands, Stratham, S.W. It comes near that type with the sessile central lacinia which I proposed to call *Mooreana*, and may be grouped under it. Its very large flowers, of the brightest colour, are gorgeous. The sepals are very broad, and light purple, petals cuneate-obovate, blunt, very broad, dark purple, splendid. The lip has white lobes with very dark tips. The mid-line of the disc is broad and dark purple, and there is a yellow space on each side. The mid-lacinia is of the darkest purple, and distinctly emarginate in front, the edges are crenulate on the side. Column purple at the top, sulphur at the base.

Mr. R. H. Measures has kindly given me the history of the plant. I believe your readers will like to know it. "One of Mr. Sander's collectors came across a small batch of *Laelia elegans* growing by themselves. Owing to the great beauty of the flower of one he christened it 'King of the Woods,' afterwards collecting this plant and a few others. The flowers of this I send you. He also discovered another, which he christened and labelled 'King of all the Woods,' and, not satisfied with this christening work, he goes on christening one 'King of these Kings.' He collected and sent them home to Mr. Sander, meeting with a chapter of accidents, breaking his arm, &c., which delayed him, so that in reality these three varieties came in three different batches.

"Being at Mr. Sander's one day I saw the first batch, and purchased the whole. Mr. Sander afterwards kindly informed me when he received the second and third batches, and these I also secured.

"In growth they are quite distinct from any of the other *Laelias*. The bulbs are stouter, the leaves very broad and thick. Some of the pieces are mixed with a stout-bulbed *Laelia purpurata*. I am in great hopes of getting something extra good."

And the best is at the end. As there is already a *Laelia elegans Measuresiana*, Mr. R. A. Measures proposed to me to name his brilliant *enfat chéri* after his rival, Mr. Tautz, of Goldhawk Road. I followed with great pleasure this very chivalrous suggestion. *H. G. Rehb. f.*

ODONTOGLOSSUM DICRANOPHORUM, n. hybr. nat. (?)

Mr. W. Bull kindly sends me this highly interesting *Odontoglossum*. The outside of the flowers fully corresponds to that of my *Odontoglossum subuligerum*, but the details of the lip are totally distinct. It may be conjectured that it is a hybrid, and one cannot help thinking of *Odontoglossum triumphans*, notwithstanding the narrow floral envelopes, and in order to help to lessen one's perplexity one may think of *Odontoglossum Lindleyanum*. The flowers are in a lax raceme, my part showing five flowers, partly fallen. The flower is equal to that of a good *Odontoglossum triumphans*, yet, as already stated, all the parts are narrower. Sepals linear, ligulate, acute, narrow, light yellow, with two large brown areas. Petals broader at the base, narrower at the acuminate apex, with one brown area in the middle, and some brown spots at the base. Lip of the lightest yellow, unguiculate, unguis partly adnate to the column, then oblongo-elliptic till the middle, and finally suddenly contracted into a linear acute yellow mid-lobe, with a brown area in middle. From base to centre projects a single broad, depressed callosity, extending into two free, ancipitous, thickish lamellae, which, with the superior callus, give the aspect of an old-fashioned two-pronged fork, whence the name. Column trigonous, with an angle in the middle, and two square toothletted wings at the top, lightest yellow at the base, pure white at the top. *H. G. Rehb. f.*

CYPRIPEDIUM DILECTUM, n. sp. (hybr. nat.)*

This is an unexpected novelty that was kindly sent me by Messrs. H. Low & Co. It appears to have leaves quite like those of *Cypripedium Boxalli*. I have only one fine flower just expanding, hence I am doubtful whether the petals bend, as in *Cypripedium Boxalli*. I believe, however, they do not, for they are broad at the point, and they are short. The median sepal is narrow, oblong, quite blunt at the top, where there is a short white margin. The light green lamina is covered with rows of irregular spots of a peculiar black, with a hue of Indian purple. The lateral sepals form a narrow oblong light green body, with some short rows of dark lines and spots at the base. The petals are cuneate, oblongo-obovate, and blunt. A dark line of black runs over their middle. The superior part is of a peculiar purple-mauve, excepting near the black line, where it is light green. The base is light green, with numerous black spots. The inferior part is green, with some obscure indigitations of some mauve reticulations. Lip rather slender, central portion two-horned, with retuse median border, yellowish-green outside, full of blackish-purple spots inside. Staminate narrower than in *Cypripedium Boxalli*, trilobed at the apex, mid-lobe roundish retuse, broadest side lobe toothlike. Ovary covered with dense hairs, nearly equal to the light green bract. Peduncle with numerous hairs.

I forego all hypothetical remarks, as I have very

* *Cypripedium dilectum*.—Quasi intermedium inter *Cypripedium Boxalli* et *C. hirsutissimum*; peduncle piloso, bractea ovarium dense bispidium aequante; sepalis impari anguste oblongo obtuso; sepalis lateralibus connatis angustioribus; tepalibus cuneato-oblongo obovatis obtusis; labello gracili; sacco superne bene utrinque cornuto medio retuso, staminodiodo angusto, antice trilobo, lobis lateralibus densifloribus; lobo medio lato obtuso retusiusculo. *H. G. Rehb. f.*

good reasons to hope for the acquisition of further knowledge in a short time. *H. G. Rehb. f.*

CYPRIPEDIUM CALLOSUM (*Rehb. f.*) SUBLEYE, *n. var.*

I have already stated, in Professor Wittmack's continuation of his Excellency Dr. von Regel's *Gartenflora*, that a callosum was represented without any calli on the disc. Mr. R. H. Measures has just kindly sent me a similar flower and a leaf, the latter, too, being distinct. The plant came "out of a batch of *C. callosum*." It might be supposed to be a natural hybrid; but I do not believe it. To begin with, these things have appeared at various places (see *Lindena*, l. xxiii.), then Mr. Regnier would have brought the other parent. Therefore I propose the name above given. *H. G. Rehb. f.*

PHALANOPSIS JOHN SEDEN (LUDDEMANNIANO-AMABILIS), *n. hybr.*

Of all the many surprises which have emanated from that wonderful laboratory at the Royal Exotic Nursery, this is, to my mind, altogether unsurpassed—something quite unique. Its great beauty, is acknowledged by all who have seen it. The flower, 3 inches in diameter, ivory-white, densely and uniformly spotted all over both sepals and petals with small dots of a beautiful light purple, the lip suffused with light rosy-purple; the whole shape of the flower about as intermediate between its well-known parents as can well be imagined—and you have a picture of the new beauty. But the accompanying portrait (fig. 50) from an engraving obligingly lent by the Messrs. Veitch, will give a better idea of the general appearance of the flower, than any words of mine. It was raised by Mr. Seden from *P. amabilis* (the original plant of Blume, better known as *P. grandiflora*—not the *P. amabilis* of gardens), crossed with the pollen of *P. Luddemanniana*, the seed having been sown in November, 1881. At the present time the plant has five oval-oblong, dark green leaves, 4 to 6 inches long. The peduncle has produced but a single flower—evidently a first attempt, for as both parents produce several flowers it is almost certain that the offspring will do the same as it gets stronger. Flower exactly 3 inches in diameter; the lateral sepals oblique, $\frac{3}{4}$ inch in diameter, upper one elliptical, obtuse, and scarcely narrower; petals broad, obtuse, almost an inch in diameter; lip three-lobed, lateral lobes fleshy, sharply keeled below, partially spreading; terminal lobe diamond shaped, sharply keeled in front, the apex upturned at right angles, and bearing a pair of subulate white tendrils, quite one-eighth of an inch long; the crest oblong, deeply channelled longitudinally, narrowed in front, and terminating in a pair of acute points. The ground colour of the flower is ivory-white, except the front lobe of the lip, the front of the side lobes, and the crest, which are suffused with pale rose; the crest and the base of the side lobes having a faint trace of yellow. Both sepals, petals, and lip are densely and uniformly dotted with light purple, those situated towards the base of the side lobes being of a bright rosy-crimson, also those of the crest. Thus the flower has the general shape and broad petals of the seed parent, from which also the crest and the tendrils of the lip are derived. The ground colour of the flower may also be traced to the same source, while the purple spots are as plainly derived from the pollen parent. The lip is wonderfully intermediate, both in the shape of all the lobes and in the spread of the side lobes; and what is very remarkable is that while the sharp keel of *P. Luddemanniana* is present on the front lobe of the lip, yet this organ is destitute of the long hairs of the parent species. The dark green colour of the leaves also comes from *P. Luddemanniana*. It is interesting to note the combination of characters in the offspring, as the two parents are so different from each other. It is with great pleasure that I dedicate the charming plant, at Mr. Harry Veitch's special request, to its raiser, Mr. John Seden, to whom our gardens are indebted for so many novelties—few of which equal and none sur-

pass, in distinctness and beauty, this, his latest production. *R. A. Rolfe.*

CYPRIPEDIUM PEETERSIANNUM $\times$, *nov. hybr. Belg.*

This was kindly sent me by Mr. A. A. Peeters, 58, Chaussée de Forêt, St. Gilles, Bruxelles, and to whom I have dedicated it. It was raised from *C. barbatum* as the pollen parent and *C. philippinense* (levigatum). The leaf is green, with darker nerves; peduncle deep Dahlia-carmine, hairy; bract nearly equalling half the ovary, green, with dark spots at the base. Upper sepal transverse, half oblong, blunt-acute, white, with very broad Dahlia-carmine coloured nerves (seventeen); inferior sepal smaller of nearly the same shape and colour. Petals broad, ligulate, deflexed, undulate and ciliate, mostly on the upper side at the base, there whitish, with rows of small dark spots. The greatest part of the petal is of a light Dahlia-carmine colour at the base; there are a few blackish spots, and then dark nerves run over the inferior part. Lip shaped nearly as in *Cypridium barbatum*, reddish-brown above, ochre-coloured beneath. The staminode is exceedingly interesting. It is an oblong concave body, with a strong upright border, full of elevated reticulations, and covered with numerous stiff hairs. In front it is forcipate, like the maxillæ of some *Coccinella*, but much more curved. In the sinus, a small angle stands in the middle. The flower is equal in size to that of a large *Cypridium barbatum*, but the petals are much longer. *H. G. Rehb. f.*

ODONTOGLOSSUM DIMYSTAN, *Rehb. f.*

Mr. F. Sander has sent me a fine panicle of this from Mr. J. D. Findlay, of Easterhill, Tollcross, Glasgow. It is very well developed, and the column is provided with fully developed linear-falcate wings. *H. G. Rehb. f.*



ORCHID NOTES AND GLEANINGS.

ORCHIDS AT FERNSEIDE, BICKLEY.

MAKING the most of the space at command is rightly interpreted by Mr. H. M. Pollett, to mean not covering all available ground with glass, but filling the neat little block of houses with the best things procurable. The *Odontoglossum*-houses give evidence of the great success attained in that direction by the rare hybrids there to be seen in bloom. At the present time, among a goodly array of fine *Odontoglossum crispum* and *O. Pescatorei* in bloom, are the unique *O. Ruckerianum* insigne, the finest of the section; *O. mulus* (Bockett's var.), with a fine spike of over twenty flowers; *O. elegans*, a rare *O. cirrosium* hybrid, and several other fine natural hybrids, among which one with four spikes bearing together over fifty flowers, is a grand object and curious withal, for it seems to be between *O. mulus* and *O. Wilckeanum*. Other *Odontoglossums* in flower are *O. Sanderianum*, *O. Arnoldianum*, *O. Andersonianum*, *O. A. lobatum*, *O. Wallisii*, *O. sceptrum*, *O. Rossii* in masses; and *O. R. rubescens*, *O. Oerstedii* in masses; *O. hystrix*, and *O. blandum*, with seven spikes of twelve or fourteen of its pretty flowers on each—a neat and lovely object, especially when in a good dark variety as is the case here. With the other cool-house plants in the well-filled flowering plant-house were well-flowered specimens of *Oncidium Cavendishianum*, *O. cucullatum giganteum*, *O. Phalanopsis*, *Restrepia antennifera*, *R. guttata*, *Masdevallia amabilis striata* (*Rehb. f.*); some fine scarlet *Sophranitis*; several good *Lycaste Skinneri*, *Mesospinidium vulcanicum*, *Maxillaria venusta*,

Epidendrum vitellinum; some good *Lælia anceps*, and *L. a. Percivaliana*, *L. prestans*, *L. flava*, *L. cinnabarina*, and *L. harpophylla*; the last three belonging to the same section, and not being often seen in bloom together, offer a good chance for comparison.

The *Cattleyas* are always well grown, and the *Trianas*, among which is a good form of the pure white *C. T. alba*, were making a good show, assisted by the *C. Percivaliana*, the best of which is "The Dell variety." The *Celogynes* were also fully out, and a good specimen of *C. cristata alba* with nine spikes is a covetable object. The *Chatsworth*, *Trentham*, *St. Albans*, and *Williams* varieties are also represented by well-grown specimens.

Among the *Cypridiums*, the most charming are two plants of *Sedeni candidulum* $\times$; *C. Schroderæ* $\times$ also is a noble thing; and the four plants in bloom of *C. Leeanum superbum* tell that it will always be a favourite; good specimens of *C. Boxalli*, *C. callosum*, *C. calurum* $\times$, var. *C. Dauthieri* $\times$, *C. vexillarium* $\times$, and others were in bloom; and *Dendrobium nobile Cooksoni*, *D. n. nobilium* (very fine), *D. n. Wallichii*, *D. Ainsworthii* $\times$, *D. devonianum*, and some *Phalanopsis* make up a show which, with other good things to follow, will continue for a long time yet. *J. O'Brien.*

CYMBIDIUM ELEGANS.

This handsome terrestrial Orchid seems to me to be but a variety of the well-known *C. eburneum*. The plant grows freely along with the *Odontoglossums*, but its large fleshy roots like plenty of space and material to ramble about.

ORCHIDS AT VICTORIA HOUSE, DUKINFIELD, LANCASHIRE.

Dukinfield, the residence of E. G. Wrigley, Esq. is, notwithstanding the smoky air of the surrounding district, famous for its Orchids. On the occasion of a recent visit to the garden, in one house alone there were of *Dendrobium Wardianum* 140 spikes, varying in length from 1 to 4 feet, and carrying altogether upwards of 1400 blooms. In an adjoining house were several other plants of this variety, one of which with three enormous growths, each about 5 feet long, carried respectively, thirty-six, thirty and twenty-seven fine flowers. Other *Dendrobies*, either in flower or showing, were *D. primuminum*, *D. nobile*, a fine batch just over; *D. n. nobilium*, *D. albo-sanguineum*, *D. Ainsworthii* $\times$, *D. crassinode*, *D. Parishii*, *D. Jamesianum*, promising to be very fine; *D. chrysotoxum*, *D. Griffithianum*, *D. Schrederi*, *D. Linaweanum*, *D. Falconeri*, showing very strong growths; *D. fimbriatum*, *D. Pierardi*, with many flowers open, and many more to follow; *D. devonianum*, just opening its first flowers; *D. Brymerianum*, with several of its very pretty flowers; and last, though not least, *D. heterocarpum*, whose sweet perfume filled the air.

The *Cattleyas* are well managed, the foliage having the bronzy hue and firm texture denoting perfect health. Several fine pieces of *C. Percivaliana* were carrying many fine flowers, the lovely violet shades of which showed up well against a large pale-flowered form of *C. Trianae*. Many fine plants of *C. Mendelii*, *C. Mossii* (one fine variety here has been mentioned by Mr. B. S. Williams in the *Orchid Album*), *C. Lawrenceana*, are bristling with flower sheaths. Other varieties worth mention are *C. Warneri*, *C. chocoensis*, *C. crispata*, and fine pieces of *C. citrina*, fixed to pieces of board, are showing well for flower. At the shady end of the *Cattleya*-house is a fine specimen of *Sobralia narantha* with fifty growths—a fine plant, in perfect condition. A very large pan of *Celogyne cristata*, *Chatsworth* variety, was carrying twenty-four spikes, but many others had been cut; another pan of the ordinary variety of *C. cristata* had borne upwards of 200 flowers. A fine plant of *Phaius Wallichii* was throwing up three flower-spikes, and on a shelf near the roof some fine potfuls of *Plieione lagenaria* were strong and very healthy. *Odontoglossums* were not numerous; but plants were observed of *O. Rossi* and its varieties *R. major* and *O. R. rubescens* flowering freely. Several strong pieces of *Oncidium sphaelatum*, *O. incurvum*, *O. Cavendishianum*, and others, were showing flower-spikes.

A healthy stock of plants of Camellias and Azaleas is doomed to make room for some hundreds more of Cattleyas, &c. Mr. Wrigley, is a gentleman bent on excelling in all his undertakings, and is ably seconded by his head gardener Mr. C. Harris, who is evidently a successful cultivator of Orchids. *B. Ashton, Glossop Hall.*

ONCIDIUM PHALÆNOPSIS.

A charming species, with panicles of flowers; sepals and petals oblong acute, white with reddish spots, lip 3-lobed, the two lateral lobes small, the terminal lobe transversely oblong, notched, white, the basal portion thickly crimson spotted. *Lindenia*, t. 123.

PLANT NOTES.

HOWEA (KENTIA) BELMOREANA.

A LARGE plant of this, 42 feet high, and which hitherto has been known as *Hedyscepe* (*Veitchia*) *canterburyana*, has lately developed flowers and ripened fruit. It is certainly the true *H. Belmoreana* of Beccari (originally named *Kentia Belmoreana* by F. Muell.), although in its present state it differs very markedly from the smaller plants grown under this name, and which are so popular as decorative plants both here and on the Continent. There seems, however, no reason for doubting that the plants grown in gardens are the true *H. Belmoreana*, as the seeds which produce them are exactly the same as those borne by the Kew plant, and as those in herbaria. A figure of it has been prepared for the *Botanical Magazine*. So far as the plants and specimens at Kew enable one to judge there is no difference between *H. Belmoreana* and the following:—*H. Forsteriana*, Becc.; *H. australis*, Wendl.; and *H. (Kentia) rupicola*, Hort., Linden.

BAMBUSA VEITCHII.

The hardy Bamboo recently referred to under this name, and described in the *Revue Horticole*, as a handsome plant, does not appear to differ, so far, at least, as habit and leaves show, from *B. palmata* of M. Latour Marliac, who recently distributed it along with other new kinds of Bamboo. It has stout leaves 2 inches wide and 7 inches long, broad and rounded at the base, and the apex suddenly narrowed to a point; the midrib is almost white, and there are from eight to twelve prominent parallel nerves on each side of the midrib; the margins are clothed with minute teeth. If it prove really hardy, this plant, whatever name it bears, will be a useful addition to the few hardy Bamboos already known.

ARISTOLOCHIA WESTLANDII.

This is a new and handsome flowered species of *Aristolochia*, which was discovered and sent to Kew by Mr. Westland, of the Hong Kong Botanic Garden, and formerly of Kew. It was described by Mr. Hemsley under the above name in the *Journal of Botany* (Ed.) It may be called an enlarged *A. longifolia*, of which a figure was given a little while ago in the *Botanical Magazine*, t. 6884, but it is a much finer plant in every way. The leaves in *A. Westlandii* are 9 inches to 1 foot long, lance-shaped rugose, hairy, with prominent veins, and somewhat leathery texture. The flowers, which are borne on the old stems and branches, are 4 inches across, of the usual Dutchman's pipe shape, but with the somewhat flattened expanded limb divided into broad partly infolded lobes. The colour of the limb is tawny-yellow, with dull purple veins on the inside, and dull green on the outside, whilst around the orifice or throat there is a ring of purple and an outer one of white. Both this and *A. longifolia* are now flowering at Kew; a figure of the former has been prepared for the *Botanical Magazine*.

STRELITZIA NICOLAI.

This plant is so similar in habit to *S. Augusta* that Bentham said they were one and the same, as indeed was stated at p. 299, but a comparison of the flowers shows that there is a marked difference in

the size and colour of the bract, the colour of the halbert-like petals, and in the form of the basal lobes of the latter organs. In *S. Augusta* the petals are white, and the auricles or lobes short and rounded, whilst in *S. Nicolai* they are slate-blue, tinged with purple, and the lobes are long and bluntly acuminate. *S. Nicolai* is figured in Regel's *Gartenflora*, 1858, t. 235, where it is stated that this species was introduced from Madeira to St. Petersburg Botanic Garden. I saw it in flower in Madeira last winter. It does not appear to have been noticed at the Cape, although it must have come from thence to Madeira. *W.*

NEW ZEALAND: ITS FRUIT AND FOREST TREES.

I STAYED during July and August last at Whangarei, a small township in the provincial district, and about 100 miles north of Auckland. In the latter part of July the Whangarei Fruit Growers' Asso-

the State Forest Department, of which Professor Kirk is Chief Conservator, has a reserve of upwards of 4000 acres, a portion of which, at the time of my visit, had been cleared and ploughed ready for planting different kinds of *Eucalypti* and *Wattle*. The best descriptions of *Wattle* bark for tanning purposes are considered to be the black or feather-leaved (*Acacia decurrens*), and the golden or broad-leaved (*A. pycnantha*). About 10 acres, in a sheltered valley, had been selected for trenching and planting with fruit trees, chiefly Apples, of which some 300 different varieties had been obtained from various nurseries, for the purpose of testing their suitability to the district, with a view to supplying reliable information to intending planters, and for propagation for distribution. A few kinds of Pears, Plums, and Oranges, were also being planted.

The American Blight (*Schizoneura lanigera*) has become a destructive pest in many orchards throughout the colony. It is now a well-known fact that certain varieties of the Apple exhibit a greater blight-resisting power than others. The kinds

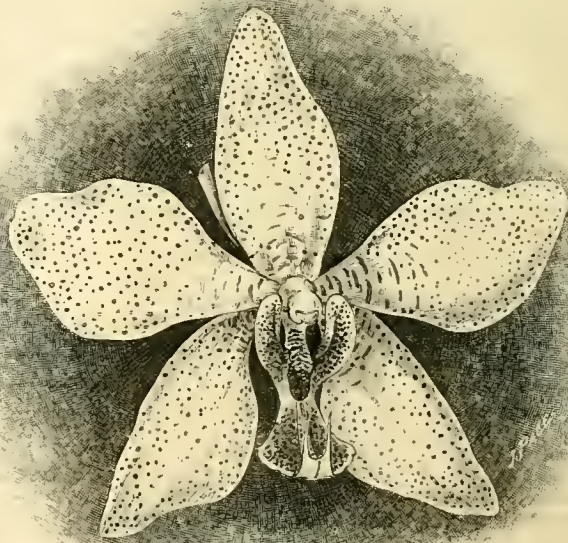


FIG. 50.—PHALÆNOPSIS JOHN SEDEN. (SEE P. 331.)

ciation held their first Citrus show, which proved a very successful one. The numerous exhibits of the different varieties of Orange, including Queen, St. Jago, Mandarin, Navel, Paramatta, Blood or China, St. Michael, and Siletta, or Bunch, were all first-class; some large fruit of a variety named Poor Man were shown in most of the collections. Lisbon Lemons, Limes, Citrons, and Shaddocks, were also well represented. The exhibits of Apples were numerous, one exhibitor showing upwards of eighty distinct varieties. After the exhibition closed, the best specimens of fruit were selected and sent to Auckland, where they were again exhibited, and much admired. The show of Citrus abundantly proved that the soil and climate of the district north of Auckland are well suited to fruit culture; and judging by the number of orchards already planted, and still being formed, in the country—where every settler now considers an orchard a necessary adjunct to his house—will shortly become a great fruit-producing one. Pears, I think, are hardly receiving the attention they deserve, owing probably to the partial failure of a few of the kinds already tried by some of the settlers.

About 3 miles from the township of Whangarei,

selected here by fruit growers and nurserymen for stocks are the Northern Spy, Winter Majetin, and Irish Peach, with very satisfactory results when compared with trees worked on ordinary seedling stocks; for this reason, great care has been taken by the Forest Department to secure plants worked only on blight-resisting stocks.

A large portion of the area reserved is still in its natural state, covered thickly with tall Fern and Titi-tree (*Leptospermum scoparium*), interspersed with grand clumps of mixed bush or forest, representing the greater part of the forest vegetation of New Zealand, and comprising a large variety of valuable timber trees; the following kinds being some of the most conspicuous:—Rimu (*Dacrydium cupressinum*), sometimes called the Red Pine; Karaka (*Corynocarpus laevigata*), this, and the first-named being in my opinion two of the most ornamental trees of the forest; Totara (*Podocarpus totara*), Puriri, or New Zealand Oak (*Vitex littoralis*); Rata (*Metrosideros robusta*), Kauri (*Dammara australis*), the Mountain Beeches of Nelson and Otago, and many others. A noteworthy feature of the forests in this district is, that while they contain timber trees not found growing in any other part of the colony, they include as

well all the other kinds found in more southern districts.

Amongst the undergrowth, rising from a mass of Ferns, were flourishing with a vigour never attained except in their natural habitats, the Ti (*Cordyline australis*), Toi (*C. indivisa*), Tingahere (*C. stricta*), Koromiko (*Veronica*), the Screw Pine; Akeake (*Dodonaea viscosa*), New Zealand Flax (*Phormium tenax*), known here as the Settler's Friend, being useful for a great variety of purposes; *Ripogonum parviflorum*, well known here as the Supple Jack—a cane which climbs to the tops of the highest trees, and makes the forest in some parts almost impassable, splendid specimens of the graceful and beautiful Nikan (*Areca sapida*), attaining the height

on two days heavy hail fell. The indigenous forest vegetation of New Zealand being evergreen, there is no indication, by the presence of various tinted falling leaves and leafless branches, of the approach of autumn and winter, as is now becoming apparent in public gardens and domains, where many of the most useful and ornamental deciduous trees of Europe and America have been introduced, and are flourishing with a vigour scarcely attained in their natural habitats.

The following are the meteorological observations taken at Auckland for July, 1886:—Mean temperature in the shade, 49°.9 (previous twenty-one years, 52°.2); maximum temperature, 60°; minimum temperature, 37°. Total rainfall for the month in

many thousands of tons still lie buried beneath the soil. The total quantity of Kauri-gum exported from the colony for the year 1885 was 58,55½ tons, valued at £299,762. A barque, which has just completed loading, and is now lying in the stream ready for sailing, has amongst her large and valuable cargo for New York 3825 cases of Kauri gum, valued at £17,459.

Adjoining the forest reserve proper, 100 acres of volcanic land, made over to the State Forest Department by the Whangarei County Council for experimental purposes, is being prepared for the trial of Olives, Tea, Cinchona, Tobacco, and other exotics.

When writing of the Whangarei Citrus show, I



FIG. 51.—LEYSWOOD, GROOMBRIDGE.

of 40 feet, and here the only representative of *Palmae*. New Zealand has been called the land of Ferns, and really for number of varieties and vigour of growth I never saw equalled the display I passed through in some of the densest parts of the forests—Ferns everywhere in abundance, above and below, from the stately *Cyatheas* and *Dicksonias* to the small *Trichomanes* and *Hymenophyllums* with which the ground, and in many cases the trunks and branches of trees were thickly covered, intermixed with *Davallias*, *Polypodiums*, *Lygodiums*, and *Asplenium flaccidum*. Amongst others were grand specimens of different varieties of *Asplenium*, *Adiantum*, *Doodia*, *Gleichenia*, *Nephrodium*, &c.

The time of my visit was July, one of our coldest months, corresponding with January in Great Britain. On two mornings the thermometer registered 3° of frost, the rainfall on several days being very heavy;

inches, 2.260 (average for the same month, previous twenty-one years, 4.776); number of days on which rain fell, twelve (average for previous twenty-one years, twenty).

There are extensive gum fields around Whangarei, where a great number of persons find employment digging for Kauri gum, a brittle resin-like copal which exudes from the Kauri Pine tree (*Dammara australis*). The gum is not obtained by any process of tapping the tree while standing, but is found beneath the soil on the sites of old Kauri forests that have ceased to exist. The practical gum digger, armed with a long spear, selects a likely spot, and keeps prodding the earth until, from touch of the spear, he knows that he has struck a piece of the hidden spoil; it is then unearthed with a spade. The Kauri gum industry is a valuable one, and likely to last for many years, for it is very probable that

omitted to mention that amongst the exhibits there were three or four very good samples of arrowroot prepared from the roots of *Canna edulis*; samples of locally-grown Ginger were also shown. These at present have only been cultivated on a small scale, but I believe it is the intention of the growers to extend the cultivation of both these products during the coming season. *Edgar Spooner, Auckland, New Zealand, December 3, 1887.*

LEYSWOOD.

To make our series of illustrations of this beautiful place more complete, we add a view of the house (fig. 51). The description of the rock-garden was given at p. 272 of our last volume, September 3, 1887.

PLANT DISEASES.

MOULDS.

HERR P. MAGNUS has lately brought before the Brandenburg Botanical Society, some observations on the winter condition of several species of Peronosporæ, which may prove of considerable practical importance to horticulturists and their friends.

It is well known that several species of Peronospora pass the winter in the form of resting spores or oospores, in the decaying tissues of the host plant: for instance, the fungus of the so-called Vine mildew (*Peronospora viticola*) produces oospores in the leaves, and as these fall to the ground and rot, the oospores are set free ready to germinate in spring, and again attack the plants. The practical difficulties against the collecting and burning of the leaves in the vineyards are increased by the facts that the leaves go on falling during about two months, and the dry leaves break in pieces.

In the case of some other Peronosporæ, however, no oospores are known—either the fungus does not produce them, or it fails to do so in Europe, or on the plants attacked.

Thus the author points out, *Phytophthora infestans*, the dreaded Potato disease fungus, develops no oospores in the tissues of the plants attacked in our climate; but the fungus passes the winter in the form of mycelium in the tubers. This winter mycelium is developed from conidia or zoospores, the germinal tubes of which enter the "eyes" of the tuber. Such infected tubers, after a short time in a warm damp atmosphere, develop new conidia from the eyes, and so spread the malady.

Magnus praises Jensen's method of treating the matter, *i.e.*, to cover the base of the young Potato plants with a deep layer of soil, and to be careful not to dig the tubers from diseased plants until a fortnight or so after the dying down of the haulms. The first precaution is to guard against the conidia falling from the leaves on the tuber and infecting them in the soil; and the second is to give all conidia on the ground time to germinate and die before risk of rubbing on the tubers.

The Beet is frequently attacked by *Peronospora Schachtii*, and is not known to form oospores. It passes the winter as mycelium in the rosette of leaves. A closely related form is *P. effusa*, which occurs on winter Spinach and allied plants: this also develops no oospores in the Spinach, but passes the winter as mycelium in the diseased leaves. If the drooping leaves of attacked plants are taken in winter and placed under glass in a moist, warm atmosphere, the fungus soon shows that it is alive and capable of developing conidia. Two days sometimes suffice for this. In the spring, as the soil and air get warmer, the *Peronospora* puts forth conidia, which spread the disease on the young leaves, and much injury may accrue to the early spring crop. It is noteworthy that this fungus also lives on *Chenopodium* and *Atriplex*, common weeds, and summer Spinach is often infected from these.

Magnus also finds that *Peronospora alsinearum* passes the winter in the mycelium stage in the tissues of Chickweed; also *P. grisea* in young Veronicas. One or two other *Peronosporas* on weeds are also mentioned as passing the winter either as mycelium, or as oospores.

The importance of this contribution consists especially in the showing that these fungi are apt to select, as safe places for their winter rest the very organs—tubers, rosettes, &c.—which the gardener prizes and takes care of. The case is similar to that of some smuts—we carefully store in our granaries the Wheat, &c., which is already dusted with the spores; or the Potatoes, which already contain the mycelium, and on sowing or planting next spring the enemy is also sown or planted. Of course, as is well known, we can "dress" the Wheat; the treatment of the forms in question here has to be adapted to the different cases.

PARASITIC FUNGI.

These, as we all know, injure plants in various ways, a summary of which is given by Mr. A. B. Seymour. Parasitic plants injure their host plants:—1, by depriving them of nourishment; 2, impairing the power of assimilation; 3, abnormally accelerating or retarding growth, causing distortion; 4, not only green plants are affected, but roots, stems, inflorescence, flowers, fruit; 5, leaves and fruit fall prematurely; 6, decay is produced in ripe fruit before and after removal from the plant; 7, valuable plants receive injury from those of less value by ordinary infection or hetericisms.

PLANT PORTRAITS.

PEARL FORTUNÉE DE PRINTEMPS, *Bulletin d'Achéro-culture*. Recommended for its keeping qualities and excellent quality.

PLATYCARPA STROBILACEA, *Revue Horticole*, February 16, woodcut.

STIGMAPHYLLUM CILIATUM, *Garden*, February 25.

VRIESEA POLYMERULENTA LINEATA, *Revue Horticole*, February 16, woodcut.

ZYGOPETALUM WENDLANDI, *Gartenflora*, t. 1267.

CARYOTA SOBOLIFERA.

THE Caryotas are as singular among Palms as the Ginkgo or *Adiantum* tree is among Conifers. They are also exceptionally handsome in a decorative sense, and they grow freely in a moist stove temperature. At Kew they are represented by about a dozen species, some of which are now large and elegant trees. The finest of all, however, namely, *C. Rumphiana*, has recently been destroyed, as it had got too large for the Palm-house, its leaves having pushed some of the roof glass out last autumn. This tree was considered to be the most magnificent Palm ever seen in cultivation under glass. It had a clear stem 25 feet high, by over 2 feet in diameter at the base; the head of leaves was 25 feet high, and about 40 feet through; each leaf measured 22 feet in length by 17 feet in width, and was composed of 1800 pinules, each of which was 15 inches long by 6 inches wide. The young heart of the stem, or cabbage, was of a beautiful ivory-white, very succulent and brittle, and had a taste very similar to that of a Cocoa-nut. The lower part of the stem was full of stout tough fibres, which seemed to run the whole length of the stem; but when dry it appeared to have lost much of its toughness. A sample of the fibre may be seen in the Kew Museum. *C. sobolifera*, represented in p. 337, fig. 52, is a much smaller kind, and will attain its full height in a house 30 feet high. It is well represented at Kew in both large and small plants, and it appears to be a Palm very easy to grow. The stem grows to a height of about 16 feet, by about 5 inches in diameter, and it is greenish and marked with ring-scars. The leaves are about 10 feet long, gracefully curved, bipinnate, the petioles and sheaths covered with brownish scurf, and the pinules are shaped like the fin of a fish. This bipinnate character in the leaves is peculiar to the Caryotas. The flowering of *Caryotas* is also singular. "After the Palm has attained its full height, an enormous bunch of flowers like a docked horse-tail, and all of one sex, emerges from the axil of one of the uppermost leaves; this is followed by a similar bunch of flowers, but of the opposite sex, from the axil of the leaf below it, and then bunches of alternating sexes appear from successive leaf-axis till the lowest of them is reached, when the stem dies" (*Kew Guide*). The flowering period extends over several years, and it is not unusual for ripe nuts and flowers to be found on the plant at the same time.

In *C. sobolifera* and several others, numerous offsets are produced from the base of the stem, and these appear at an early stage, so that by the time the first stem has flowered others are ready to take its place. A specimen of *C. Cumingii* at Kew has gone on renewing itself in this manner for many years. There does not appear to be any difference between this and

C. sobolifera. The seeds of *Caryotas* are usually purple coloured, round, except when two are produced in one fruit, when one side of the seed is flattened as in a sweet Chestnut, and they vary in size from that of a Nutmeg to a Coffee-bean. They germinate freely, and handsome young plants, 2 feet high, may be grown in two years. *C. sobolifera* is a native of Malacca and Thibet. *W.* [The tree was alluded to by Mr. Adlam, in his account of the Durban Botanic Garden, which appeared in our last issue, p. 300. Ed.]

PLANTS AND THEIR CULTURE.

DIFFENBACHIAS, CORDYLINES, DRACÆNAS, AND ERANTHEMUMS.—These are very fine decorative subjects, and to keep up a good supply of suitable sized plants frequent propagation must be had recourse to. If large tops of *Diffenbachias* are taken off with about 4 inches of stem below the leaves, inserted in small pots, using light soil with a pinch of silver-sand at the base of the cuttings, and stood in the propagating-house, or where a moderately high moist temperature is maintained, they will root in about a fortnight. The remaining portion of the stem may be cut into as many pieces as there are joints, and planted thickly, either in pans filled with sandy soil, or in the plunging material in the propagating frame; but whichever way be adopted, see that in covering them only the eye or bud is exposed above the material. Plants thus raised, when potted up in 60's and 48's, make neat and useful stuff. *Dracænas* and *Cordylines* may be treated in a similar way, but in taking off the tops of the old plants instead of potting them at once, it is better to stand them where the stem can be inserted in water to a depth of about 2 inches; bottles filled with water answer very well where only a few require to be done, taking care that the water does not decompose, which, if it do, would cause the stems to rot. They should be potted immediately that there are any signs of roots being formed, as roots formed in water do not readily take to soil; cut up the rest of the stem, and put in the eyes as recommended for *Diffenbachia*, but roots form more freely if the side opposite to the eye has the slightest paring taken off with a sharp knife. As it is important to success that the eyes be kept equally moist, yet not wet, pay particular attention to the covering, as before mentioned. With the *Eranthemums*, the usual mode of propagation is by cutting, and clean stout shoots should be selected; they will, however, require to be put in a frame or under a handlight. These plants all succeed well in a mixture of loam and leaf-soil or peat, but liberal treatment is necessary to do them well, therefore a good sprinkling of manure may be added to the potting soil; bone-dust and decayed manure give excellent results. The best of the *Eranthemums* are *albo marginatum*, *tricolor*, *atropurpureum*, *reticulatum*, and *leuconeura*. Of *Diffenbachias* the varieties are very numerous, but every collection should include *Baraquiniana*, *Bausei*, *Leopoldi*, *Rex*, *Regina*, and the small but handsome *Weirii*; of *Dracænas*—*Goldieana*, *Lindenii*, *umbraculifera*, *frangrans*, and *Smithii*, are among the best, but *phrynoides* is a very dwarf species, with large green leaves, thickly studded with yellow spots; it produces annually large clusters of red fruits, which add much to its beauty; *surenlosa maculata* is rather tall-growing (about about 6 feet), Bamboo-looking plant, with small green leaves, spotted with yellow—it has also red fruits, which droop gracefully from the stem. *D. fragrans*, a green-leaved species, has fine bold foliage and heavy racemes of flowers. *Cordylines*—of these there are so many beautiful new hybrid varieties, that they may be had, with foliage varying from dark red to white or green, in all the intermediate shades of colour between, but *terminalis*, *Cooperi*, *australis*, *indivisa*, and *indivisa Veitchii*, *congesta*, *Guilfoylei*, and *gloriosa*, are among the most useful. All these plants, with the exception of *Cordylines australis*, *indivisa*, and *congesta*, require a moderately high temperature—about 65°, with a moist atmosphere when making their growth, after which time they should be carefully hardened off; they will last in good

condition for a long time. Occasional thorough syringings are beneficial, but avoid habitual dewing, as, unless the water used is free from sedimentary matter, the leaves get disfigured.

Eupatoriums.—Any plants of these which are pot-bound and coming into flower should be liberally supplied with liquid manure, and on no account allowed to become dry, as their soft leaves are easily injured by flagging, which ruins them as decorative plants. The most telling sorts are *E. lantibium* and *atro-rubens*; the latter is the better of the two, and darker in colour, both being purple or reddish-purple. They are frequently met with in gardens under the name *Hebeclinium*. Possibly the best known *Eupatorium* flowered is *riparium*, and its variety *odorata*; both are neat, dwarf, bushy growers, and very floriferous. *E. Weinmannianum* is a noble erect-growing species, its Willow-like shoots terminating in dense corymbose heads of sweetly scented white flowers. These plants are excellent for supplying cut flowers, and for conservatory decoration during the spring months. The two first-mentioned sorts are not quite so hardy as the others, and are much benefited by being brought on in a temperature of 55°. The others will do where frost is merely excluded.

Capsicums.—Many of these, when well fruited, make handsome decorative plants, and in order to secure good-sized plants, seeds should now be sown and placed in a warm pit. As soon as the seedlings are well up prick them out thinly into pans or boxes, using a light, friable, loamy compost. After pricking out give a good watering and return them to their former quarters, keeping them well up to the glass, afterwards potting them off singly into 4-inch pots and subsequently in 48's and 32's according to the size to which the kind is expected to grow, using the same kind of soil as before. They do well in a temperature of about 60° until the fruits are well developed, when they may be removed to the greenhouse. These plants, being somewhat subject to red-spider, should have occasional syringings, and be ventilated freely at all times, but much syringing should be avoided when they are in flower. Prince of Wales and Little Gem types are the most useful. *F. Ross, Pendell Court.*

THE ORCHID HOUSES.

DENDROBIUMS.—While trying to preserve the beauty of *Dendrobium* flowers as long as possible by placing the plants in cooler quarters, the new growth on those that have started should not be overlooked, for if much checked in its early stage, the plants will not have matured such fine pseudobulbs by the end of the growing season as those of the previous year, and will not produce an equal quantity of bloom. Any *Dendrobes* which have been forced into flower in a strong heat should, when placed in a cooler house to preserve the flowers, be kept rather dry.

Thunias are now beginning to push up new growths, and should be shaken out of the old compost. As with these plants the strongest pseudobulbs produce the best flowers, about a dozen of these may be selected for each pot, and placed 2 or 3 inches apart, making each secure with a stake. The smaller ones may be put together in other pots, and grown on for stock. The *Thunias* are not very particular as to the compost used, and will grow in peat and sphagnum, but latterly I have employed about two parts light fibrous loam and one of peat, and mixed with this some broken Oak leaves, and a little coarse silver-sand. I have sometimes mixed in the soil a few ½-inch bones, but I cannot say that the plants derived much benefit from these. A few years back I tried bones for several species of Orchids, but the only plant which showed any distinct difference by their use was *Mesospinidium vulcanicum*, and this improvement might have been due to other causes. When used in the drainage of pots of *Cattleyas*, *Dendrobiums*, &c., a mould formed on the bones which did not seem to suit the plants, and the bones appeared to keep sweetest when surrounded by the heavy potting compost generally used for *Cymbidiums*, *Cypripediums*, *Calanthes*, &c. The night temperatures need not be raised much as yet if the thermometer outside in the evening shows 40°, or more; the East Indian-house will be safe at 65°; *Cattleya*-house at 60°, the cool-house at 55°; the *Dendrobium* or Mexican-house will bear a wider range of temperature, viz., from 55° at night, to over 80° with sun-heat by day. *C. Woolford, Downside, Leatherhead.*

THE FLOWER GARDEN.

EVERGREEN SHRUBS.—The necessary pruning and thinning out of these should be completed by the end of the present month. In doing this work it is good practice to cut back all straggling and misplaced growth, so as to maintain the symmetry of the plants, and at the same time not spoil their characteristic form. In clumps and shrubby borders each specimen ought to stand quite clear of its neighbour, where appearance and general effect are studied, and if the best results are desired; although in old shrubberies, and where these form wind-breaks, this cannot always be done, or is not desirable. Such plants as *Berberis stenophylla* and *B. Darwini* should have the old growths thinned out where crowded, leaving last year's shoots intact till immediately after flowering, and at which period the strongest ones may be cut back to within 2 or 3 inches of their base.

Old established clumps and banks of common Laurel, where they have become unsightly by having become top-heavy and naked at the bottom, may be cut down to within a short distance of the ground, and in the space of two or three years they will again make a presentable appearance. The leaders of young specimen Conifers are apt to get injured by squirrels and birds, and it will be well to tie up the nearest side shoot, so that it may take the place of the damaged one. The trimming and clipping wherever the so-called topiary work was not done in the autumn, should not be further delayed. Push forward—whenever circumstances will allow—all planting that yet remains to be done, as the time for work of this nature is now getting within narrow limits. Mulch with half-decayed manure, and stake and tie such as require it.

Hardy Perennials.—As soon as the surface-soil is sufficiently dry transplant from cold frames to permanent quarters all autumn-rooted plants, including *Pentstemons* (florists' varieties), *Violas*, *Pansies*, &c. As a preventative against the attacks of slugs it is advisable to place a mixture of lime and soot or wood-ashes round each plant, and at a safe distance from the stems to prevent injury. Remove handlights from *Helleborus niger*, and put the same over some of later flowering species, as *H. olympicus*, *H. kamtschaticus*, if clean and well developed flowers be desired. Protection may also be removed from *Lobelia fulgens*, *L. siphilitica*, and similar tender subjects; but let it remain close at hand for the present, as we are by no means beyond severe weather. *Cerastiums*, *Sedums*, *Saxifrages*, *Sempervivums*, and plants of a kindred nature used for carpet bedding may be planted in their permanent quarters if the beds are unoccupied with spring flowering plants; this will give them time to get well established, and will be a saving of labour at a later period.

Bedding Calceolarias.—Transplant into turf pits or to warm sheltered borders at the base of a south wall, where protection can be afforded in case of need. To have strong bushy plants in time for bedding out let them have a good compost consisting of turfy loam chopped into rough pieces, leaf-mould, and well decomposed manure, and pinch out the points of young growth as occasion requires.

Sweet Peas may now be sown in drills 3 inches deep. These will repay generous treatment, and it will be found a good plan to dig narrow trenches a spit deep, and half fill them with rotten manure, tread it well down, cover with 2 inches of soil, and then sow the seed. The latter should be either moistened with paraffin or receive a coating of red lead previous to sowing, as a preventative against the attacks of small birds. Lightly earth-up and support the plants with sticks when necessary. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

PEACHES.—The fruit in the early-house will now be swelling rapidly, and, the stoning being completed, remove all fruits which are not required to a distance of 9 inches apart on young hearty trees, and 9 to 12 inches for old and those less robust. Tie down the shoots as they advance in length, taking care that all the main stems are bedecked with foliage to afford them partial shade from the direct rays of the sun. Do not overcrowd the trees with young growth, remembering that 6 to 9 inches

apart for young shoots is not too much; and it is better to remove any superfluous growth forthwith than to overcrowd, as this would be prejudicial to the crop next year, the preparation for that crop being made while that of this season is maturing. Stop strong shoots so as to balance the flow of sap over the whole tree. If the weather be mild the temperature may be advanced to 60° at night, but in the event of stormy weather be content with 55°. Endeavour to secure a temperature of 75° to 80° at shutting-up time, with abundance of moisture, heavily syringing the trees with tepid water twice a day. A little clear soot-water syringed over the trees twice a week, will impart a healthy hue to both fruit and foliage.

Succession Houses.—Attend to disbudding and thinning of trees in these houses as advance in growth is made, and see that they do not suffer for want of water at the root. Late houses, which will be coming into bloom towards the end of the month, should have a little fire-heat at night and during dull weather, to assist the blossoms in setting. Be careful to exclude currents of frosty air during the period of fertilisation.

Figs.—The earliest-started trees will now be approaching the setting period, and little progress will be noticeable until that is over, but as soon as the fruits begin to swell again, a rise of temperature of 5° may be allowed, 10° during stormy weather being the maximum. Thin out the fruit where necessary, the leaving of too many fruit on the trees being the most fertile cause of fruit dropping; the other is overcrowding of shoots preventing the full play of light and air to thoroughly mature the wood. See that old trees in pots, tubs, and other confined spaces, are not allowed to suffer from want of water, in the case of established trees weak manure being given at every other watering. The latest succession of trees should now be started, but if they have not the benefit of artificial heating do not excite them too much, or they may get checked by frosty weather. *W. M. Baillie, Linton Hoo Gardens.*

THE KITCHEN GARDEN.

CELERY.—Enough fermenting material should now be prepared and afterwards made into hotbeds, and the main crop of Celery sowed about the end of the month. As only moderate heat is necessary plenty of leaves should be mixed with the stable-dung, and about 6 inches of light sandy soil placed on the top in which to sow the seed. Major Clarke's Red and Sandringham White are two of the best salad varieties, and Carter's Incomparable Pink will stand a long time in the spring without running to seed. Where close cropping has to be practised the trenches may be got ready for the earliest crop, digging in deeply a good supply of manure for single rows, which are the best; the trenches should be 1 foot wide and 4 feet from centre to centre; for double rows or for strong growing varieties another foot in width will be necessary between the trenches. When all is in readiness the spaces between the rows will make a good position for planting early Potatoes which will be dug up before the Celery requires to be earthed up.

Asparagus.—The ground should now be made ready for any fresh plantations intended to be laid down, and should be deep, rich, and well drained, in order to grow the heads to perfection. Before planting, the ground should be liberally dressed with manure from the cowyard, and trenched two spits deep, if it will allow of this being done, and if thought to be too retentive of moisture it should have a good quantity of charred refuse or burnt earth well mixed in with the fork after the trenching is done. In cold and wet situations it is best to thoroughly drain the soil with pipes, too much water being very injurious to the roots of Asparagus. The best time for planting, is when the young shoots push; and two-year-old plants are the best. To get large heads plenty of space should be given the plants—2 feet between the rows and 18 inches from plant to plant being suitable distances. The so-called giant or colossal varieties grow to the largest size, but much depends on position, kind of soil, and the care bestowed on the cultivation. The variety called Early Purple Argenteuil is very useful, and although not so large as some others, it is ready for use several days earlier. The old system of planting on raised beds is not advisable in the majority of gardens, but may still be advantageously followed in gardens that are in cold, or wet districts. *W. H. Divers, Ketton Hall, Stamford.*

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APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

TUESDAY, MAR. 20—Royal Botanical of Manchester.
WEDNESDAY, MAR. 21—
 { Royal Botanic Society.
 { Preston and Fulwood (two days).
 { Liverpool Horticultural Association.
 { Bath Bulb (two days).
THURSDAY, MAR. 22—Shropshire.
FRIDAY, MAR. 23—Falkirk.
SATURDAY, MAR. 24—Crystal Palace.

SALES.

TUESDAY, MAR. 20—
 { Imported and Established Orchids,
 { at Protheroe & Morris' Rooms.
WEDNESDAY, MAR. 21—
 { Imported Orchids, from Mr. F.
 { Sander, 10,000 Liliun auratum,
 { Greenhouse Plants, and Roses, at
 { Stevens' Rooms.
 { Japanese Lilies, Roses, &c., at Pro-
 { theroe and Morris' Rooms.
THURSDAY, MAR. 22—
 { Importation of Orchids, from
 { Messrs. H. Low & Son, at Stevens' Rooms.
 { Orchids, at Protheroe & Morris' Rooms.
SATURDAY, MAR. 24—
 { Bulbs, Roses and other Plants, at
 { Protheroe & Morris' Rooms.

than in any previous three years within our recollection. Moreover, we are delighted to find that heed has been paid to the suggestions that we have ventured to offer, and that the new programme, by which attempts are being made to carry out, is widely different from the old narrow one-sided policy which has at last landed the Society in its present dilemma.

If the Society is to have no higher and broader aim than a flower-show society we should say. Away with it, its work is long since done, and younger and abler hands can do that work better. But if it can be made to rise even a little way towards its manifold duties to the State, to Agriculture, to Commerce, to Science, to Art, to its constituent gardeners, there is room for hope that a season of prosperity may yet be in store for the old Society. One of the happiest omens we have noted for a long time is the election as guinea Fellows of some thirty practical gardeners and well-known amateurs on one day. Prospects in the City are also bright, and we have reason to believe that the LORD MAYOR will take a prominent part in the first exhibition that the Society will make in his domain.

At this juncture, it is specially to be hoped that the Council will be cheered and encouraged in their very arduous task by the co-operation and support of all classes of horticulturists. We have all but one aim, let us subordinate our prejudices and individual fancies to the common good. Thus only will success be assured.

Available Food for the People. THE production of fruit in this country, and the various uses to which it can be put, both in a green and preserved state, was one of the most interesting points in the vigorous address delivered by Mr. D. TALLERMAN at the recent conference in Bakers' Hall. Fruit growing is a distinctive English industry, and from some statistics furnished by Mr. TALLERMAN we learn that the total orchard area in England is 195,071 acres, that for Wales is 3341 acres, and for Scotland 1872, or 200,284 acres in all; the total area for market gardens being 60,850, of which England possessed 35,650, and it was instanced; as illustrating a curious fact, that of the orchard area six English counties comprise two-thirds of the total—viz., Hereford, 27,112 acres; Devon, 26,414; Somerset, 23,640; Worcester, 18,527; Kent, 18,296; and Gloucester, 15,500; being 129,480 acres in all. It is thus seen there is a remarkable concentration of fruit growing in this country, and this fact, Mr. TALLERMAN thinks, "should favourably lend itself towards the success of any movement towards the introduction of new means of collection of material, the preparation of the same for sale, the distribution of the same to centres where markets can be found, and the realisation of the profits that should follow.

What is the present position of that distinct agricultural interest—fruit farming? The fruit grower is regarding as holding, as he has done for years past, "an isolated position; and after anxiously tending and watching his shrubs and trees through the varying climatic changes incidental to our spring and summer, when the season has advanced and the fruits ripened, recklessly plucks and packs them into large baskets, without any regard to size, condition, or character, sending to market for sale, when, if the season is a prolific one, the nett amount realised will reach but little in excess of the cost of packing, packages, and carriage; while frequently in good seasons, when crops are abundant, enormous quantities of fruit are allowed to rot on the trees, owing to their current market values being insufficient to

cover the cost of collection and transit. The losses from these causes are most serious, and readily preventable." Is this a too highly-drawn picture? We think not. In Kent there are hundreds of acres of Apple orchards forming a part of farm lands; the majority of the Apples grown are practically worthless for market purposes. The fruit is shaken from the trees rather than carefully gathered—it is thrown together in heaps at the bottoms of oast-houses without any attempt at sorting the large from the small fruits, or picking out those which are damaged; and it is sometimes sold in bulk to some itinerant purchaser who takes it at a valuation, and, as might be expected, generally a very low one. The orchard receives little or no cultivation; the branches of the trees interlace and interleaf each other; the fruit portion of the farm is looked upon as of small moment: so much do a kind of hereditary obstinacy and ignorance prevail. But that a fruit garden is a valuable appendage to a farm is shown from a fact mentioned the other day by Mr. C. J. HEALD, of Brighton, who stated that a man farming 300 acres of land in Sussex acknowledged that his orchard had enabled him to survive the reverses of the year from farming alone.

Is it not surprising that, while orchards of Apples and Plums, among other fruits, are left upon the trees because it will not pay to gather them, the bill we have to pay foreign countries for fruits is such an enormous one? The value of the importations of fruits that entered into competition with our own crops last year, as set forth by Mr. TALLERMAN, was as follows:—Raw Apples, £870,281; unenumerated, £1,290,411; Oranges and Lemons, £1,491,533; dried and preserved raw vegetables, £542,282; total, £4,194,507; and these figures serve to bring one fact prominently under consideration, viz., that we have become large buyers of fruits and vegetables from foreign producers, while our own growers have bitterly complained of their inability to reach our markets owing to the excessive rates exacted for the carriage of their fruits by rail, which left them little or no surplus after paying the costs and expenses incidental to preparing for market and realising the value.

Mr. TALLERMAN does nothing by halves, and by way of forcible illustration he had at Bakers' Hall samples of packages to show the marked difference between the home and Continental methods. His contention is that the latter convey a lesson, the details of which should be fully impressed on all our home growers. The latter pack the fruit loose in half-bushel or bushel sieves or baskets, that can only be dealt with by the trade and dealers; while on the Continent everything is packed into small boxes or baskets that meet the requirements of the ordinary consumers. Under the home system "the fruit is all thrown into the baskets, and varies in size and condition; and if at all ripe, or any of the berries be bruised or damaged, the weight of those on the top will largely affect those at the bottom, resulting in much of the fruit being spoiled and wasted—a loss that forms an element of consideration with the dealer when buying, and which eventually falls on the producer." Mr. TALLERMAN is here dealing with the practice that is general. It is well known that of late there has been a great improvement in the methods of packing and preparing for transit, which enables Plums and other fruits to be sent 200 or 300 miles without injury, but these cases form the exceptions to a general rule. On the other hand, "the Continental packages are neatly packed, the fruit being selected and made to

THE last meeting of the Royal Horticultural Society at South Kensington was held on Tuesday last. A pretty little show was got together, and a goodly number of the craft were present, but few, indeed, of the general public. No one wept that we saw; no one seemed at all distressed at leaving, though the recollection of a quarter of a century's good work thrown away, as it seems, might have caused some despondency. In point of fact, it has not been thrown away. There is that scattereth and yet reapeth, and we believe that this will be found to be the case in this instance. But it is better not to indulge in retrospect. How about the future? No one seemed at all sanguine, and no wonder at that. Some few seemed to think the Society ought to have shut itself up in its shell like a tortoise in winter, and retired to Chiswick, at least temporarily. We do not share this view, but we are surprised that this feeling should not have found articulate utterance, for any useful purpose that is, till it was manifestly too late to act on it had it been considered desirable. It will, however, be still possible to retire to Chiswick next year if circumstances render it desirable.

If brimming energy and hard work avail the newly elected Council ought to succeed in restoring healthy vitality to the Society. There has been more downright hard work and careful sifting done during the last three months or so

The Royal Horticultural Society.



FIG. 52.—CARYOTA SOBOLIFERA. (SEE P. 334.)

have an attractive appearance: the comparatively small quantity not only preventing the loss from bruising, but the fruits keep good several days longer, owing to the package relieving them from undue pressure, and allowing the air to get to them."

The question of an extension of profitable

fruit-culture in this country is one that is receiving much attention just now. The publication in the *Gardeners' Chronicle* of December 31, 1887, of the paper on "The Importation of Foreign Apples," read by Mr. R. DEAN at the Harpenden Apple Congress, was the means of the subject being ventilated in several of the leading

London daily and provincial newspapers; and public opinion is thus being prepared for the announcement of plans devised to be the means of diverting to the pockets of English fruit-growers a good portion of the sum now sent abroad. It is true that good market garden ground still commands a high price, which is

not to be wondered at, seeing how many hundred acres of the best market garden land in Middlesex alone has been devoted in recent years to the growth of houses. Let a line be drawn from Putney Bridge to Kew Bridge, and an examination on either side of the line will show that very many acres of some of the best land in the county have been swallowed up by buildings. Land cannot, from its nature, be increased in extent, and every acre taken for building, unless an equivalent area be found elsewhere, must lessen that under cultivation.

The times are propitious for the employment of capital and enterprise in the production of good fruit, excellent agricultural land, adapted by means of previously good cultivation for the production of high-class Apples can be obtained at moderate cost; but no time should be lost in acquiring it, for we think land has touched its lowest level of value. To grow fruit profitably, and in order to be unfettered by deterring clauses in leases, the cultivating occupier should also be the owner. Let a lesson be taken from our Transatlantic brethren; let similar enterprise, intelligence, persistence, and capital, be employed here, and a formidable rivalry will be established that must also, we believe, prove a gratifying success.

ROYAL HORTICULTURAL SOCIETY.—At a general meeting of the Society, held on Tuesday in the conservatory at South Kensington, MAXWELL T. MASTERS, Esq., M.D., F.R.S., in the chair, the following candidates were duly elected Fellows of the Society, viz., John G. Adams, F. Hayman, A. Lovesy, A. S. Montgomery, T. Y. Moore, William Podger, John Reid, W. G. Rowlett. It was announced that twenty eight guinea Fellows, whose names had been received, would be proposed for election at an early date.

THE FELLOWS' COMMITTEE.—On the invitation of the Council this body met on Tuesday last to consider certain questions relating to the election of local secretaries, the affiliation of local societies, and the desirability of memorialising the Government to include horticulture with agriculture in the proposed new Ministerial Department. That the interests of the practitioner were considered may be gleaned from the fact that the meeting was attended by, among others, Messrs. COLEMAN, DOUGLAS, SMITH (of Mentmore), WILDSMITH, and WOODBRIDGE.

THE EMPLOYEES.—It has been suggested that the occasion of vacating the South Kensington premises by the Royal Horticultural Society is one that should be taken advantage of to invite the *employés* of the Society at South Kensington and Chiswick to an entertainment, by way of expressing the sense of the uniform courtesy and attention which they have at all times shown towards exhibitors, the members of the committee, and others. Those employed at South Kensington in a subordinate capacity will have to leave the service of the Society, consequently upon the change of home, and it is stated that the *employés* at Chiswick have received notice to leave, although the order may not be enforced at present. Before they are dispersed it is thought they should be invited to a supper, and Mr. Richard Dean, Raneagh Road, Ealing, who has the matter in hand, will be pleased to receive the names of gentlemen who would be willing to co-operate by forming themselves into a committee to carry the proposal into effect.

"KEW BULLETIN."—The first article in the March number refers to the produce of *Forsteronia gracilis*, an Apocynad found by Mr. JENMAN to yield a description of Caoutchouc—most favourably reported on by Messrs. SILVER. Should this favourable verdict be confirmed by further experience, the resources of British Guiana will have received a notable addition. Other

articles relate to Patchouli, various West African Indigo plants, the culture and fertilisation of Vanilla, *Streblus* paper, the produce of *Streblus asper*, a plant grown in Siam. An interesting account of the manufacture of the paper, and the uses to which it is put is given. *Urera* fibre, produced from a Nettle-like plant, native of Natal, comes in for a notice, as likely to be serviceable in the same way as Rhea fibre. Jamaica is likely to enter the lists as a Tea-producing island, the early experiment with plants sent out from Kew having proved very satisfactory.

AGRICULTURAL PRODUCE STATISTICS.—The quantity of Wheat produced in 1887 in Great Britain was more than 74 millions of bushels, as compared with 61 millions in 1886 (fractions of a million are omitted); the average yield per acre in 1887 was 32 bushels, against 26.8 bushels per acre in the previous year, showing a total increase of 12,854,849 bushels, or nearly 21 per cent., and an increase in the yield per acre of 5.18 bushels, or over 19 per cent. The seasonal characters were a cold, dry spring, followed by hot dry weather, so that not only was the quantity large, but the quality also, the average weight per bushel being 63–64 lb. Straw was short. Barley was below the average, and Oats still more so. Pulse crops were greatly below average. Potatoes were rather more productive than in 1886. Mangels were considerably below average, as was also hay. The full tables whence these particulars are taken will be found in the *Agricultural Produce Statistics of Great Britain*, which may be had for 5d., from EYRE & SPOTTISWOODE, East Harding Street, Fleet Street, and which is a document of the highest interest to cultivators.

STOPPING VINE SHOOTS.—In the *Bulletin d'Arboriculture* M. PYNAERT, alluding to the common practice of stopping the shoots at the second leaf above the bunch, says that in the vineries at Manage in Belgium, an interesting experiment has been made. In a span-roofed house in which fifty to sixty Vines are growing: those on one side of the house had been pinched in to the second leaf beyond the bunch, while on the other side of the house the shoots had been allowed to attain a length even of 6 or 7 feet. The bunches on the Vines where the shoots were allowed to extend unchecked were quite as good as those on the pruned Vines, and, moreover, they were three weeks in advance of them—a point of the greatest moment in Vine forcing. M. BUVENICH confirmed the statement of M. PYNAERT. It is greatly to be hoped that some one will try this experiment here. The vineries at Chiswick offer excellent opportunities for carrying out such an experiment and at no pecuniary cost. Will the Chiswick Committee of the Council kindly note?

BOTANY.—The "Smart" Studentship of Botany at Caius College, Cambridge, is about to be awarded. The studentship is open to all members of the University who have taken honours in the first part of the Natural Science Tripos. The student is to apply himself to original investigation in botany, or to forfeit his studentship. The studentship is of the value of nearly £100 per annum. In former years we had too much cause to regret the almost exclusive addiction to systematic botany in this country, to the neglect of physiology more particularly. Things have changed, and it is morphology and systematic botany that now need encouragement—a fact which the awarders of prizes and studentships will do well to recognise.

"GARDEN AND FOREST" (a Journal of Horticulture, Landscape Art, and Forestry).—Such is the title of the new horticultural journal issued in New York, under the auspices of Professor SAROENT. First numbers are proverbially bad examples of what is to follow; but proverbs are very far from being always true. The general impression that the new venture makes upon us as we glance at its contents is, that it is permeated with a spirit of knowledge and refinement. Forestry and landscape garden-

ing naturally occupy much attention. An extraordinary picture of an extraordinary *Chrysanthemum* leads off the illustrations; the flowers are white, and the florets covered with glandular hairs, which give them a remarkable appearance. Dr. MAYN contributes an article on the Weymouth Pine, called White Pine in America, in which it is said that no Conifer in Europe can be cultivated with so little care and risk as the White Pine; the frost does not injure the young plants, and the numerous insects invading European trees during their whole lifetime inflict but little harm. How far this relative immunity from insect harm holds good with old trees we do not know, but we fancy that young trees of the *Strobis* section are peculiarly liable to the attacks of American blight (*Schizoneura*). It has been with great concern, that we have heard of Professor SAROENT's recent illness. The appearance of his new journal is a good omen, and we heartily wish sound health to the Editor, and a full measure of prosperity to his paper.

"A BOOK OF DOMESTIC POULTRY."—This is a clearly written, common-sense production, which we commend to the attention of our readers. It is written by the Manager of the Blanchworth Poultry Farm, Dursley, Gloucestershire. The great secret in poultry-keeping is to procure birds that are healthy, and to keep them so. Many people are much too negligent in the matter of cleanliness and sanitary precautions, forgetting that the birds are not wild birds in this country, and are therefore not able to withstand evil influences and unhealthy conditions as wild birds can. The method of giving food also requires judgment, which is too rarely exercised. Not only cottagers, but villa gardeners in the suburbs, require also to be cautioned about the localities in which they allow their birds to stray, and the food they give them. Eggs strongly flavoured with Onions are not agreeable, but they are not uncommon. When the Manager issues another edition of his useful book, it may be well for him to consider whether the insertion of marginal advertisements on each page will not be resented by the reader as impertinent intrusions, and tend to repel rather than attract him. Advertisements are excellent things in all ways, but they should be kept in their proper place.

COMPARATIVE ANATOMY OF FLOWERS.—The Rev. GEO. HENSLAW has lately contributed to the Royal Society a paper on this subject, and specially on the vascular cords or "axial traces," which often give a clue, by their nature and arrangement, to the real construction of a flower, which is otherwise undiscernible. Exception may, perhaps, be taken to Mr. HENSLAW's statement that the cords are floral units, giving rise to axes as well as to all kinds of floral appendages, inasmuch as the organs are often sketched out, as it were, in cellular tissue long before any trace of vessels can be seen in them. The true nature of things in cases of concrescence or inseparation of parts which ought, but do not become detached from one another, is often capable of explanation, as Mr. HENSLAW points out, by the examination of the vascular bundles. We await with interest the publication of the paper as a whole.

"FLOWERLAND."—This is styled an introduction to botany for children, and for the use of parents and teachers. It is the work of the Rev. ROBERT FISHER, and is published by HEYWOOD, of Manchester. It is meant to be used with the flowers in hand, and is very simple, and well adapted for its purpose.

"FLORAL TEA-KETTLES."—These, says the *American Florist*, "are getting to be quite the correct style of decoration for afternoon teas. A very pretty one, sent out by FEAST, New Year's week, had the spot formed of Marie Louise Violets, the body of white Camellias with a band of magnificent "Bennetts," and the handles of Smilax (asparagus), La France and Mermet Roses. Another, for a pink tea, was made entirely of pink Roses, and was hung

from a tripod covered with *Asparagus plumosa*." Oh! how quite too awfully lovely!

SUCH IS FAME I—We extract the following from the *Queen*—the italics are our own:—"The death is announced of the American lady botanist, ASA GRAY. She was elected in 1878 by the Paris Academy of Sciences as its corresponding member."

THE FROST.—In the Banbury district during the past few weeks very wintery weather has been experienced, very deep snow, and as much as 19° of frost. It is singular to note that while there has been a heavy snowfall within 40 and 50 miles of London, and even nearer, a large area of which London forms the centre, has been visited only by light showers of snow.

THE SEVERE WEATHER IN CORNWALL.—Mr. C. LEE, gardener at Boconnoc, writes:—"Since February 13 the weather has been unusually cold for this county, 11°, 13°, and 15° of frost have respectively been registered. Spring flowers, such as *Myosotis*, variegated *Arabis*, *Limnanthes*, *Brompton Stocks*, *Wallflowers*, *Lenten Roses* (*Helleborus olympicus* and its varieties) are blasted, the flowers all drooping to the ground, some of these being quite dead. *Rhododendron Nobleanum*, that was in full bloom on January 28, has all its flowers and prominent buds killed; *Czar Violets* that were flowering freely are spoiled, even those that were in vases were found to be encrusted with ice. Kitchen garden crops have a scorched appearance; Cauliflower plants planted at the foot of a south wall have escaped, and I am glad to see that the *Broccolis* have withstood the frost so well. I never recollect seeing so many dead redwings, unless much snow had fallen. I suppose, being short of food, they could not endure the freezing north-east wind. At Camborne the weather was very severe, with strong cold winds, and accompanied by a light fall of snow. Work was stopped at the tin streams owing to the ice, and, what is a most unusual occurrence in West Cornwall, water drawn for domestic purposes was found with a thick coating of ice. At Falmouth, Penryn, St. Austell, Truro, and St. Ives such severe weather has not been known for many years; the favoured valley of Penzance has not altogether escaped, but the frost there was of short duration."

DEVIZES CHRYSANTHEMUM SHOW.—The usual exhibition is announced to take place on November 13, in connection with the annual Bazaar in aid of the funds of the Benevolent Society, the proceeds of which go to the relief of the poor during the winter. The show is under the management of Mr. THOMAS KING, The Castle Gardens, Devizes.

ACACIA DEALBATA.—M. ANDRÉ records in the *Revue Horticole* the practice followed by the Provençal gardeners to hasten the flowering of this shrub, branches of which are at this season so largely sold in the flower shops. The branches are cut when the flower-buds are well-developed, the cut ends placed in water, and the whole branch placed in a warm place. By this means the normal period of flowering is accelerated by one month, and the price obtained correspondingly enhanced. Thus the forced blossoms fetch a price of 3-4 francs the kilogramme, instead of about a franc per kilo (or 4½d. a pound).

COPYRIGHT IN SEEDLING FRUITS.—In the *Garden* of February 18 Mr. T. F. RIVERS raises a question of no little importance—one which a regenerated Horticultural Society might deal with. Mr. RIVERS complains, with some justice, that two seedling Plums, which are likely to be valuable additions to the home fruit markets—The *Czar* (T. F. RIVERS) and The *Sultan* (T. F. RIVERS)—are mentioned without his name being appended. These two Plums, according to Mr. RIVERS, "from the arrangement of their parentage, their fructification and the responsibility of making them public, are entirely my own. If I had a right of copyright, to which," continues Mr. RIVERS, "I intend I am entitled,

I should not only now be reaping a handsome income, but I should be able to employ nearly all the land and labour in my parish for growing trees, as it has been admitted that these early Plums have enabled the English grower to compete successfully with the foreign fruit grower."

ASA GRAY.—The *Pharmaceutische Rundschau*, a German pharmaceutical journal published at New York, contains a sympathetic account of the life and labours of this great botanist, of whom it is said in the words of BRYANT, that—

"Sustained and soothed
By an unflinching trust he approach'd his grave
Like one who wraps the drapery of his couch
About him, and lays down to pleasant dreams."

THE DUKE OF NORTHUMBERLAND'S NEW COTTAGES FOR HIS WORKPEOPLE.—The Duke of NORTHUMBERLAND has just erected, near to the entrance to the gardens of Syon House, at Brentford End, a set of six new cottages for the workpeople. They are models of what cottages should be, and in their solidity, finish, and regard for the comfort of the inmates stand out in marked contrast to much of the cottage property run up in the present day. Each cottage has four good living rooms, with excellent back offices; they are substantially built at a cost far beyond what is expended on similar buildings in the present day. In the middle of the row is a common passage, which, running until it reaches the termination of the back offices, branches to the right and left at a right angle, and continued until it reaches the back yards of the two end houses. Beyond this passage, running athwart the block, is a nice piece of walled-in garden, with the ash-hole in each. The yards, &c., are all asphalted, and the drainage perfect. An objection is sometimes lodged against housing the poor in good cottages, that they fail to appreciate improvements in sanitary arrangements. The Duke of NORTHUMBERLAND appears to be one of those practical philanthropists who believe that until the poor are well and comfortably housed they will not improve in their habits of living. These cottages have been erected under the active superintendence of Mr. J. WOODBRIDGE.

HARRISON WEIR.—The jubilee of the genial artist's working life has lately been celebrated. As HARRISON WEIR is not only a sympathetic and facile artist, but a good gardener, the following extracts, taken from the *East Sussex News*, may be read with interest:—

"He was among the first to give those faithful representations of birds and animals which lent such a charm to the books of our early days, thereby helping very materially to mould the mind to more thoroughly appreciate the beautiful in Nature and Art. A well drawn picture speaks to every mind, however youthful or illiterate, hence its great advantage as an educational medium. Fifty years last December he left school to make his mark in the world and that he has done this thoroughly and well cannot be doubted. Hard work it doubtless has been during this long period and frequently laborious in the extreme, as all his productions were of necessity the result of personal effort. Mr. WEIR may be looked upon as the pioneer of really good illustrations in popular literature, a branch of art which has now reached a high state of perfection. His ready pen and graphic pencil have ever been on the side of humanity, pointing out in a most charming manner the instincts and beauties of animal life. His skilful delineations have advanced the cause of humanity far more than all the prosecutions of the Royal Society for Preventing Cruelty to Animals. HARRISON WEIR's great aim has been to engender a love for the brute creation and thereby provide at the same time the true remedy against cruelty and an ennobling and pleasurable interest in animal life. Apart from artistic success he has gained honours and prizes with poultry, pigeons and fruit. At the present time he is on the Fruit Committee of the Royal Horticultural Society. Although long celebrated as a judge of poultry, on the points of the fancier, he contends that poultry shows are comparatively a delusion and that we are giving up delicacy and quantity of flesh for pecu-

liarity of plumage, eccentricity of build, &c. We learn that he is engaged in preparing more books for publication, one being entitled, *The Domestic Cat*, another on birds, having already published *Every Day in the Country*, *Animal Stories Old and New*, and *Bird Stories Old and New*, the last being, as he quaintly puts it, his Jubilee book, it being issued for last Christmas, and of it 10,000 copies were printed. Mr. WEIR's efforts have been recognised in many ways beyond their mere money value, and he has many pleasing mementoes of past efforts. He prides himself on having originated cat shows. The first venture of this kind resulted in a large profit, and the directors of the Crystal Palace Company presented him with a very handsome Silver Cup in honour of the event." Lately Mr. WEIR, with his usual versatility, has entered the ranks of journalism, and we may add with his usual success. Long may he continue to add lustre to his varied professions.

CHRYSANTHEMUM SHOW FIXTURES.—The annual exhibition of the Kingston and Surbiton Society is fixed for November 6 and 7, that at St. Neots on November 12, the Bournemouth and District Society's Exhibition on November 14, the Hull and East Riding on November 22, and Winchester on November 13.

ROSE SHOWS IN 1888.—In addition to those announced at p. 336, there are the following:—June 28, Brockham and Ryde; July 4, Richmond, Surrey; July 11, Ealing; July 14, New Brighton; July 21, Manchester.

PRESTON AND FULWOOD HORTICULTURAL SOCIETY.—This Society deserves the thanks of its members for the publication of the valuable papers presented to it. In the report before us are papers on Bulbs, on Orchid Culture, and on Ferns, by Mr. SWAN; on Rose Culture under Glass, by Mr. PAYNE; on Vine Culture, by Mr. WATERS; on Bees, by Mr. MOSS; Tuberous Begonias, by Mr. SPELMAN; and on Manures, by Mr. HEATON.

TRADE NOTICE.—Mr. W. E. DIXON desires us to state that letters addressed "Lawson Seed and Nursery Company," either with or without "Manager," find their way to the liquidators. Correspondents who may wish to address him privately must send to Bangholm House, Edinburgh, and on business to The Lawson Seed and Nursery Company.

PUBLICATIONS RECEIVED.—*Colonial and Indian Exhibition Reports on Trinidad Exhibits, with further Notes thereon.* By J. MCCARTHY, F.I.C.; and J. H. HART, F.L.S. (Port of Spain, Trinidad: Government Printing Office.)

CULTURAL MEMORANDA.

ACACIA LOPIANTHIA.

The graceful habit and Fern-like foliage of this plant renders it a very desirable subject for decorative purposes. Soak the seeds for a few hours in warm water before sowing in a small pan or 6-inch pot filled to within an inch of the rim with ordinary potting mould. Cover with half an inch of soil, and place in a hotbed or any warm structure that may be at command. When the seedlings appear, if not already occupying a position near to the glass, give them such. When about 2 inches high pot off singly into 3-inch pots, returning them to heat for a week or two, giving water at the roots, and shading from sun for a few days, subsequently shifting the plants into 4½-inch pots; later on shifting all the strongest plants that are likely to fill 6-inch pots with roots before the end of September into that size pots, growing the plants on during the interval in a frame, pit, or on the shelf or kerb in the greenhouse, giving water at the roots when necessary.

THUNDERBORGIA ALATA.

Plants of this handsome half-hardy annual are very effective either as pot plants or for covering a

pillar or wall in a greenhouse or conservatory during the summer and autumn months. It may also be used for the same purpose out-of-doors in a warm situation. The flowers are either white, buff, pale yellow, or orange with a purple-black centre, or uniformly orange or white. Sow the seed at once in a pan or 6-inch pot filled to the rim with light sandy mould, cover lightly, and place in heat. As soon as the seedlings are large enough prick them off a couple of inches apart, put back in heat, give water, and shade from the sun until the roots have pushed into the soil. From three to five plants placed in $\frac{1}{2}$ -inch, 6-inch, and $7\frac{1}{2}$ -inch pots respectively—using a compost of three parts good loam and one of sifted manure from an old hot-bed, with a sprinkling of sand added, watered and grown on in a pit or greenhouse—will in a short time grow into useful furnishing plants. They must be kept well supplied with water at the roots and overhead, otherwise red-spider will ravage them.

BRUGMANSIA SUAVEOLENS.

This fine greenhouse plant is of easy culture. It produces drooping, fragrant, yellowish-white flowers, nearly a foot in length, and of a tubular form, with bell-shaped mouth. It grows well in a mixture of three parts good fibry calcareous loam and one of leaf-mould and sharp sand. Cuttings taken off now and put in singly in 3-inch pots filled with light sandy mould, plunged in a hotbed, watered, and kept close and shaded from the sun during the hottest part of the day, will soon take root and start into rapid growth. The little plants should then be given more room at the roots and a less warm temperature in which to grow, keeping them moist at the roots, and damping them overhead on bright afternoons, to keep the leaves free from red-spider. About the middle of June set the plants out-of-doors in a warm situation, 18 inches apart, putting some soil of the description indicated about their roots to grow in, potting them up early in September. Meanwhile they should be attended to in the way of pinching the shoots two or three times, and keeping them well supplied with weak manure-water at the roots, and syringing overhead every afternoon in the absence of rain. *B. sanguinea*, having reddish-crimson flowers, is also well worth growing.

THE HARDY FRUIT GARDEN.

DOUBLE GRAFTING PEAR TREES.—To carry this out in a systematic manner, trees should be selected which are either budded or grafted on the Quince, and the two following varieties, being strong growers, are admirably adapted for the purpose, viz., *Beurré Bachelier* and *Beurré Diel*. These will be found excellent trees on which to graft the finer flavoured Pears, especially those that grow indifferently when grafted directly on to the Quince stock. The growth they make when double grafted is much more robust, the fruits are larger, and the flavour is much improved. On the other hand, there are many varieties that do grow well on the Quince, but the flavour of the fruit being merely passable they are greatly improved by being double worked. It is remarkable how double grafting influences, and in some cases changes, the character of the fruit, two notable examples being *Althorpe Crassane* and *Beurré Superfin*. In the first case the size of the fruit is much increased, and becomes more round in shape; in the latter case the fruits are more like *Marie Louise* in shape, the colour a deep reddish-brown, and the flavour peculiarly rich and refreshing. There are other varieties which show the same differences; *Knight's Monarch*, too, when grown in this way, does not show the tendency to shrivel when kept, which is a characteristic of that variety. In referring to this subject last week I mentioned that any one possessing good healthy Pear trees, &c., and I would recommend that the trees should now be cut back and made ready for grafting. Should the trees that are to be operated upon be cordon trained, cut them down to within a few inches of the stock; if pyramids or bushes, reduce the number of branches to about seven or nine, and leave these about 6 or 7 inches in length, so that when the grafts begin to grow the tree will quickly form a good head again, and in the case of fan, or vertical trained wall trees, cut the branches

off to within a sufficient distance from the stem so that the grafting can be conveniently performed. There are various ways of grafting fruit trees, but that designated whip-grafting is the method generally practised, and the one most suitable for this purpose.

The following is a short list of varieties of Pears suitable for double grafting. The first eleven named are for grafting on trees already on the Quince stock, and the remainder for trees that are on the Pear stock:—*Summer Beurré d'Aremberg*, *Beurré de l'Assomption*, *Thomson's*, *Beurré Superfin*, *Marie Louise*, *Doyenné du Comice*, *Knight's Monarch*, *Dana's Hovey*, *Althorpe Crassane*, *Beurré Rance*, *Bergamotte d'Esperen*, *Souvenir du Congrès*, *Madame Treve*, *Beurré Hardy*, *Brockworth Park*, *Pitmaston Duchess*, *Forelle*, *Glou Morçean*, and *Josephine de Malines*. *Catillac*, grafted on the Swan's Egg, always bears enormous crops of fine fruit. *A. Ward, Stoke Edith Gardens, Hereford.*

USEFUL INVENTIONS.

THE DOUBLE-POINTED NAIL.

This appears likely to fulfil a want that has been long felt, viz., that of being able to fasten boards, &c., together without the means by which the work is done being visible. The nail, says the inventor, renders any wooden fence perfectly unclimbable. It is as formidable as a bayonet, and cannot be masked by a sack or coat as can the ordinary tenter-hook. They are also valuable for forming teeth in rakes, harrows, &c. It is well known that in putting up woodwork the nail-holes always show, and no kind of putty has yet been made that will hide the holes. Various means have been tried to obviate the use of nails for the best kinds of work, but nothing as inexpensive and so effective as this device has been found. It will be seen that it is double-pointed, with the hammer-head, *A* (fig. 53), placed about its centre, with a chisel-edge *n*, immediately underneath it; the reverse sides are parallel, to prevent splitting the wood. The nails are driven into the wood flush with the outside of the head, *A*, the chisel-edge and shoulder readily entering the wood (see fig., p. 311). The piece to be attached is placed in position, and blocked down, when the nails will enter into the substance and securely fasten it invisibly. The nails are made in various sizes to suit the finest cabinet-work and joinery of all kinds, to the heaviest work in carpentry, ship-building, &c.

The nail is the invention of a lady, Mrs. E. Durraus. It is stated that the nails are only half the price of tenter-hooks.

HOME CORRESPONDENCE.

VEGETABLE GARDENS.—While we read of snowstorms and general wintry weather in parts far south from our own locality, we are able to look out on green herbage which has not been entirely snow-covered during the whole winter. Nevertheless, we admit that snow often comes as a "welcome visitor" when frost is severe, to act as shelter for vegetation in general. Mild as the winter has been (compared with past seasons), such crops as Spinach and Cabbage are severely nipped, but *Rosette* Coleworts are safe and sound and little models ready for use—the winter has been exceptionally favourable to the trenching and digging up of ground preparatory for seed sowing, and many will now be ready to take the first opportunity of getting in the main crop of Onions and Parsnips. These both require deep soil to allow the roots free course downwards; but Parsnips are not benefited by extra rich soil, and do well on land which is in good order after being cropped the previous year. Onions do best in strong ground, rich, and made firm before sowing the seed. This bulb has special attention among competing cultivators, and much pains is taken to get a good start with the sowing of seed. Dustings with soot afford a good stimulant for giving health and vigour to Onions, but probably of more value as a check to vermin,

which are often so troublesome to young Onion crops. A great deal of mischief is done to Onion crops by sowing the seed into battered soil, which (when the ground dries) imprison the seed and the seedlings come through weakly and are a ready prey to grubs. While firm ground is recommended, that does not mean making the surface impervious to air, by treading the surface when wet, indeed, if the firming has been done before sowing there is not much good in rolling or treading afterwards, while old gardens are much improved by turning into them quantities of fresh soil, or by raising up a small portion of the subsoil to sweeten the surface, which does much to improve the crops, and the turning down of the soil abolishes much of the seed of weeds, and destroys vermin. Errors are, however, often committed by turning up much of the inert or tenacious subsoil, which causes much labour and some disappointment for one season at the least. The injudicious system of bringing large masses of subsoil to the surface has done much to check the commendable practice of deep trenching. Those who are forming new vegetable gardens should be cautious not to fall into the error indicated. It is very general to trench well at first, and we have known it done "too well." Depth of fertile land and the nature of subsoil should be the guide taken in dealing with the staple of new gardens; it is enough, if a clayey subsoil be well turned over at bottom and broken. The position of the vegetable garden is not always skillfully chosen, and is often quite the reverse. To appear well on a plan is often the first consideration, and when such is adhered to—irrespective of the perhaps unpleasant proximity of the dwelling-house, or the disfigurement of the landscape—the view of huge brick walls as prominent objects of a demesne is far too common. Such aids to fruit growing might often be exchanged for glass erections, which are sure to give good returns under intelligent care, and be of much service also as protectors. These houses are of special value in the northern parts of the country, and where such are in use they are generally found to afford much satisfaction. At the present season Parsley, Lettuce, Broccoli, Endive, young Peas, and many other items are sheltered in cool houses, which would otherwise entail much labour and untidiness if preserved in the open ground. The protection of plants used in the forcing department and for vegetables, apart from fruit culture in these structures, pays good interest to proprietors. *Caledonian.*

HELLEBORE CULTIVATION.—During the past few weeks I have been much interested in the discussion upon Hellebores, and although the treatment recommended is rather perplexing, still I think that with a little consideration anyone with a fair amount of common sense would have no hesitation in arriving at the proper course to adopt. For instance, if the object is simply to move the plant from one locality to another, my plan would be to lift it with as much soil as would adhere to the roots. Again, if the object was to increase the stock, washing the roots would of course be more expeditious, and would be accomplished with less injury to the roots than if covered with soil. We have a plant of *H. niger* major which was purchased three years ago from Mr. Stamp at Bishopton, Devon, as an extra clump; after being planted one year it was found necessary to remove it to a distant part of the garden. This was done at the end of March, and with as much earth as possible. The plant received no check, and has this season produced between 450 and 500 fully developed blooms, and is a mass of leafage. I simply cover with a common garden frame. The soil here, I may add, is a rather light loam, on the limestone formation, which gets rather dry in summer, necessitating abundant supplies of water, which, in the case of the plant in question, was diluted drainings from the cowsheds. *W. Beswick, Besborough Court, Cork.*

ROYAL HORTICULTURAL SOCIETY.—If the Society is to continue to exist, it is in my opinion absolutely necessary that it should have a London office easy of access in some central position. It is also necessary that the Society should endeavour to induce horticulturists to join, in order that funds may be provided for the maintenance of Chiswick. I believe it will be advisable to have a few meetings in the summer at Chiswick, to give persons who reside near the gardens an inducement to join the Society. I think it will prove good policy to have some place nearer the City than either South Kensington or Chiswick to hold the fortnightly shows. Although the Drill Hall, near Victoria Street, may

not be the thing that could be wished, nevertheless it is close to the Army and Navy Stores which large numbers of people frequent. I shall be much disappointed if sufficient gate-money is not taken to at least pay the rent of the hall, provided the trade support the Society by exhibiting the plants of their establishments. I expect to be told that gate-money at South Kensington was a failure, but it must be remembered that during the Colonial and other Exhibitions the Society did not charge for entrance. If £50 can be obtained, a sum which I have known to be taken as gate-money in Finsbury Circus for the exhibition of a few sickly plants grown in the City, surely the Council may reasonably expect to take £200 during the whole year from the shows at Westminster. *A. H. Smea.*

GUINEA FELLOWS OF THE ROYAL HORTICULTURAL SOCIETY.—The Council of the Royal Horticultural Society has now determined that in addition to the £4 4s. and £2 2s. Fellows, and 10s. 6d. Gardener Associates, they will admit as Fellows, with a vote, ladies and gentlemen paying a subscription of £1 1s. For many years past I have believed that this would give the means of resuscitating the Society, and of placing it on a broad and sound basis. The owners of gardens all over the country are the natural supporters of a Society by whose action the flowers, fruit, and vegetables which they grow are improved, and if the facts of the case were fairly brought before them they will join the Society. I am to some extent pledged to be the means of bringing in 500 guinea Fellows within a year, and I mean to do this; but it will require the aid of all my friends, acquaintances, and gardening connections; of these last, especially of some of the visitors to our experimental garden at Wisley, I have not the present addresses. Will you allow me to reach those who read your paper by its means, and to say that I think our best course will be to make a committee for the purpose of finding suitable Fellows—a committee which, formed for a single purpose, will involve neither attendance nor expense nor liability, and to request that any lady or gentleman disposed to join this committee will communicate with me at the above address? *George F. Wilson, Heatherbank, Weybridge.*

FRUIT TREES.—I hear of these being unusually forward in some parts, but it is not so in my own locality. Apricots are barely showing colour yet, and all other wall trees appear to be at present, and good crops of fruit may reasonably be expected on trees which have been rendered fruitful by good cultivation. When fruit trees are yearly loaded with flower-buds, which seem to expand well, but no fruit rewards the grower, it shows that something should be done to restore fruitfulness. If root lifting has been neglected we would not let even this season pass without attempting a remedy. Though skilful men do this in autumn it is better not to lose a season by neglecting the work entirely. I have root-pruned and partially lifted fruit trees during every month of the year, and have had no reason to regret the labour expended; certainly one cannot expect more from the trees so manipulated the first season than the formation of fruit-buds for the next year. Reverting to abundance of flower-buds minus fruit, it often happens that fruitfulness would be certain were it not that the buds are so crowded that they cannot set properly because light and air cannot reach the stamens and pistils of the flowers, than which nothing is more certain to prevent setting. It is well to practise systematic thinning of fruit-buds, leaving them clear of each other. Those at the back of the shoots next the walls are better all taken off, and were it not that shelter is had from the young wood growths I would thin them also as soon as they are discernible. Under glass we pick them off, leaving only those at the base of the shoots and at top to draw up sap. They never feel a check from this practice. *E. Ward.*

SOLOMON'S SEAL.—It may not be generally known that the juice of the root of this plant is an excellent remedy for removing discoloration of the skin caused by bruises when the latter is not broken. [See what old Gerard says on this point!] Procure a piece of root any size, pare away the skin down to the flesh, and rub the juice from the root on to the discoloured skin several times, each time cutting off a slice of the root to procure a further fresh supply of the juice; repeat the application three times a day until the desired effect be obtained. In some places Solomon's Seal grows wild in the woods, and a stock of plants may be procured for forcing in a simple

manner. During September, just before the foliage drops off, dig up the roots 4 inches long, potting them, say, five in a 6-inch pot, in fairly rich soil, standing the pots in a cold frame until required for forcing. About two months is required to have the plants in flower in a temperature of about 55° by night, with a rise of 10° by day. [One month will suffice, in our experience. Ed.] Abundance of water at the roots is an advantage to the plants while growing, but if the water be at all impregnated with chalk or other deposit the plants will be the better for not being syringed. After flowering, the plants should be placed in a cold frame for a time until thoroughly hardened off, when the roots should be parted, planting each piece singly in rows on a west border, allowing sufficient space for the full development of the leaves. The roots should remain here until the following October twelvemonths, when they may be again taken up and potted. *S.*

SCILLY.—Narcissus in great numbers are in bloom in the open air in the Isles of Scilly. The season began in the second week in February, and will continue for some weeks longer. The varieties include all the older ones, and a few of the newer species and hybrids. *J. C. Tonkin, Isles of Scilly.*



FIG. 53.—DOUBLE-POINTED NAIL (SEE P. 310.)

AUCUBAS IN BERRY.—As decorative plants for embellishing cold structures during the winter months Aucubas stand in the front rank. The Aucuba, with berries or not, has no equal as a plant for cold entrance halls, being far superior to the Skimmias, which have dull red berries, whilst these are bright as coral. Aucubas in berry are excellent for filling window boxes, and look well when intermixed with *Retinospora plumosa obtusa*, and *pisifera*. Every one has the means of producing Aucubas with berries by placing in proximity to each other the male and female varieties of the plant, which can be purchased at a cheap price at the nurseries. In some nurseries large breadths are thus grown for the purpose of obtaining plants of all sizes well furnished with berries, the variety chiefly grown being that known as *A. vera*. A fully furnished Aucuba, nicely grown, and in a small pot, is a not undesirable object for the dinner-table. I remember on the occasion of a visit to Bearwood, Berkshire, a few years ago, Mr. Tegg drew my attention to a long hedge in the frame ground of Aucuba vera, literally covered with berries, and I was told that it fruited in this way every season. *Pro.*

BEE FLOWERS.—By these I mean flowers from which the bees can derive honey or pollen, or both. The first genial sunny days of spring bring them forth in quest of the nectar the early flowers afford. The Crocus is much sought for by bees, as they derive both honey and pollen from the blossoms. I have a permanent border of Crocuses, and on a warm sunny March day, when the flowers are fully expanded, a large number of bees can be seen at work among them; the hum of busy insect life is pleasant to the ear. The Snowdrop yields honey and pollen both; the inflorescence of the Willow also furnishes pollen, and that of the Elm likewise. The Wallflower, Aubrietia, and Almond largely attract the bees, and so does the common Dandelion of the wayside. The Peach, like

the Almond, supplies pollen and honey both; the Nectarine also, and the Plum, Cherry, Pear, Apple, Gooseberry, Currant, and Chestnut. The latter supplies a crimson pollen, for which the bees appear to have a great liking. The sweetness of the blossoms of the Lime yields much honey; so do the crimson flowers of Sainfoin and Trifolium incarnatum. Bean blossoms have a great attraction for bees, so have the blossoms of the Mignonette and the Viola. Anyone can see the bees busy at the white Dutch Clover, and it ranks high in the opinion of the aparian; and the same can be said of the common Melilot Clover, which is found to impart a must agreeable sweet scent to a crop of hay: and cattle enjoy it greatly when cut in a young state. The Hollyhock and Hawkweed also furnish supplies, the Buckwheat especially so, Sage, Mint, and Borage supply honey; so also does the common Heather in abundance. It is said bees will go a long way in search of this. I can well remember, many years ago, one who had studied closely the habits of bees, stating they would fly across the Southampton Water in search of Heather in the New Forest. Limnanthus Douglasii, single Dahlias, the Sunflower (chiefly pollen), the Golden Rod (Solidago), Alsike Clover, the Scabious, and all Cruciferae, especially Cabbage and Rape, are also useful honey producing plants. *R. D.*

MUSHROOM CULTURE.—What I now state may be of some interest to gardeners. I have frequently observed that writers on Mushroom growing advise old spawn to be thrown away. This year I made up a bed in the middle of January, and have been picking Mushrooms from that bed for more than a week, and the material was not in the best order when made up, for, shed-room not being at command, it was, owing to snow and rain, very wet. I made up the bed notwithstanding, mixing the dung of the old spent bed with the new materials; and when at the proper heat for spawning I used spawn that was two years old, and which was very dry, and nearly as hard as a board, having lain on a shelf in one of the stoke-holes. This is not the first time I have had success with old spawn. *G. H. Merton.* [The large "buttons" sent were fleshy, solid, and showed no evidence of having been unduly forced. *En.*]

SNOW AS A PROTECTOR.—I always rejoice when a fall of snow comes between a time of rain and one of sharp, stinging frost. During the frosty time that ushered in the New Year I placed some light litter over certain things in the open ground, which, though hardy in themselves, are yet liable to danger in a somewhat stiff and retentive clay, and they never seem to me to be so secure as when covered by a pall of snow. I find from experience with a moist soil that it is when keen frost follows sharp upon rain that the greatest amount of damage is done. But the snow is a valuable protector, covering up everything snug and warm, and out of reach of danger. A dozen plants of *Agapanthus umbellatus* planted out under an east wall came safely through the rigours of last winter with only a covering of snow—not a plant was lost. "He giveth snow like wool" is a truism, for it is not only soft and white when it falls, but it keeps anything that it covers protected from the outside cold. I go a step further, and as soon as the snow has fallen, and before it becomes hard and frosty, I shovel it up from the walks and add to the covering lying over anything I am desirous of protecting, and when the thaw comes, if the leaves have become a little crushed they soon recover. I think the snow makes an excellent covering for cold frames also, and when a fall is imminent I take off the covering (if any) on the frame, and the snow takes its place, and if it melts through the action of the sun, I add more from that lying round the frame. *R. D.*

BEGONIA LUBBERSII.—I was particularly struck with the appearance of the Begonia as figured in last week's *Chronicle*, as I think I recognise in it what was introduced as a species from Brazil in 1819, under the names of *B. argyrostigma* (Fischer), and *B. maculata* (Raddi), a beautiful foliaged plant, answering in every detail to the admittedly scanty description of *B. Lubbersii* in the accompanying text. I would not for a moment doubt Monsieur l. Comte de Kerchove's observations, but your remark: "For the rest the illustration must tell its own tale," which seems to present to me no other than the silvery-spotted, smooth-leaved species, procurable at any of our leading London nurseries. Should I be mistaken I would be glad if your correspondent would point out the difference. *Medicrter.*

DROPPERS.—It is now three years since in accidentally digging to plant trees in my wood at Edge, I came upon beds of *Scilla nutans* in various stages. With regard to the bulbs which you show on p. 277, and which you say developed in the box, I am pretty sure that only one, viz., the lowest, develops in the ground. I never could catch these just at the time they are descending from seed to mature (spheroidal) bulbs, a three or four years course. The bulbs descend 2 or 3 inches each year. What I wish to draw your attention to is that every seedling passes through the fiddle-shape stage the second (or third) year, but descend they do. *C. Wolley Dod.*

RAILWAY HOME RATES.—Many grievous charges are made against the railway companies, and published by the Press, without a word to explain that the charges are not to be taken as proved. When these charges are subjected to cross-examination, the residuum of truth is found to be remarkably small. I have read the reports on depression, including Mr. Flinn's evidence, and I may say that I have been astonished at the strength of the railway case in reply. Let any of your readers get the third report and read for themselves Mr. Flinn's evidence, and the evidence of others. Sir Thomas Farrer's remarks ought also to be noted. The rate on foreign grain from Hartlepool to Newark is necessarily based on the rates from nearer ports, such as Goole, Grimsby, and Hull. If the companies charged the same rate on foreign grain from Hartlepool as they do on home grain, the foreign grain would simply be landed at Grimsby, Goole, or Hull. From these places the companies are bound to carry it at a certain rate, the rate to Newark being 8s., while as you say from Hartlepool the rate is 9s. 2d. How would the home produce be benefited by the Hartlepool rate being cancelled? Again, it is said that the companies carry foreign goods at a less profit, and therefore must make up their half-yearly rate of profit by charging an excess on home goods. Suppose the Midland Railway has spent £4,000,000 solely in order to carry foreign goods, and the rest of its capital to carry home goods; if the £4,000,000 pay only 1 per cent., of course the other capital must pay an excess. If the Midland Railway has not spent anything solely in order to carry foreign goods, whatever percentage it makes on them will go to relieve the charges on home traffic. It should be remembered in deciding this question that every outlay by the companies has received the express sanction of Parliament and has been made on the faith of Parliamentary Acts. As to Mr. Tallerman, I can well suppose that he disposes of every difficulty in the way of railway regulation. By all means let us have everybody running trucks over the lines at his own sweet will. I presume the cost of compensation for accidents will be paid by the original owners of the property on which accidents occur. Terminals, again, are bitterly complained of, and by none more bitterly than by Mr. Marshall Stevens. Your readers may see in the third report what he says against the Midland Railway expenditure in Liverpool. I could not say, but I do not doubt that that expenditure was clamoured for and welcomed with delight by the Press and public. Every town is always "at" the railway companies for more accommodation. To turn round and denounce the charges made in consequence as illegal (terminals have repeatedly been sanctioned by decisions in courts of law) and new, and unfair, does not appear to me to be just. I am aware that the case against the railways can be made to look overwhelmingly strong. It is necessary from the nature of their business, and I should like to ask parenthetically whose business could not be represented in an odious light? Take an instance mentioned by Sir Thomas Farrer. The Great Northern and Great Eastern carry foreign grain from London into the Eastern Counties at a slightly lower rate than they carry grain from those countries into London. Could not this be made to look like wanton mischief? Yet the explanation is rather creditable to the generosity of the companies. Take another instance mentioned by Mr. Grierson: "The rate on foreign Hops from Boulogne to London was 17s. 6d., and from Ashford on English Hops, 38s. It was, however, shown that owing to the mode of packing 73 per cent. more foreign hops than English ones could be put on a truck." The difference, however, was still great, and the companies cancelled the foreign rate. What was the result? Foreign Hops now are carried by the boats to London cheaper than before. It is easier to accuse than to defend, especially if the defence has to refer to the Blue Books and such treatises as Grierson on "Railway Rates." If the

question is to be understood, these works must be read; and even if the nation has decided to spare the landlord, and war down the miserable shareholder, the question might be understood. *W. M.*

SOCIETIES.

ROYAL HORTICULTURAL.

COUNCIL MEETING.

A meeting of the Council was held on the 13th inst., when the privileges to be given to the Fellows according to the rate of their subscription was finally settled. Nominations were received of thirty-six new Fellows. The Council interviewed several of the candidates for the Assistant Secretaryship, and after much deliberation determined to appoint Mr. Charles J. Grahame to the post. The agreement for the premises, 111, Victoria Street, was finally adopted, and the seal of the Society was ordered to be attached to it. Sir Trevor Lawrence, Mr. Thiselton Dyer, Dr. Masters, and Mr. Veitch were appointed a deputation to wait on the Lord Mayor with reference to the projected show in the City of London this year. The bye-laws, as altered and amended by the sub-committee, were ordered to be printed and circulated before being presented for adoption. The following gentlemen were requested to act as an Exhibition Committee to draw up a programme for the present year—viz., Messrs. G. Bunyard, Barron, Douglas, Haywood, Laing, G. Paul, Rivers, Turner, Veitch, Walker, and Wildsmith, with power to add to their number. The Council will meet again on Tuesday, March 20.

GENERAL MEETING.

At a general meeting of the Society, held the same day in the Conservatory (Maxwell T. Masters, Esq., M.D., F.R.S., in the chair), the following candidates were duly elected Fellows of the Society, viz.:—John G. Adams, F. Hayman, A. Lovesay, A. S. Montgomery, T. Y. Moore, William Polger, John Reid, W. G. Rowlett. It was announced that twenty-eight guinea Fellows whose names had been received would be proposed for election at an early date.

SUMMARY OF THE PRIVILEGES OF FELLOWS AND ASSOCIATES FOR THE YEAR 1888.

A Fellow Paying Four Guineas a Year is Entitled—

1. To a family ticket admitting to all the Society's exhibitions and meetings at 12.30 o'clock, being an hour earlier than the general public.
2. Personal admission to all the Society's exhibitions and meetings at 12.30 o'clock, being an hour earlier than the general public.
3. To personal admission daily, between the hours of 10 A.M. and 5 P.M., to the Society's Rooms, and to the Lindley Library, except on Sundays and holidays.
4. To personal admission, between the same hours and with the same exceptions, to the Society's experimental gardens at Chiswick.
5. The privilege of sending fruit, flowers, and seeds to Chiswick for trial.
6. To a share of such seeds, plants, cuttings, &c., as the Society may have in sufficient numbers for distribution.
7. To purchase such fruit and vegetables grown at Chiswick as are not required for the purposes of the Society.
8. To a copy of all publications of the Society.
9. To the right of voting at all meetings.

A Fellow paying Two Guineas a Year is entitled—

10. To a transferable ticket admitting two persons to all the Society's exhibitions and shows.
11. To the same privileges as mentioned in Nos. 2, 3, 4, 5, 6, 7, 8 and 9.

A Fellow paying One Guinea a Year is entitled—

12. To personal admission to all Society's exhibitions and shows.
13. To the same privileges as mentioned in Nos. 2, 3, 4, 5, 6, 7, 8, and 9.

An Associate paying Half-a-Guinea a Year is entitled—

14. To a non-transferable ticket admitting to all the Society's exhibitions and shows at 12.30 o'clock.

15. To be present at meetings, but without voting on any matters relating to the affairs of the Society.

N.B.—Associates must be *bona fide* gardeners or employes in a nursery, market garden, or seed establishment, and must be recommended for election by two Fellows of the Society.

The Society being incorporated by Royal charter the Fellows and Associates incur no personal liability beyond the payment of their annual subscriptions.

The Society's Exhibitions and Shows are held in the drill hall of the London Scottish Volunteers, James' Street, Westminster, about equi-distant from the Victoria and St. James's Park stations of the District Railway, and close to the Society's rooms at 111, Victoria Street, and to the Army and Navy Stores.

Note.—Any lady or gentleman desirous of joining the Society may obtain forms and full particulars on application to the Secretary, the Society's offices, South Kensington, up to the 25th of March, and thereafter at the offices, 111, Victoria Street, S.W.

MARCH 13.—Tuesday last saw the last of the familiar committee meetings in the conservatory at South Kensington, and earnest were the wishes of the members of the committees there assembled, and others, now that the severance with the ill-fated locality is all but accomplished, that, in its future home a greater need of prosperity, and a long term of usefulness, may fall to its lot. Exhibits were not numerous, but what there were, was of interest to gardeners of all classes, for there were some few choice species and varieties of *Odontoglossum* from Mr. Jacoby; a *Utricularia* of much beauty, and some few *Orchids* from the President's garden, at Burford Lodge; Mr. Tantz showed some of his favourite *Cypripediums*; Mr. Smea astonished everyone with some beautiful panicles of *Cyrtopodium* St. Legerianum; and varied collections were sent by Messrs. Veitch & Sons, Chelsea; Messrs. Veitch & Son, Exeter; and Messrs. Barr & Son, Paul & Son, T. Ware, J. Crook, and others.

A few Grapes and Apples, well kept, were likewise shown.

Scientific Committee.

Dr. M. T. Masters, Vice-President, in the chair. Present—Messrs. Scott, O'Brien, Pascoe, Ridley, Murray, Smith, Dr. Lowe, Professor Church, and the Honorary Secretary, Rev. G. Henslow.

Hybrid Orchids.—Some cut flowers were forwarded by Mr. Veitch with the following observations:—"The two flowers of *Denrobium micans* (byb.) Rehb., were each raised from a different cross. One from *D. lituiflorum* and the Assam form of *D. Wardianum*, and the other from *D. lituiflorum* and the Burmese form of *D. Wardianum*. The Assam *D. Wardianum*, as is well known among the cultivators of Orchids, has shorter and more slender stems, but more highly coloured flowers than the Burmese form, and it will be noticed that the last-named peculiarity is perpetuated in the hybrid. We may also add, that the seedling from the Assam form has more slender stems than that from the Burmese form, which, like its parent, has the more robust stems and paler coloured flowers."

Hybrid *Phalenopsis*.—Mr. Veitch also sent a supposed hybrid as being a possible cross between *P. grandiflora*, Lindl. (*P. amabilis*, Bl.), and *P. rosea*. The above specimens were entrusted to Mr. Ridley for examination and report.

***Cattleya Triane*, abnormal forms.**—Mr. O'Brien brought flowers of this plant received from the gardens of Mr. W. Furze, Roselands, Teddington. They were curious on account of their arising from different pseudobulbs, but all having the median sepal in a petaloid condition. In one flower all the parts were present; whereas in two others the petals were absent, but apparently partly "incorporated with the median sepal." Peculiarities also existed in the column. Dr. M. T. Masters undertook to examine and report upon them.

***Strophanthus madagascariensis*.**—This is a new species, named and sent by Dr. Daruty, of Mahéburg, Mauritius. The genus is African, of the order Apocynaceae, or "Dogbanes," the name being derived from the cord-like appendages to the corolla. It is remarkable for the structure and poisonous properties of the seed. The latter somewhat resembles that of the Dandelion, but is larger, and has the silky hairs distributed down the greater part of the shaft. The natives crush the seeds, from which a red oily mass is obtained, with which they smear their arrow points. Several varieties or species are known, but more material is required for an accurate discrimina-

tion of them. As a drug, the active principle Strophanthin, is found in all parts of the pod as well as the seed, and is very powerfully toxic, one-fiftieth of a grain killing a large dog. It seems likely to prove to be a valuable remedy for deranged action of the heart. (See Christy's *New Com. and Pl. Drugs*, No. 10, p. 7.)

Manaca, or Mercurio-Vegetal Root.—Mr. T. Christy sent a specimen of the medicinal root of *Franciscea niflora*, the bark of which contains the active principle Francisceine. The root is of a woody nature, tapering, and of a light-brown colour externally, being of a cinnamon-brown within. From Dr. J. Hutchinson's experience it would appear to be a valuable new remedy for rheumatism, especially of a certain type.

Blue Daisy (!) from Tangier.—Dr. Lowe exhibited a drawing of a small plant, of some 2 to 3 inches high, received from Tangier. The question was raised as to its identity with the Blue Daisy found by Messrs. Hooker, Maw, and Ball on the Atlas Mountains. Dr. Masters undertook to investigate the matter and to report.

Scilla "Droppers."—Mr. Henslow mentioned as a result of a microscopical examination of the attachment of the bulbils, found growing on the inside of the tubular leaf-sheath of specimens exhibited by Dr. Lowe at a meeting of the Scientific Committee (see *Gardeners' Chronicle*, October 15, 1887, p. 475), that there was a vascular union between the bulbil and the vertical cords of the sheath, consisting of a plexus of tracheids, which entered the base of the bulbil on the one hand, and communicated by arches to the cords of the sheath on the other. The bulbil, therefore, originated in the depth of the tissue of the sheath, so that the adventitious rootlets sometimes penetrated beneath the inner epidermis, which they ripped up; at other they pierced through the sheath to appear externally (see *Gardeners' Chronicle*, March 3, 1888, p. 276, figs. 45, 46).

Pears, Cause of Unsymmetrical Growth.—Mr. Henslow explained the cause of so many Pears being unsymmetrical about their axis. This was only the case when the stalk was not vertical and the want of symmetry increased its obliquity. He attributed the growth to the effort of the Pear to meet the strain imposed upon the stalk as the fruit increased in weight. The two forces to which it is subjected are gravitation, or the weight acting in a vertical direction, and the tension along the stalk. The resultant of the two forces tended to wrench the fruit from the latter at its point of insertion at the base of the Pear. To meet this strain the fruit thickened in the opposite direction, so that the "hump" is always at the base and on the outer or opposite side of the fruit. The effect often extends over the whole of the outermost half of the Pear, so that a vertical plane at right angles to the one in which the stalk lies cuts the Pear into two very unequal portions. When the stalk hangs vertically, as is more usually the case in Apples and in Oranges, there is little or no obliquity, so that the Pear grows symmetrically round all points of its axis, the radii of the circular transverse sections being all equal.

Floral Committee.

Present:—G. F. Wilson, Esq., in the chair, and Dr. M. T. Masters, Rev. W. Wilks, G. Nicholson, H. Bennett, H. Herbst, W. Bates, W. H. Lowe, G. Paul, J. Walker, R. Dean, W. Wildsmith, Shirley Hibberd, W. Goldring, J. Laing, J. Dominy, H. Ballantine, H. M. Pollett, C. Pilcher, A. F. Lendy, W. Holmes, T. Baiges, J. O'Brien, E. Hill, and G. Duffield.

Orchids.—A pretty display of *Odontoglossum* was afforded by numerous small plants from the gardens of F. C. Jacob, Esq., Amherst Park, Stamford Hill (gr. Mr. May). Most of these were superior types of their respective species, and were certainly well-grown, thrifty little plants. A very fine *Odontoglossum crispum* was named Mrs. F. Jacob, the flower segments very broad, forming an almost circular flower, and of great substance. There were *O. triumphans superbum*, *O. Wilckeanum superbum*, *O. hystrix*, *O. Pescatorei*, *O. maculatum*, *O. Andersonianum*, and others.

Amongst the collection of plants from Sir Trevor Lawrence's garden were the dwarf-growing *Celogyne sparsa*, a strong *Angraecum Sanderianum*, with four long spikes of flower, and many aerial roots; and a cut flower of *Phaius tuberculatus* of the greatest brilliancy and beauty.

From D. M. Pollett, Esq., Fernside, Bickley, came *Odontoglossum blandum* with seven spikes of flower, for which a Cultural Commendation was awarded;

and *O. crispum rubro-maculatum*, on which large patches of chocolate-brown, of singular shape and disposition, on the white sepals and petals. The varieties of *Cypripedium* from F. G. Tautz, Esq., Studley House, Shepherd's Bush (gr. Mr. Cowley), consisted of *Harrisonium vivicans*: the pouch and the points of the petals are red-brown, and dorsal sepal, dark brown with darker vertical lines; *Measurrescannum*, in which the pouch is orange-coloured; *Dantheria marmoratum*, the handsome feature in this flower being the dorsal sepal, which is green, coarsely lined with purplish-brown, and having a white margin.

Mr. H. Perkins, gr. to W. H. Smith, Esq., Greenlands, Henley-on-Thames, exhibited *Dendrobium Cooksoni*, (Greenlands variety). The plant was a well-grown example, and received a Cultural Commendation. It is a pity the flowers of this variety do not expand better so as to show the inner colouring to a greater extent.

A. H. Smea, Esq., The Grange, Wallington (gr. Mr. Cummins), exhibited two magnificent spikes of varieties of *Cyrtopodium Saintlegerianum*, one of them being darker than the other. In each the bracts of the flower-stalk have much the same shade of yellow and brown as are found in the flowers themselves, and the darker has the flower tints in a marked degree in the epidermis of the flower-stalk. Individually the flowers are rather insignificant in size, but in the mass as shown they make a grand display. A Cultural Commendation was awarded. The Hackwood variety of *Celogyne cristata*, a bold, pure white flower, came from the same garden.

A notable plant of *Dendrobium Wardianum* came from the garden of F. Wigan, Esq., Clare Lane, East Sheen (gr. Mr. East). It was fully 4 feet in height, was wonderfully well flowered, and possessed numerous pseudobulbs. A similar award to the above was made.

Miscellaneous Subjects.—A small plant with two flower-spikes of *Utricularia rhytrophylla* came from Sir Trevor Lawrence's garden. The flowers, of a rich shade of blue-purple with a palate of vivid gold midway between the centre and the margin, are of the size of a florin, and are poised at the end of slender petioles. We can imagine how beautiful well-bloomed, large specimens of this plant would be. Mr. J. McIlattie, gr. Newbattle Abbey, Dalkeith, exhibited a flower-head of a seedling Himalayan *Rhododendron* very like *R. Argenteum*. The flowers are translucent-white, disposed in a globular corymb.

Messrs. J. Veitch & Sons, Chelsea, exhibited the cheerful looking *Rhododendron*, Early Gem, free flowering, and in colour rosy-lilac; Violet, The Bride, a single-flowered white variety with good perfume; *Trillium discolor atratum*, useful either for pots or borders; the leaves are dark green, mottled with a lighter shade; flower buds brown purple. A white berried *Aucuba*, *Primula obconica*, and several plants of *Azala pontica altaclarensis*, a free, showy, yellow variety.

Messrs. R. Veitch & Son, Exeter, showed *Tecophilaea cyanocrocus* *Leichtlinii*, with blue and white flowers, thus differing from *T. cyanocrocus*, which is gentian-blue. See G. C. 1872, p. 219. When this bulb is less rare, it will be as much sought for as *Scillas Præcox*, or *sibirica* for indoors or outdoors effects, but at present it is not so easily cultivated.

Some excellent Tea Roses came from Mr. Crook, gr. Farnborough Grange, Hants—these flowers were fresh, cut just at the right moment. He had likewise the now rarely seen *Fuchsia Dominiana*; an excellent form of *Primula obconica* named *purpurea*, *P. erosa* and *P. verticillata*; *Rhododendrons* *Sesterianum* and *Lady Mary Fitzwilliam*; and *Tre-mandra verticillata*.

From Messrs. Paul & Son, The Old Nurseries, Cheshunt, came a few *Saxifragas*, *Soldanella alpina*, *Cyclamen Coum zonal*, *C. Arkinsi roseum*, *Draba botica*, *Narcissus minor verus*, and the Rose sport from Lady Mary Fitzwilliam, named *Lady Alice*. The sport may now be said to be fixed after several years trial. It is identical with the parent except in colour, which is of the faintest pink. *Saxifraga Frederici Augusti*, a free-flowering yellow-coloured species, the flowers of which are placed at the end of foot-stalks $\frac{2}{3}$ inches in length. It is showy for a *Saxifraga*, and would prove of value for indoor work. *Crocus Sieberi*, *Galanthus Redoutei* and *Sharlocki*, and two species of *Lencoum* composed the chief items of an interesting group.

Mr. J. Anning, gr. Digswell Hall, Welwyn, exhibited a spike of flowers of *Beaumontia grandiflora*, and was awarded a Cultural Commendation.

Collections of *Narcissi* in many varieties, *Crocus*, *Scillas*, *Iris reticulata*, *Anemone fulgens*, and the

like were put up by Messrs. Barr & Son and Mr. Thos Ware.

A Silver Banksian Medal was awarded to Mr. Ware, and Bronze Banksians to Messrs. J. Veitch & Sons, Messrs. Paul & Son, and Messrs. Barr & Son, for their groups.

FIRST-CLASS CERTIFICATES.

To Messrs. Paul & Son, for *Saxifraga Frederici Augusti*.

To Messrs. J. Veitch & Sons, for *Violet The Bride*.

To Sir T. Lawrence, Bart., M.P., for *Utricularia chytrophylla*.

Fruit Committee.

Present:—H. Veitch, Esq., in the chair; and Messrs. J. Lee, H. Weir, G. W. Cummins, C. Howe, J. Woodbridge, A. H. Pearson, Sidney Ford, G. T. Miles, J. Smith, G. Norman, J. Bennett, J. Willard, J. Wright, R. D. Blackmore, J. Cheal, P. Crawley.

The labours of the committee were of a very light nature. Mr. Divers, gr. Weirton House, Maidstone, showed a small collection of well-kept Apples of the following varieties:—Northern Greening, Barnack Beauty, Margil, Blenheim Orange, Graham Russet, Cheshunt Pippin, Winter Queening, Cornish Gilliflower, &c. A few Pears were likewise shown by him, but were apparently past their best.

Mr. Crook, gr. to Mrs. Sherwin, Farnborough Grange, exhibited *Lady Downes' Grapes* grafted on Canon Hall Muscat, and also on its own roots; the ungrafted was the bigger bunch, but the other had kept in condition much the better of the two. The bloom on the berries was good in each instance. A small collection of Apples was sent from the same garden. Royal Russet, Cox's Orange, Dutch Mignon, and Bess Pool, were well preserved specimens.

LINNEAN.

MARCH 1.—The President (Mr. Carruthers, F.R.S.) in the chair. The following were elected Fellows of the Society:—Messrs. J. F. Baker, J. B. Farmer, H. P. Greenwood, J. P. Maiden, A. G. Renshaw, A. E. Shipley, and A. Voelcker. An interesting collection of Ferns from the Yosemite Valley was exhibited by Mr. W. Ransom, who also showed some admirable photographs of rare plants, many of them of the natural size. Mr. J. E. Harting exhibited a coloured drawing, life-size, of a South American game bird (*Rufous Tinamu*), which has been successfully introduced into this country at Brightlingsea, Essex, by Mr. J. Bateman, and made some remarks on its affinities, peculiarities of structure, and habits. In a discussion which followed, Mr. W. H. Hudson gave some account of the bird from personal observation of its habits in the Argentine Republic. The first paper of the evening was then read by Mr. E. G. Baker, on a new genus, *Cytinaceae*, from Madagascar. This curious plant, to which the author has given the name of *Botryocytinus*, grows parasitically on the trunks of a tree of the natural order Hamamelidaceae. Its nearest ally is *Cytinus*, of which the best known species grows on the roots of the *Cistuses* of the Mediterranean basin. The Madagascar plant is without any stem, and the sessile flowers grow in clusters, surrounded by an involucre. Each cluster is unisexual, and the ovary is unicellular, with about a dozen parietal placenta, and innumerable minute ovules. It was discovered during a recent exploration of the Sakalava country, by the Rev. R. Baron, of the London Missionary Society.

The next paper, by Mr. J. F. Cheeseman, was entitled "Notes on the Fauna and Flora of the Kermadec Islands," and, as regards the flora, might be considered as supplementary to a paper on the flora of these islands published by Sir Joseph Hooker more than twenty years ago (*Journ. Linn. Soc.*, 1856). These islands, situated about 450 miles N.E. of New Zealand, between that country and Fiji, were shown to be of volcanic origin, with a fauna and flora resembling to a great extent those of New Zealand. A few land birds were noted as common to New Zealand, and to the list of plants drawn up by Sir Joseph Hooker from collections made by Macgillivray; several new species were added by Mr. Cheeseman, chiefly Ferns. A discussion followed, and in illustration of Mr. Cheeseman's remarks, Mr. J. G. Baker exhibited specimens of a new endemic *Davallia*, closely allied to the well-known *D. canariensis* of the Canary Islands and Madeira. The meeting then adjourned to March 15.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending March 12.	ACCUMULATED.			
		Above 42° for the week.	Below 42° for the week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	
0. SCOTLAND, N. ...	0 aver.	4	27	— 28	+ 104
1. SCOTLAND, E. ...	2 above	10	25	— 49	+ 43
2. ENGLAND, N.E. ...	3 above	21	11	— 49	+ 20
3. ENGLAND, E. ...	3 above	25	10	— 71	+ 96
4. MIDLAND COS. ...	3 above	19	9	— 83	+ 104
5. ENGLAND, S. ...	1 above	24	10	— 90	+ 158
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 above	15	8	— 46	+ 36
7. ENGLAND, N.W. ...	1 above	16	8	— 67	+ 54
8. ENGLAND, S.W. ...	1 above	26	6	— 120	+ 184
9. IRELAND, N. ...	2 above	22	6	— 52	+ 11
10. IRELAND, S. ...	2 above	32	4	— 90	+ 58
— CHANNEL ISLANDS	2 above	32	0	— 105	+ 103

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	7 more	48	8.0	17	20
1. SCOTLAND, E. ...	6 more	41	4.9	11	22
2. ENGLAND, N.E. ...	3 more	34	3.0	24	21
3. ENGLAND, E. ...	7 more	33	3.4	16	21
4. MIDLAND COS. ...	5 more	29	2.8	15	20
5. ENGLAND, S. ...	6 more	30	3.5	15	19
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	12 more	33	7.3	14	24
7. ENGLAND, N.W. ...	6 more	38	3.5	8	21
8. ENGLAND, S.W. ...	0 aver.	35	4.8	25	26
9. IRELAND, N. ...	9 more	35	5.3	7	19
10. IRELAND, S. ...	12 more	30	5.8	23	25
— CHANNEL ISLANDS	7 more	45	4.8	34	25

THE PAST WEEK.

The following summary record of the weather for the week ending, March 12, is furnished from the Meteorological Office:—

"The weather has been in a very unsettled, rainy, and changeable condition in all parts of our islands. At the end of the period it had become cold again, and snow or sleet was falling at all our more northern stations.

"The temperature has about equalled the mean for the season in 'Scotland, N.' but in all other districts an excess of from 1° to 3° is shown. The highest of the maxima, which were recorded on somewhat irregular dates, ranged from 53° to 56° in Scotland, from 57° to 59° in Ireland, and from 56° to 61° over England. The lowest of the minima were registered either on the 6th or 12th, when the thermometer fell to between 24° and 29° in the 'Wheat

producing' districts, and 28° and 30° in the 'grazing' districts; in the 'Channel Islands' the lowest reading was 37°.

"The rainfall has been more than the mean in all districts, the excess in nearly every case being considerable. The amount of rain which has fallen during the week over the country generally has been greater than any recorded since the week ending November 7, 1887.

"Bright sunshine has been less prevalent than it was last week in all districts, the percentage of the possible amount of duration ranging from 7 in 'Ireland, N.' and 8 in 'England, N.W.' to 25 in 'England, S.W.' and 34 in the 'Channel Islands.'"

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MARCH 24. (AVERAGE OF FORTY-FOUR YEARS.)

Mar. 18	43°·8	Mar. 22	43°·5
" 19	43°·0	" 23	43°·7
" 20	43°·2	" 24	43°·9
" 21	43°·4	Mean for the week ...	43°·4

SCOTLAND.

EDINBURGH BOTANICAL SOCIETY.

MARCH 8.—The Society met this evening in 5, St. Andrew Square, Dr. Craig, President, in the chair. The following communications were read:—

1. "Report on the Excursion of the Scottish Alpine Botanical Club to Norway during the Summer of 1887." By Dr. W. Craig, F.R.S.E., F.R.C.S.E.

2. "Observations on the Fungi and Galls gathered in Norway." By Professor J. Traill, F.L.S. Communicated by Dr. Craig.

3. "A Review of our Present Knowledge regarding the Colouring Matter of Plants." Part I. By P. Sewell.

4. "New Marine Algæ, with Exhibition of Dried and Microscopic Specimens." By George W. Traill.

5. "On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

[Want of space forbids our publishing the reports of the Curators this week.]

NOTICES TO CORRESPONDENTS.

AMARYLLIS (SPREKELIA) FORMOSISSIMA: A. C. The same treatment will be required as is afforded the ordinary Amaryllis, that is, potting in February, or top-dressing if the roots are not too abundant in the pots. Over-potting must be avoided, and when the bulbs are small two to five may be put into a 32 pot. On starting the bulbs, a mild steady bottom-heat should be afforded; that of an ordinary hotbed frame, if it is made chiefly of leaves, is very good. The pots should be sunk to a safe depth and to the rim, if there be no danger of burning the roots. Water must be given with great care until growth is advanced. Ventilation should be carefully attended to, and if a frame be used, a little air should be left on at the back during the night; a thin shading is beneficial during bright sun, but the less of it the better. Soil should consist of rich sandy loam—a little dried cow-dung is the safest enricher. When the summer is well advanced the plants may be brought into the intermediate-house. The first blooms appear in March.

BOLDS: J. M. P. Hemanthus Kalbreyeri grows well in a cool stove, and Eurycles australis in a greenhouse. Both require a good amount of water when growing, and very little when the growth is mature and the flower over.

CINERARIAS: A Subscriber. There is no known method of keeping these flowers fresh in a cut state for longer than two to three days.

DRYING FLOWERS, &c.: Snowdrop. Insert your specimens between two or more thicknesses of blotting paper, and apply a moderate weight. Change the paper in a day or two, and keep on doing this till the specimens are sufficiently dried. Some plants

soon dry, one change of paper being sufficient; others are difficult to deal with. In our issue for January 21 of this year, p. 82, there was given a method of preserving the colours of flowers.

FUNGUS ON FREESIA: H. H. D'Ombain. The leaf was affected with Heterosporium gracile, Wallr. Allied species are destructive to Pinks and Carnations, and one to species of Ornithogalum.

GARDENIA ROOTS: A. Black. Your plants are suffering from the attacks of nematoid worms, fully described and illustrated in our issue for April 9, 1887, p. 488. You must burn your plants and soil, and start afresh.

HADROTHAMNUS: G. P. This genus belongs to the natural order Solanaceæ.

LEAF DISFIGURED: F. S. M. Probably the work of some insect. See next week.

MELONS: Ignorant Gardener. We have no record of the earliest appearance of Melons in Covent Garden, but they are usually to be found there in the middle of May, and that is about as early as really sweet, good-flavoured fruits can be obtained, although with hard forcing, and strong plants on planting out, they can be produced fourteen days earlier.

NAMES OF FRUIT: J. Bryan and T. W. E. Your fruits are out of character. Why not send when the fruits are in good condition?

NAMES OF PLANTS: Lynton. Melianthus major. —Viola. Comte de Brazza, introduced within the last ten years.—G. H. Vanda suavis (Veitch's variety); Dendrobium nobile (sometimes called coriulense); Aspidium coriaceum.—A. B. Send entire fertile frond: Veltheimia viridifolia. —Foreman. Pileumna fragrans.—Patley. 1, Lælia superbiens; 2, Vanda tricolor; 3, Phaius grandifolius; 4, Cypripedium venustum; 5, Cymbidium pendulum.—G. W. Rogers. Odontoglossum crispum.—E. H. Conifers next week.—A. C. Amaryllis—or, as it is now called, Sprekelia formosissima (see above).—M. H. V. The flower is not a Miltonia, but a Brassia, which we will name next week. The variation in the Cologynae blooms is remarkable, the extreme forms being very fine.

ROYAL HORTICULTURAL SOCIETY: Wellwisher. All information will be afforded you on application to the secretary R. H. S. offices, South Kensington, until the 25th of March. After that date, at III, Victoria Street, Westminster.

TADERNEMONTANA CORONARIA: G. Humphrey. The flowers were very fine indeed, and the foliage larger and healthier than it is usually to be met with. Where there are roomy stoves this plant should never fail, where early white sweet scented flowers are in request.

WORK ON FERTILISING ORCHIDS: Th. Lange. The Manual of Orchidaceous Plants, by H. J. Veitch, Royal Exotic Nursery, Chelsea, London, S.W.; Darwin's Fertilisation of Orchids, published by John Murray, Albemarle Street, London.

CATALOGUES RECEIVED.

COOPER, TABER & Co. (Limited), 90, Southwark Street, London, S.E.—Agricultural Seeds.

ALEX. RÉONIER, 41, Avenue Marigny, Fontenay-sous-Bois (Seine), France—Orchids and Carnations.

BOULTON & PAUL, Norwich—Greenhouse Frames, &c.

MAX DEBON, JUN., 2, Köstritz, Thuringia—Ornamental Shrubs; Roses.

THOS. IMAM & SONS, AVI, N.B.—Agricultural Seeds.

TOOGOOD & FINLAYSON, Southampton—Farm Seeds.

J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex—Potatoes; Herbaceous and Alpine Plants.

W. LOVE & SONS, Driffield—Strawberry Runners.

COMMUNICATIONS RECEIVED.—J. H. R., Ventimiglia (many thanks).—J. D. H.—G. H.—G. J. N.—J. Z.—J. G. (we will submit proof to author).—J. W. (not a fungus; we will endeavour to get you a fuller reply next week).—J. A. H.—W. W.—J. A. (letter will follow).—H. de V. (many thanks).—W. G. S.—K. G., Stuttgart.—J. A., Preston.—W. S., Edinburgh (letter to follow).—Garden and Forest.—N. E. B.—R. G. W. (please send report).—B. S. Williams.—J. Douglas.—F. Macer.—W. S.—P. G.—R. A.—R. F. S. & Co.—A. McD.—W. S. B.—W. W.—W. J. M.—W. M. B. (next week; a nice sample).—W. B. F.—R. T. C.—A. D. W.—J. B.—W. Waterman.—M. H. V.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, March 15.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

MARKET dull. Good sound Apples in demand. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, $\frac{1}{2}$ -sieve ... 3 0-6 0	Pears, per dozen ... 3 0-6 0
Grapes, per lb. ... 3 0-5 0	Pine-apples, Eng., lb. 1 0-2 0
Kent Cobs, 100 lb. ... 4 0-45 0	— St. Michael, each 2 0-5 0
Lemons, per case ... 12 0-21 0	Strawberries, oz. ... 1 3-2 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, p. doz.	6	0	Mustard and Cress,		
Beans, Kidney, lb.	3	0	punnet	0	4
Beet, red, per dozen	1	0	Onions, per bushel	9	0
Brus. Sprouts, lb.	0	6	Parsley, per bunch.	0	6
Carrots, per bunch.	0	6	Potatoes, per cwt.	4	0
Cauliflowers, each	0	3	" kidney, per cwt.	4	0
Celery, per bundle	1	6	Rhubarb, per bundle	0	4
Cucumbers, each	0	1	Seakale, punnet	1	6
Endive, per dozen	2	0	Shallots, per lb.	0	6
Green Mint, bunch.	1	0	Spinach, per bushel.	4	6
Herbs, per bunch	0	4	Spruce, per bundle	1	0
Leeks, per bunch	0	6	Tomatoes, per lb.	2	6
Lettuce, per dozen	1	6	Turnips, per bunch.	0	6
Mushrooms, punnet 1	0	1			

POTATOS.—Regents, 60s. to 80s.; Magnums, 55s. to 70s.; Hebrons, 100s.; Dunbar Magnums and Regents, 95s. to 100s. per ton. Trade very heavy, and above prices all lower 10s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Aralia Sieboldi, doz.	6 0-18 0	Ferne, in var., doz.	4 0-18 0
Azaleas, per dozen	... 24 0-36 0	Ficus elastica, each.	1 6-7 0
Bouvardias, per dozen	9 0-12 0	Foliage plants, vari	
Cinerarias, dozen	... 6 0-12 0	ous, each	... 2 0-10 0
Cyclamens, per dozen	12 0-24 0	Genistas, dozen	... 6 0-12 0
Cyperus, per dozen	... 4 0-12 0	Hyacinths, doz.	... 6 0-10 0
Daffodils, dozen	... 9 0-12 0	Lily of the Valley,	
Deutzias, per dozen	9 0-12 0	12 pots	... 15 0-18 0
Dracæna terminalis,		Marguerites, doz.	9 0-12 0
per dozen	... 30 0-60 0	Myrtles, per dozen.	6 0-12 0
— viridis, per doz.	9 0-24 0	Palm, in var., each	2 6-21 0
Dielytra, dozen	... 12 0-15 0	Pelargoniums, scar	
Epiphyllums, doz.	... 12 0-24 0	let, per dozen	... 3 0-6 0
Ericas, various, doz.	9 0-18 0	Primula sinensis, per	
Euoyma, in var.,		dozen	... 4 0-6 0
per dozen	... 6 0-18 0	Solanums, per dozen.	9 0-12 0
Evergreena, in var.,		Spiræas, dozen	... 9 0-15 0
per dozen	... 6 0-24 0	Tulips (pots of), doz.	6 0-10 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Acacia, or Mimosa, per bunch ... 0 9-1 6	Marguerites, 12 bun. 3 0-6 0
Anemone, French, 12 bunches ... 2 0-4 0	Mignonette, 12 bun. 3 0-6 0
— fulgens, 12 bun. 6 0-9 0	Narcissus, paperwhite, Fr., 12 bunches ... 2 0-4 0
Azum Lilies, 12 blms. 4 0-6 0	— Various, 12 bun. 1 6-4 0
Azaleas, 12 sprays ... 0 6-1 0	Pelargoniums, 12 apr. 1 0-1 6
Bouvardias, per bun. 0 6-1 0	— scarlet, 12 spr. ... 0 6-9 0
Camellias, 12 blms. ... 1 0-3 0	Primroses, 12 apr. ... 0 6-9 0
Carnations, 12 blms. 1 0-3 0	Primulas, double, 12 sprays ... 1 0-1 6
Cinerarias, 12 bun. ... 6 0-12 0	— single, 12 bun. ... 4 0-6 0
Cyclamens, 12 blms. 0 6-1 0	Rosea, Tea, per doz. 3 0-8 0
Daffodils, double, 12 bunches ... 6 0-9 0	— coloured, dozen. 2 0-4 0
— single, 12 bun. ... 8 0-18 0	— red, per dozen ... 4 0-9 0
Deutzia, 12 bunches 4 0-9 0	— Safrano, dozen ... 1 6-3 0
Eucharis, per dozen 4 0-6 0	Snowdrops, 12 bun. 1 0-4 0
Gardenias, 12 blooms 6 0-12 0	Tuberose, 12 blms. ... 1 6-2 0
Heliotropea, 12 apr. 0 6-1 0	Tulips, 12 blooms ... 0 6-1 0
Hyacinths, Roman, 12 sprays ... 0 6-1 0	Violets, 12 bunches ... 1 0-1 6
Lilium longiflorum, 12 blooms ... 6 0-9 0	— French, bunch ... 1 6-2 0
Lily of Valley, 12 apr. 0 6-1 0	— Fr. Parme, bun. 3 6-4 6

* Orchid bloom in great variety, but the demand not very good.

PARIS "HALLES CENTRALES," MARCH 14.

Per 100 kil.		Per 100 kil.	
Persil de Cherbourg:—		Ail	25 4 30
— simple	50 4 60	Echalots	90 12 20
— frisc	100 12 20	Epinauds:—	
Persil:—		— Barbentanne ...	50 4 60
— Barbentanne ...	50 12 00	Raisin de Thomery:—	
Pois verts:—		— choix	400 15 00
— d'Afrique... ..	30 4 90	— ordinaire	150 12 50
Pissenlits:—			Per 100.
— blancs	100 12 20	Artichauts:—	
— verts	30 4 45	— Afrique	20 4 30
Oignons:—		Salades de Saint-Remy	
— blancs	30 4 35	et du var.:—	
— rouges	25 4 28	— belles	15 4 20
Pommes:—		— moyennes	10 4 12
— Canada	50 4 60	— petites	4 4 9
— rouges	30 4 35		Per dozen.
— reinettes		Choux-fleurs:—	
— du Mans	35 4 40	— Bretagne	3 4 6

WHEELER'S DOUBLE GLOSTER
WHEELER'S DOUBLE GLOSTER
WHEELER'S DOUBLE GLOSTER
WHEELER'S DOUBLE GLOSTER
3s. 6d. pk. 12s. bush., 21s. cwt.

HEAVY cropper, finest quality, and entirely disease-resisting. This Potato will prove most profitable for field or garden culture; the sets may be cut almost to single eyes, so that a bushel will go farther than two or three bushels of some sorts.

YOUR new Potato, Double Gloucester, proved the best Potato we have ever grown, perfectly free from disease, a heavy cropper, and of first-class quality when cooked. From 14 lb. of seed we lifted in August upwards of 300 lb. of fine Potatoes.—W. CLARK.

THE Double Gloucester had from you last spring turned out to be by far the best Potato that ever I grew.—T. WILLIAMS.

YOUR Double Gloucester Potatoes have given the greatest satisfaction by the very large crop; I have had some cooked for table, and can truly say I never eat a better Potato.—HENRY BROWNE, J.P.

A LIST of WHEELER'S CHOICE SEED POTATOS, specially selected, and free from disease, may be had gratis and post-free on application.

WHEELER & SON,
Seed Growers,
GLOUCESTER.

FOR SALE, Early SEED POTATOS of the best kinds:—Breeze's Prolific, Gordon's Pride, Reading Russet, Fortyfold, Magnum Bonum, Imperators. For price, &c., apply to J. SMITH AND SON, Sipton, near Slough.

ORCHIDS.

An Immense Stock of recently imported plants compels a sale of the established plants to make room. These have not yet flowered, but are all flowering plants, and must be sold at a great sacrifice. Very valuable varieties are certainly to be obtained and great bargains. See public Journals for high prices recently obtained. The Special Offer affords a paying investment to anyone with glass at command, which should not be overlooked; such plants may never again be offered to the public and the trade.

Lilium auratum.—Eighth arrival of 10,000 Bulbs, the best that money can buy anywhere, 4s., 8s., and 10s. per dozen. Specially imported Non Plus Ultra bulbs, 2s. 6d. each; very liberal allowance to the Trade.

Lilium album Krætzleri.—The most lovely white Lily grown; throws seven to ten flowers, which sell in market at 2s. per dozen; beautiful and rare, 1s. each, 10s. per dozen.

Lilium speciosum rubrum cruentum.—The dark form of this lovely Lily, most exquisitely marked, 1s. each, 10s. per dozen.

Lilium auratum, platyphyllum, rubro-vittatum, crimson, striped with gold; virginale, pure white, and spotted, with gold band. All these lovely new and distinct forms of auratum, suitable for show purposes, very fine bulbs, 5s. each.

Lilium Harrisii, 10s. per dozen; and all other Lilies equally cheap. Banksian Silver Medal awarded August, 1887.

Japanese Novelities—80 varieties Iris, Tree Pæonies, Maples, Camellias, Azaleas. Please apply for special offer to

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Reduced Prices to meet Depression.
DESCRIPTIVE CATALOGUE, comprising fine transplanted FRUIT TREES, ROSES, HARDY CLEMATIS, RHODODENDRONS, CONIFERS, TREES AND SHRUBS, CLIMBERS, FOREST TREES, &c., free on application to
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AGRICULTURAL SEEDS.
Mangel, Swede, Turnip, Cabbage, Carrot, &c.
Natural Grasses and Clovers of all sorts, or Mixtures made for Permanent Pasture to suit any soil.

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PERFECT LAWNS IN 8 TO 12 WEEKS.

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TO PRODUCE BEAUTIFUL VELVET LAWNS

CARTERS' INVICTA LAWN SEEDS

SOW 3 1/4 BUSHELS PER ACRE TO FORM A LAWN
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PRICE 1/3 PER POUND
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CARRIAGE FREE

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STRAWBERRIES.

Strong Roots, 4s. per 100. Plants in small pots, 1s. per 100; ditto in large pots, 2s. per 100. Descriptive LIST free. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LILUM AURATUM. FREESIA REFRACTA ALBA.

We have fine stocks of the above, of our own direct importation, and will quote lowest prices to the Trade upon application.

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250 ACRES
HARDILY GROWN
EVERGREENS
ALL OTHER
TREES & PLANTS
UNEQUALLED FOR
VARIETY, QUALITY AND EXTENT.
PRICED CATALOGUES POST-FREE
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"NEWTON" NURSERIES, CHESTER.

SUTTON'S SEEDS GENUINE ONLY FROM SUTTON & SONS, READING

Cheap Roses.

EWING'S CARRIAGE AND PACKAGE FREE
COLLECTIONS are now specially worth attention. The plants are healthy, uninjured by frost, well ripened, and hardy, having been grown in an open position, near the sea. Full particulars gratis and post-free.

EWING AND CO., Sea View Nurseries, Havant, Hampshire.

Vines.

PAUL AND SON, The "Old" Nurseries,
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SPRUCE FIR, transplanted.
1½ to 2 feet, 40s. per 1000.
EVERGREEN PRIVET, extra strong, to clear the ground, at 20s. per 1000.
MAHONIA AQUIFOLIA, 2 to 3 feet, strong, transplanted, at 10s. per 100.
HOPWOOD'S, Bellevue Nursery, Cheltenham.

CHOICE FLOWERING PLANTS.

GREENHOUSE RHODODENDRONS.—Our sweet-scented varieties, nice bushy plants, well budded, 2s. 6d., 3s. 6d., to 5s. each.
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EPPS'S SELECTED PEAT
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PEAT FOR AZALEAS, HEATHS, FERNS, RHODODENDRONS, **PEAT** FOR general purposes. Loam, Sand, Leaf-Mould, Spagnum, Cocoa-Nut Fibre, Charcoal, and all kinds of Nursery Stock, at the old-established Horticultural Sundries Depot and Nurseries, Ringwood, Hants. For Price List apply **EPPS & CO.**

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Coarse and Fine **SILVER SAND**, Fibrous **PEAT**, Yellow Fibrous **LOAM** (Top Spit from an Old Pasture), and **COCOA-NUT FIBRE REFUSE** supplied in large or small quantities upon Special Terms to Gardeners. New Archangel **MATS** (large size), 10s. per bundle of ten mats; Large Heavy Russian **MATS** 7s. per dozen; **RAFFIA** (for tying), 7s. 6d. per doz. lbs.
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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.
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YELLOW FIBROUS LOAM, **PEAT-MOULD**, and **LEAF-MOULD**, 1s. per bushel.
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Quality. THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d.
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PEAT, extra selected Orchid ... 7s. 6d. " 5 sacks for 35s.
LOAM, PREPARED COMPOST } 1s. per bush., 3s. per sack
LEAF, or **PEAT MOULD** ... (sacks included).
SILVER SAND, coarse, 1s. 6d. per bush., 11s. half-ton, 24s. ton.
RAFFIA FIBRE, best only ... 1s. per lb.
TOBACCO CLOTH, or **PAPER** ... 8d. lb.; 28 lb., 18s.
SPHAGNUM MOSS, all selected, 3s. per bush., 8s. per sack.
CHUBB'S "PERFECT" FER-
TILIZER (the Best Food for
all kinds of Plants, Flowers, &c.) (Tins. 7lb. 14lb. 28lb. 56lb. 1 cwt.)
Fruits, Vegetables, &c. ... 1/6 3/- 5/- 8/- 14/- 22/-
CRUSHED BONES, or Bone Dust 1/2 2/- 3/6 6/- 12/-
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RUSSIAN MATS, **BAMBOO CANES**, **PERUVIAN GUANO**,
NITRATE OF SODA, **HORTICULTURAL CHARCOAL**, &c.
PEAT MOSS LITTER, cheapest and best Bedding for Horses and
Cattle, £2 per ton. Extra large Sample Bales, 6s. each.

COCOA-NUT FIBRE REFUSE (by Chubb's special process),
sacks, 1s. 3d. each; 10 sacks, 11s.; 15 sacks, 15s.; 20 sacks, 18s.;
30 sacks, 25s.; 40 sacks, 30s.; Truck-load, loose, free on rail,
25s. Limited quantities of G. special quality granulated,
in sacks only, 2s. each. Terms, strictly Cash with order.
(Bankers, Union Bank of London.)

CHUBB, ROUND & CO.,
WEST FERRY ROAD, MILWALL, LONDON, E.

COCOA-NUT FIBRE REFUSE, newly made.
Truck-load (2 tons), 20s.; in bags—20, 14s.; 40, 25s. Free
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PURE LEAF-MOULD, 3s. per sack. [25s. per ton.]
YELLOW FIBROUS LOAM, 3s. per sack.
BEST MUSHROOM SPAWN, 4s. per bushel.
RAFFIA, LABELS, STICKS, **BAMBOO CANES**, **VIRGIN**
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SPHAGNUM MOSS, 6s. per sack. **CHARCOAL**, 8s. per sack.
SPECIALITE TOBACCO PAPER and **CLOTH**, each 8d. per lb.
28 lb. for 18s. Price List free by post.
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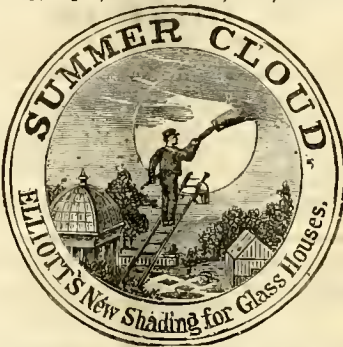
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Eradicator of Scale, Thrips, Green Fly, Mealy Bug, Red
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without injury to foliage. Large numbers of voluntary
testimonials have been received from all parts of the king-
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or indoor plants, for thoroughly cleansing from insects.
Sold in stone jars, 1s. 6d. and 3s. each, and in tins, 5s. 6d.,
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and highly Concentrated. Sold in bottles, 1s. pints;
1s. 9d. quarts; 2s. 6d. half-galls; and 4s. galls. Or in
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kegs of 5 galls., 10s. 6d. per gall.; 10 galls. 10s. per gall.

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preparation consists of best Virginian Tobacco, finely
ground and mixed with other ingredients of an essential
character. Price, in tins, 1s., 2s. 6d., and 4s.; or, in bulk,
£3 12s. per cwt.

The above preparations are manufactured at our Bonded Stores,
and may be obtained through Seedsmen and Florists generally.
Corry, Soper, Fowler & Co., Lim., London.



and for all Glass Structures that require shading material.
Sold in packets 1s. each, with full directions for use, and may
be obtained from all Seedsmen and Nurserymen.

Sole Manufacturers and Proprietors,
CORRY, SOPER, FOWLER & CO., Lim., LONDON,

STANDEN'S
MANURE.

Established over 30 years.

THIS OLD-ESTABLISHED MANURE
is acknowledged by most of the leading
practical Gardeners in the United Kingdom and
the Colonies to exceed all others in general
fertilising properties and staying powers. It
promotes a rapid, healthy, and robust growth to
plants generally. It is a clean and dry powder, with
very little smell, which renders it particularly
adaptable for ladies interested in plant culture.

TESTIMONIAL FROM AMERICA.

"We have used **STANDEN'S MANURE** for some years, and
have never found any fertiliser so safe and valuable. Its action
is literally 'magical.' We have tried it on unhealthy plants
which seemed past recovery, and it has restored them to their
natural vigour. However valuable other fertilisers may be,
none can be compared to this. Camellias grown in the
same pots for 10 years are as healthy as if just repotted.—
C. M. HOVEY, Boston, U.S.A., May 27, 1887."

Sold in **TINS**, 1s., 2s. 6d., 5s. 6d., and
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prices, 28 lb., 12s. 6d.; 56 lb., 23s.;
112 lb., 42s. each.

May be obtained from all Nurserymen and
Seedsmen in the United Kingdom
and the Colonies.

SOLE MANUFACTURERS—

CORRY, SOPER, FOWLER & CO.
(LIMITED),
FINSBURY STREET, LONDON, E.C.

To Market Gardeners, &c.

To Grow fine Vegetables and Flowers, Gardeners should use
SULPHATE OF AMMONIA. One trial will
prove the great value of this Manure, and ensure its con-
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mixed with ordinary stable or farmyard manure. Rose Trees
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a weak solution once or twice a week. Instructions on appli-
cation, post-free. Price free on rail at Sheffield, 13s. per cwt.,
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Write for Dr. Voelcker's Report, Pamphlet, Testi-
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JENSEN'S

Every grain fertilizes because the Guano is perfectly
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FISH-POTASH

FISH-POTASH contains Ammonia, Phosphates and
Potash in large proportions, which are the principal
elements of fertilization.

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GUANO—2 lb. Tins, 1s.; in Bags, 7 lbs., 2s.;
14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d.;
1 cwt., 16s.; 2 cwt., 30s. Special terms for
larger quantities. Analysis guaranteed.

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Patronised by 16,000 of the Nobility, Gentry,
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1 Cwt., and Oil Mixture, Free to all Stations.
Non-Poisonous Paints for Inside Work, Conservatories, &c.
Prices, Patterns, and Testimonials, Post-free.

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W. W. & S.'s ORCHID PEAT: Special "A 1" Quality is used and recommended by all the leading Orchid Growers. Prices: Prepared, ready for use, 9s. 6d. per sack; ditto, turves, 7s. 6d.; ditto, per yard, 25s.

W. W. & S.'s Celebrated YELLOW FIBROUS LOAM, Splendid Sample now on offer. Per sack, 3s.; per ton, 16s.

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Condensed Farm yard Manure, 7s. 6d. per sack.

Fertilising Moss, bags, 1s. and 3s. 6d.; per bush, 7s. 6d.

Composts, special for Exhibitors of Chrysanthemums, Ferns, Greenhouse and Stove Plants, Lawns, Vines, and Fruit, &c.

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Liquid Manure Powder, the "Perfect Stimulant," for Pot-plants, Roses, Flower-beds, Strawberries, Vines, &c., per 7 lb., 3s.; 14 lb., 5s.; ½ cwt., 12s.; cwt., 21s.

W. WOOD & SON, Wood Green, LONDON, N.,
Or of all Seedsmen and Seed Potato Dealers,

YELLOW FIBROUS LOAM (SEASONED OR NEWLY CUT).

Our present QUALITY IS THE SAME AS THAT WE GAINED CERTIFICATES OF MERIT for last year. NO NEED for Samples, we sell no other,

W. WOOD & SON, Wood Green, London, N.
(See other Advertisement.)

ORCHID PEAT.
Splendid "A 1" Quality.
W. WOOD & SON,
WOOD GREEN, LONDON, N.,
are constantly receiving proofs from all the leading ORCHID GROWERS that their qualities of Peat are NOW UNRIVALLED.
Samples on application.

SAVE HALF THE COST. GARSIDE'S SILVER SAND, BEDFORDSHIRE Coarse and Fine.

Is admitted by the leading Nurserymen to be the Best Quality obtainable in the Trade.

Consumers should Buy Direct from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS.

Apply direct to the Proprietor for Samples and Price.

Free on Rail or Canal. All Orders executed with the utmost promptness and under personal supervision. Special Railway Rates in force to all parts.

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Bones—Bones—Bones
CRUSHED BONES in all sizes for Vine Borders, Lawns, Potting, Grass Lands, &c.; also BONE MEAL for Poultry Feeding, Garden GUANO, dissolved BONES, and special MANURES for all purposes. For prices, apply to HARRISON, BARBER, AND CO. (Limited), Garratt Lane, Wandsworth, Surrey, S.W.

BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

NATIVE GUANO.—Price £3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt. A 1 cwt. sample bag sent, carriage paid, to any Station in England on receipt of P.O. for 5s.

Extracts from Twelfth Annual Collection of Reports:—
NATIVE GUANO for POTATOS, VEGETABLES, VINES, and FRUIT.—G. COUSINS, Walton-on-Thames. "Used for Potatoes. Result: very excellent crop; remarkable size and good quality. Can highly recommend it."
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A. F. BARRON, Royal Horticultural Soc., Chiswick. "Without doubt a very valuable manure, and easy of application."
Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials may be obtained. Agents Wanted.

PEAT FOR ORCHIDS, &c. Peat of first-rate quality, suitable for ORCHIDS, RHODODENDRONS, AZALEAS, HEATHS, FERNS,

and other choice Plants, for Sale in any quantity at moderate prices either by the sack, or by the yard; also first-rate PEAT MOULD.—For printed particulars, apply, D. CAMERON, Forester, Mount Mascal Estate, North Cray, Foot's Cray, Kent.

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From Messrs. FISHER, SON & SIBRAY, Handsworth Nurseries, Sheffield.

"DEAR SIR,—We have pleasure in testifying that after having used your pots for the past twenty-five years we have found them all that could be desired."

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"GENTLEMEN,—I have much pleasure in testifying to the unqualified satisfaction your pots have given me. The quality is all I could desire, and promptitude of dispatch wonderful."

"BULWELL POTTERIES," NOTTINGHAM.

Carriage and Breakage Free on £10 Orders. Half Carriage and Breakage Free on £5 Orders.
Samples (carriage free) gratis, prices free on application.

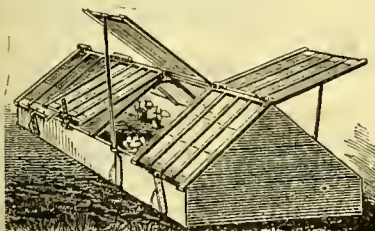
From Messrs. WOOD & INGRAM, Huntingdon Nurseries.

"DEAR SIR,—Having dealt with you for over a quarter of a century, we have much pleasure in giving our experience of your pots. In our opinion they are everything that can be wished for, being light and strong, of first-class colour, shape, and finish. The special deep pot you make for our Clematis, from our own design, gives unequalled satisfaction to ourselves and all our customers. We want 25,000 for our first batch, and rely on your usual prompt and careful attention."

BOULTON & PAUL, HORTICULTURAL BUILDERS, CATALOGUES Post-free. NORWICH.

No. 73.—GARDEN FRAME.

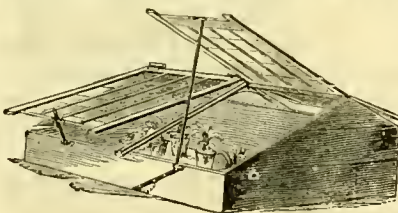
Sides of Frames 14 inches high, 2 feet 3 inches at ridge, easily put together. This Frame has given general satisfaction, and was brought out by us in 1883.



	Length.	Width.	Price.
1 Light Frame,	4 feet by 6 feet	...	£2 17 6
2 "	8 feet by 6 feet	...	4 7 6
3 "	12 feet by 6 feet	...	5 17 6
4 "	16 feet by 6 feet	...	7 7 6
5 "	20 feet by 6 feet	...	8 17 6

No. 74.—PLANT FRAME.

The Frames are 13 inches high at front, 24 inches high at back, and 32 inches at the ridge, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, fitted with set-screws, and arranged to turn over, back and front, for ventilating.

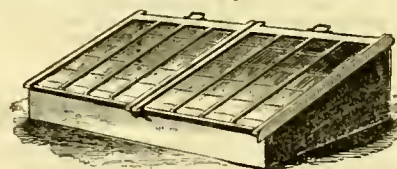


	Length.	Width.	Price.
1 Light Frame,	4 feet by 6 feet	...	£2 17 6
2 "	8 feet by 6 feet	...	4 7 6
3 "	12 feet by 6 feet	...	6 0 0
4 "	16 feet by 6 feet	...	7 12 6
5 "	20 feet by 6 feet	...	9 5 0

Made up to any length.

No. 75.—CUCUMBER FRAME.

The Frames are of 14-inch boards, 24 inches high at back, and 13 inches high in front, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, with iron bar across and one handle at the top.



	Length.	Width.	Price.
2 Light Frame,	8 feet by 6 feet	...	£3 0 0
3 "	12 feet by 6 feet	...	4 5 0
4 "	16 feet by 6 feet	...	5 10 0
5 "	20 feet by 6 feet	...	6 15 0
6 "	24 feet by 6 feet	...	8 0 0

These Frames are painted three coats, and glazed with 21-oz. glass. Packing Cases are allowed for if returned at once, carriage paid and in good condition. Carriage paid to any station in England and Wales, to Dublin, Cork, Londonderry, Glasgow, and Edinburgh.

CONTRACTORS TO HER MAJESTY'S WAR DEPARTMENT.

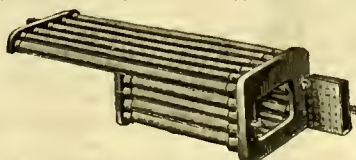
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HORIZONTAL TUBULAR BOILER.

This Boiler is made in several sizes from 6 feet 6 in. long, and is fitted with Water Bars, as shown in the illustration. The Furnace Door being hung upon the front of Boiler is complete in itself, thus ensuring the same of simplicity in fixing.



Illustrated CATALOGUE, Price 1s.
Price LIST on application, free.

CAST-IRON SADDLE BOILER, WITH WATERWAY END,

and every other Boiler of known merit, kept in Stock.

HOT-WATER PIPES, CONNECTIONS, and all Castings for Horticultural Purposes.

HOT-WATER and HOT-AIR APPARATUS Erected Complete, or the Materials supplied.

PEAT for ORCHIDS,

AZALEAS, HEATHS, FERNS, RHODODENDRONS,
and other choice Plants.

The Best in the World.

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London, E.C., continue to receive the highest of testi-
monials (unsolicited) from large Orchid Growers, stating the
ORCHID PEAT supplied by A. J. & Co. is by far the best they
have ever used. Samples can be seen at above address, or for-
warded on application, free of charge.
A. JOHNSON AND CO. have NO Authorised Agents repre-
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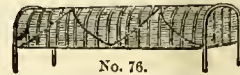
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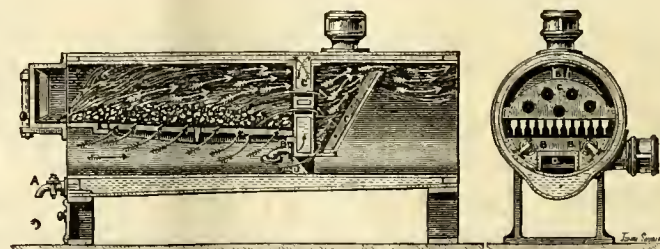
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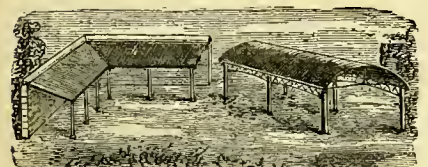
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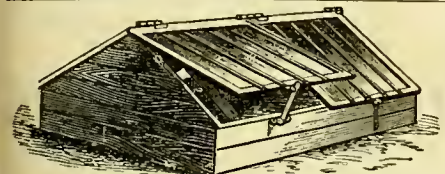
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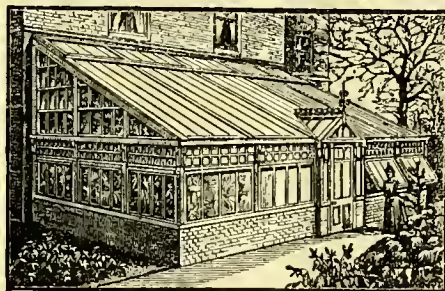
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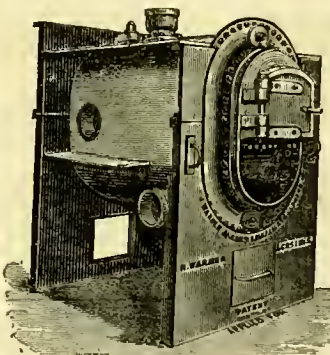
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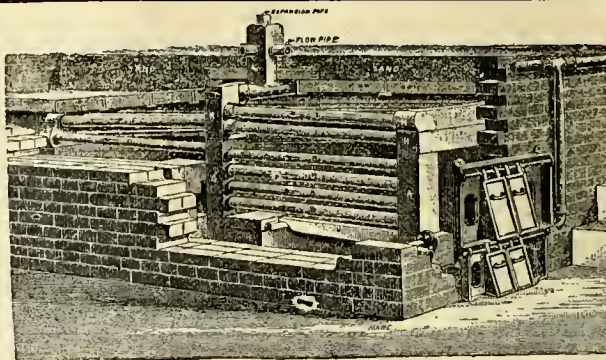
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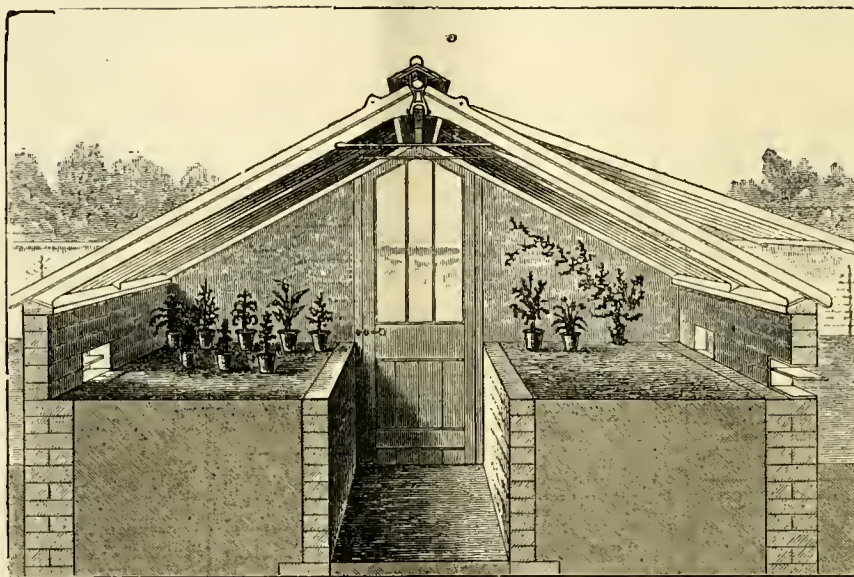
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28 × 12	..	27	15	0
32 × 12	..	31	5	0
36 × 12	..	34	15	0
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The GARDENERS' CHRONICLE

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NOTICE TO ADVERTISERS.

FRIDAY NEXT, March 30, being GOOD FRIDAY, the "GARDENERS' CHRONICLE" will be published on THURSDAY, March 29.

ADVERTISEMENTS for NEXT WEEK must therefore reach the Office not LATER than WEDNESDAY MORNING, March 28.

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W. G. T. GOULD, FLOWER COMMISSION AGENT, Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity. Highest Market Prices obtained. Remittances forwarded daily or weekly as desired. 23, Broad Court, Covent Garden, W.C.

GEO. CLARKE and CO., Covent Garden Flower Market, are open to RECEIVE CHOICE CUT FLOWERS in any quantity. Highest Market Prices returned. Remittances daily, or weekly, or as desired by sender. Address, 3, Couduit Court, Covent Garden, W.C.

WANTED, strong Shoots of CALLAS. Particulars to C., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

MARÉCHAL NIELS, MARÉCHAL NIELS, WANTED, in quantity. Prompt payment. Empties Free. WISE and RIDE, Covent Garden, W.C.

WANTED, NIPHETOS and DEVONIENSIS ROSES, and STEPHANOTIS for training up Trellises. State size of plants, price, and number for sale, to "A. B.," 4, Tokenhouse Buildings, London, E.C.

WANTED, GERANIUM CUTTINGS, in quantity, of any of the following sorts:—Mrs. Pollock, Lady Cullam, Sophia Dumaresque, or any Golden Tricolor; Italia Unita, Lustrous, Madame Vaucher, Scarlet Vesuvius, Henry Jacoby, F. V. Raspaill, Prince Silverwings, and Chelsea Gem. Also stock plants of KLEINIA REPENS and ANTENNARIA PLANTAGINEA. Persons having any of the above to dispose of, please quote prices and numbers they could supply. Cash payments.

GEORGE PHILIP, F.R.H.S., Nurseryman and Contractor for Public Gardens, Reading, Berks.

WANTED, Two ORANGE TREES, with fruit on that will carry safely. State varieties, sizes, and prices, also number of fruit on each, to F. and A. DICKSON and SONS, The Queen's Seedsmen, Chester.

SUTTON'S AMATEUR'S GUIDE.—

For the best Vegetables, Potatoes, and Flowers, see the new edition of this popular work; beautifully illustrated, and containing exhaustive articles, entitled—"A Year's Work in the Vegetable Garden," "The Culture of Mushrooms in the Open Air." Is., post free, or gratis to customers ordering goods value 20s. and upwards.

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

The Best Present for a Gardener. VINES and VINE CULTURE.

The most complete and exhaustive Treatise on Grapes and their Culture ever published. New Edition.

Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.

Cheap Roses.

EWING'S CARRIAGE and PACKAGE FREE COLLECTIONS are now specially worth attention. The plants are healthy, uninjured by frost, well ripened, and hardy, having been grown in an open position, near the sea. Full particulars gratis and post-free.

EWING AND CO., Sea View Nurseries, Havant, Hampshire.

EUONYMUS.—20,000: all nice bushy well grown specimens, 9 to 30 inches, 15s. to 27 per 100; about 150 large ones, 3s. 6d. to 5s. each.

J. J. CLARK, Goldstone Farm, West Brighton.

Wholesale Price Current—Spring 1888.

AGRICULTURAL SEEDS.

PETER LAWSON and SON, Limited, Edinburgh, will be glad to post, free upon application, their newly published CATALOGUE of FIELD ROOT SEEDS, CLOVERS, GRASSES, &c., with Special Offers and Samples when desired.

To the Trade.

FERN SPORES (SEEDS), many named varieties; also collections of same in 12, 18, and 24 sorts. LIST free by post on application.

WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.

CARNATION SEED, Home-saved, from my splendid collection of named sorts, packet of 50 seeds, 1s.; collection of 12 varieties, 3s., post-free.

General SEED CATALOGUE free to all Customers. THOS. BUTCHER, Nurseryman and Seed Merchant, Croydon.

To the Trade.

GLADIOLUS BRENCHELEYENSIS and other varieties. Price on application. WATKINS and SIMPSON, Exeter Street, Strand, London, W.C.

GLADIOLUS.—The very best in cultivation, as well as the best leading varieties. Descriptive LIST Free on application.

RICHARD SMITH and CO., Seed Merchants and Nurserymen, Worcester.

ADIANTUM CUNEATUM.—An immense stock of strong Plants, in thumbs and 5-inch pots, at 20s. and 50s. per 100 respectively, packages included. Terms cash with order.

WM. MITCHELL, Broadlands, Enfield Highway.

A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate disposal.—Latania borbonica, Scaevola elegans, Chamaerops excelsa, and Phoenix reclinata—from 10s. per pair. GARDENER, Holly Lodge, Stamford Hill, London, N.

Vines.

PAUL and SON, The "Old" Nurseries, Cheshunt, have still a fine stock of well-ripened Canes of extra quality. LIST on application.

FOR SALE, Early SEED POTATOS of the best kinds:—Breeze's Prolific, Gordon's Pride, Reading Russet, Fortyfold, Magnum Bonum, Imperators.

For price, &c., apply to J. SMITH and SON, Sipton, near Slough.

W. H. LASCELLES and CO., HORTICULTURAL BUILDERS,

121, BUNHILL ROW, LONDON, E.C.

Plans and Estimates Free.

See large Advertisement, March 3, p. 262.

SALES BY AUCTION.

Wednesday Next.—(No. 7650.)

5000 LILUM AURATUM, L. SPECIOSUM, ALBUM and ROSEUM, L. BATEMANNI, &c., from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 28.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7650.)

First-class Standard and Dwarf ROSES to name, Hardy Ornamental SHRUBS and CONIFERS, FRUIT TREES, CARNATIONS, PICOTEES, and other BORDER PLANTS, GLADIOLI, LILIUMS, Pearl TUBEROSES, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 28, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 1, at half-past 12 o'clock precisely, and he will be glad if gentlemen desirous of entering plants for this Sale will send list as soon as possible.

Collection of Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 18, at half-past 12 o'clock precisely, the COLLECTION of ORCHIDS, formed by A. G. Wallis, Esq., of Thornlie, Balham. Amongst other fine things will be found *Cyclopogon Massagena*, *C. cristata*, *C. Lemniana*, *Oncidium Marshallianum*, grand var., *Angraecum sesquipedale*, *Asiodes crassifolium*, and the usual varieties of *Odontoglossum*, *Dendrobium*, *Oncidium*, *Cattleya*, *Vanda*, &c.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest, the whole in the finest possible condition.

Amongst other choice things will be found fine plants of:—

<i>Cypripedium Druryi</i>	<i>Cyclopogon Massagena</i>
" <i>supercilare</i>	" <i>cristata alba</i>
" <i>Sedeni candidulum</i>	" <i>Lowii</i>
" <i>venustum</i>	<i>Cymbidium Dayanum</i>
" <i>Schroderae</i>	<i>Cattleya Skinneri alba</i>
" <i>albo purpureum</i>	" <i>Reineckiana</i>
" <i>Spicerianum</i>	" <i>exoniensis</i>
" <i>Aschbartoniae</i>	" <i>Wagneri</i>
" <i>marmorophyllum</i>	<i>Masdevallia Harryana</i> , Bull's
" <i>cardinale</i>	blood
" <i>euryandrum</i>	" <i>regalis</i>
" <i>Swanionum</i>	" <i>Denissoniana</i>
" <i>Arthurianum</i>	" <i>conchiferum</i>
" <i>Neo-Guineense</i>	" <i>Veitchiana</i>
" <i>Chas. Canham</i>	" <i>macrura</i>
" <i>Sanderianum</i>	" <i>trichilobis</i>
" <i>Morganiae</i>	" <i>Chelsoni</i>
" <i>Dayanum</i>	<i>Laelia anceps alba</i>
" <i>Stonei platysecium</i>	<i>Dendrobium Ainsworthii</i>
" <i>calurum</i>	<i>Oncidium macranthum</i>
" <i>melanophthalmum</i>	<i>Odontoglossum Edwardii</i>
" <i>vestilium</i>	" <i>Ruckerianum</i>
" <i>tonsum</i>	" <i>mulus</i>
" <i>orphanum</i>	" <i>Harryanum</i>
" <i>Lecanum superbum</i>	" <i>Andersonianum</i>
" <i>cananthum superbum</i>	" <i>crispum Wolstenholmei</i>
" <i>purpuratum</i>	" <i>Wilckeanum</i>
" <i>polium</i>	" <i>Chestertonii</i>
" <i>chloroneurum</i>	" <i>vestilium</i>
" <i>Farrieanum</i>	" <i>Pescatorei</i>
" <i>Dominianum</i>	" <i>Alexandree</i>

Cypripedium barbatum grandiflorum nanum.
Rare *Vandas*, *Aerides*, *Phalaenopsis*, *Angraecum*, &c.
The FIRST PORTION of the above COLLECTION will be SOLD about the SECOND WEEK in MAY.

On view mornings of Sale, and Catalogues had.
N.B.—Every Plant in the Collection will be included in these Sales, and none sold privately.

The Lawson Seed and Nursery Co. (Limited).

In Liquidation.

BANGHOLM NURSERIES.

GREAT CLEARANCE SALE—50 Acres NURSERY STOCK

to be SOLD by PUBLIC AUCTION on various dates.

SECOND PORTION of the SALE on WEDNESDAY

THURSDAY, March 28 and 29, 1888, at 11 o'clock Fore-

noon each day.

MR. DAVID MITCHELL, HORTICULTURAL

AUCTIONEER, has been favoured with instructions from

the Liquidators to SELL by PUBLIC AUCTION, the further

portion of the VALUABLE NURSERY STOCK belonging to the

above Company, at the Bangholm Nurseries, Ferry Road,

and Juvierleith Row, Edinburgh. The Stock comprises a fine

lot of Ornamental Evergreen and Deciduous Trees and Shrubs

of all sizes for Park and Villa decoration; magnificent Golden

and Silver Queen Hollies in sizes suitable for immediate effect;

fine Specimen Rhododendrons, many well set with buds;

thousands of fine Conifers, Golden Yews, Abies Douglasii,

Picea nobilis, *Picea Nordmanniana*, &c.

Descriptive Catalogues are in preparation, and may be had

on application to Mr. W. E. DIXON, the Manager, Bangholm

Nurseries, or to the AUCTIONEER, 6, Comely Bank, Edin-

burgh. Cars pass the Nursery every 10 minutes.

GEO. TODD CHENE, C.A., Liquidators.

JOHN SCOTT TAIT, C.A.

67, George Street, Edinburgh, March 10, 1888.

"Coppins," Iver.

APRIL 11, 1888, at 12 o'clock.

MR. MASON is instructed by J. E. Taylor, Esq., to SELL by AUCTION, without reserve, on the above date, the whole of his choice Collection of STOVE and GREENHOUSE PLANTS and ORCHIDS, amongst which are a number of fine *Cattleya Triani*, *Dendrobium*, a quantity of young *Crotons*, and other Foliage Plants, a number of the best varieties of *Azaleas* and *Camellias*, also *Greenhouse Rhododendrons*, and a very good Collection of Ferns; also about a dozen good Garden Frames with Lights, &c.

On view day previous to Sale, and Catalogues had from Mr. MASON, Auctioneer, Windsor; or Mr. FLETCHER, Gardens, Coppins, Iver, Uxbridge.

Tuesday Next.—Orchids in Flower.

SPECIAL SALE FOR EASTER DECORATIONS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, March 27, at half-past 12 o'clock precisely, 300 lots of ORCHIDS in FLOWER, including the following:—*Odontoglossum Rossi majus*, splendid varieties; *O. Alexandree*, numerous fine varieties; *Cattleya Mendelii*, 70 bulbs; *Dendrobium Ainsworthii*, 3 splendid plants; *D. Wardianum*, 70 flowers; *Cymbidium Lowii*, specimen; *Cattleyas*, *Odontoglossums*, *Oncidiums*, *Dendrobiums*, &c.; also the first 4 volumes of the *Orchid Album*.

On view morning of Sale, and Catalogues had.

Tuesday Next.

Very fine collection of Standard and Dwarf ROSES: Standard and Trained FRUIT TREES, HARDY EVERGREENS, DECIDUOUS SHRUBS, CLIMBERS, and GREENHOUSE PLANTS from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the Central Auction Rooms, 37 and 38, Gracechurch Street, E.C., on TUESDAY NEXT, March 27, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

10,000 splendid Bulbs of LILUM AURATUM from Japan; a choice assortment of ENGLISH-GROWN LILIES, including most of the best varieties in cultivation; 100 AZALEAS, coming into flower; GREENHOUSE PLANTS, Standard and Dwarf ROSES, HERBACEOUS PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 28, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.
N.B.—There will be no Sale on SATURDAY NEXT, March 31.

Wednesday Next.

Extensive quantities of NURSERY STOCK and GREENHOUSE PLANTS from sample.

Important to Gentleman, Nurserymen, Builders, and others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 28, at half-past 12 o'clock precisely, the following quantities of NURSERY STOCK and PLANTS in Pots, from sample:—

1,000 Green Hollies, 1 to 2 feet	500 Double White Primulas
3,000 Variegated Box	200 Ficus elastica
2,000 Dwarf Roses	1,000 Dwarf-trained horizontal and pyramid
1,000 Cupressus Lawsonii, 1½ to 3 feet	Apples and Pears
200 Cedrus Deodara, 8 to 10 feet	1,000 Wilson Junior Blackberries
1,000 Rhododendron pooticum	1,000 Raspberry canes
1,000 named Rhododendrons	40,000 Apple and Pear stocks
Standard Variegated and Golden Queen Hollies	100,000 2-yr. Beech
Scarlet Thorns, Aucubas, and Yews	22,000 Spanish Chestnut
Carrots, Pyrethrums, and Gentiana acaulis in large quantities	100,000 Spruce Firs
	100,000 native Scotch Firs
	600,000 seedling Ash

Samples will be on view the morning of Sale. Catalogues can be had of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

The Brentham Park Collection of Orchid s

Highly important unreserved sale of the first portion of this celebrated collection of ESTABLISHED ORCHIDS, by order of Robert Smith, Esq., who is giving up their cultivation.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from R. Smith, Esq., to SELL by AUCTION at their Central Sale Room, 67 and 68, Cheapside, London, E.C., in APRIL, without Reserve, the first portion of this well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following and other rare species:—

<i>Cattleya Blandii</i>	<i>Laelia anceps Sanderiana</i>
" <i>exoniensis superba</i>	<i>Oncidium ornithorhynchum</i>
" <i>Skinnerii alba</i>	<i>Oncidium macranthum</i>
" <i>labiata</i> (autumn flowering var.)	<i>Odontoglossum Jenningsianum</i>
<i>Lycaste Skinnerii alba</i>	<i>Cyclopogon massagena</i>
<i>Laelia anceps Dawsonii</i>	

No Plants will be sold privately prior to the Sale, and due notice will be given of the date.

Auction Rooms Estate Offices, 67 and 68, Cheapside London, E.C.

Preliminary Notice.—Without Reserve.

The whole of the well-known collection of Specimen Exhibition STOVE and GREENHOUSE PLANTS, PALMS, &c., which have taken so many Prizes at the leading Metropolitan and Provincial Shows, by order of Messrs. T. Jackson & Sons, who have given up exhibiting.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL the above valuable COLLECTION of PLANTS, by AUCTION, on the Premises, The Nurseries, Kingston-on-Thames, on THURSDAY, April 26.

Fuller particulars will appear in future Advertisements.

Thursday, March 29 to Tuesday, April 8.

NOTICE.

MESSRS. PROTHEROE AND MORRIS desire to announce that there will be no Sales in their Auction Rooms during the days above mentioned, in consequence of the Easter holidays.

FOR DISPOSAL, a FLORIST and FRUITERER'S BUSINESS, in main road; also FREEHOLD NURSERY, with Glass Erections, and eight-roomed House, within 5 miles of Covent Garden.

Particulars of E. R. HILL, Surveyor, Royston, Cambs.

FOR DISPOSAL, a FLORIST and NURSERY BUSINESS, on Lease with Glass and Jobbing attached. For particulars apply to G. PAYNE, Florist, 95, Highgate Hill, London, N.

A Rare Opportunity.

TO BE SOLD, with immediate possession, a good going NURSERY BUSINESS, comprising about 2 Acres of Freehold Land, enclosed by Wooden Fence, with Eleven Large Greenhouses, well stocked and Heated with Hot Water. Usual Outbuildings. Situate Wellbrook Road, Farborough, Kent.

Apply to TRUSTEES, 25, Nevill Road, Stoke Newington, N.

TO LET, a SMALL NURSERY. Stock and Three Small Greenhouses at low price. Main road. No opposition.

H. H., Upton Villa, New Southgate, London, N.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so-called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by PULHAM AND SON, BROXBORNE.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

HAVE JUST RECEIVED

A Large and Fine Importation

OF

SOUTH AMERICAN ORCHIDS,

All in the best possible condition,

And they are constantly receiving importations from various parts of the world, full particulars of which will be sent on application.

The Company have also a large and fine stock of

ESTABLISHED ORCHIDS.

Catalogues free on application.

THE VINEYARD & NURSERIES, GARSTON, near LIVERPOOL.

FOR SALE, Surplus STOVE PLANTS, including *Eucharis*, *Palms*, *Crotons*, *Variegated Pines*, *Davallia Mooreana*, *Cypripedium insigne*, &c. All clean and healthy.—The GARDENER, Eydon Hall, Bifield.

THE NEW CARNATION

"MRS. REYNOLDS HOLE."

Coloured in *The Garden* of March 17, 1888—a most beautiful and remarkable introduction. 2s. 6d. each, 24s. per dozen. Printed description, post-free, on application.

JAMES DICKSON AND SONS, Newton Nurseries, Chester.

ABIES DOUGLASII, 10 to 15 inches, 6s per 100; 15 to 18 inches, 10s. per 100; 1½ to 2 feet, 16s per 100; 2 to 3 feet, 30s. per 100; 3 to 4 feet, 35s. per 100; 4 to 5 feet, 45s. per 100; 6 feet, 60s. per 100.

GARLES MITCHELL, Nurseryman, Stranraer.

RAWSON'S SURPRISE

BROCCOLI.

A hardy Late BROCCOLI, with beautiful variegated leaves stood the exceptionally severe winter of 1886-7 in the Lake District, and coming in in April. The remaining packets of Seed, at 1s. 6d. per packet, may be had on application, with P. O., to

J. GARNET, Nurseryman, Bowness-on-Windermere.

To the Trade.

FRESH PALM SEEDS.—Write for Special Low Offer of all the leading kinds to H. DAMMANN, Jun., Breslau, Germany.

FOR SALE, Twelve Half-Specimen AZALEAS—healthy and different varieties. Can be seen at Stoke Place Gardens, near Slough, Bucks. Apply, C. GILBERT, Stoke Place Gardens, Slough, Bucks.

BLACKBERRIES—For Gardens—Fields—Railway Banks, &c.—The most suitable variety for this country is *Vertegans' Best of All*, 7s. per dozen; *Wilson Junior*, 6s. per dozen. Home-grown; carriage and packing free. For novelties not to be found in other Catalogues, see *Vertegans' Illustrated List of Specialties*, post-free.

VERTEGANS, Chad Valley Nurseries, Birmingham.

SIMPLE INSTRUCTIONS by which anybody anywhere may force and obtain a great quantity (lasting until outdoor beds are in full bearing) of most excellent **ASPARAGUS** at a very trifling expenditure of time or money. Directions sent Free to all applicants.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

STANDARD ACACIAS.—Common, fine trees, good heads, clean stems, 6s., 9s., and 12s. per dozen.

RHODODENDRON and **AZALEA PONTICA**, well set with buds, 14 foot, bushy, 6s. per dozen.

IRISH IVIES, in pots, staked, 5 to 6 feet, 9s. per dozen. Package free for cash.

W. FROMOW AND SONS, Sutton Court Nursery, Chiswick, W.

JOSIAH H. BATH, 1 and 3, York Street, Borough Market, S.E., offers the following varieties of **SEED POTATOS** :—

Rivers' Royal Ashleaf	Schoolmaster
Myatt's Prolific Ashleaf	Reading Hero
Old Ashleaf	Snowflake
Mona's Pride	Paterson's Victoria
Beauty of Hebron	Early Don
White Elephant	Early Rose
Magnum Bonum	Regent

And other leading varieties. Prices on application.

OLD-FASHIONED HEDGES.—English YEWs, bushy and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per dozen, 35s. per 100; 2 to 2½ feet, 8s. per dozen, 50s. per 100; 2½ to 3 feet, 9s. per dozen, 60s. per 100; 3 to 3½ feet, 12s. per dozen, 84s. per 100. Iris of large size and other evergreens suitable for hedges. **TREE BOX**, HOLLY, LAUREL, PRIVET, CYPRESS, JUNIPER, THUJA, &c.) on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

Home-grown **VEGETABLE** and **FIELD SEEDS**.

H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of **VEGETABLE** and **FIELD SEEDS**, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

LARGE SHRUBS and **CONIFERÆ**.—American Arbor-vite, 2 to 2½ feet, 16s. per 100; ditto, 3 to 3½ feet, 20s. per 100. *Aucuba japonica*, 1½ to 2 feet, 30s. per 100. *Berberis aquifolia*, 1 to 1½ foot, 50s. per 100. Box Trees, 2 feet, 20s. per 100; *Grisebina litoralis*, 1½ foot, 30s. per 100. *Laurel*, Common, 2 to 2½ feet, 10s. per 100; *Laurel*, Portugal, 1½ to 2 feet, 20s. per 100; *Laurel*, Colchic, 2 to 3 feet, 16s. per 100; ditto, 3 to 4 feet, 20s. per 100. *Laurel*, caucasicum, 2 to 3 feet, extra, 20s. per 100. *Rhododendron ponticum*, 1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100; ditto 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per 100. White and other colours, strong and bushy, 70s. per 100. English Yews, 2 feet, 26s. per 100. *Araracia imbricata*, 1½ to 2 feet, 24s. per dozen; ditto, 2 to 2½ feet, 36s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen. *Cupressus Lawsoni*, 2 to 3 feet, 20s. per 100. *Cupressus erecta viridis*, 2 feet, 30s. per 100. *Pinus Nordmanni*, 2 feet, 35s. per 100; ditto, 3 to 3½ feet, 18s. per dozen. *Retinospora plumosa*, 1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. *Retinospora plumosa aurea*, 1 to 1½ foot, 50s. per 100. *Retinospora squarrosa*, 12 to 18 inches, 20s. per 100; ditto, 2 to 2½ feet, 50s. per 100. *Thuja Lobbi*, 2 to 2½ feet, 20s. per 100; ditto, 4 to 5 feet, 12s. per dozen. *Thuiopsis borealis*, 2 to 2½ feet, 50s. per 100. *Thuja dolabrata*, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3 feet, 30s. per dozen.

GARLIES MITCHELL, Nurseryman, Stranraer.

SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious **MUSHROOMS**. See Seed LIST, Free.

RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

STRONG FOREST TREES

ALDER, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.

ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.

BIRCH, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet.

ELM, Wych, 2 to 3, 3 to 4, and 4 to 5 feet.

LARCH, 2 to 3, 3 to 4, and 4 to 5 feet.

OAKS, 1½ to 2, 2 to 3, and 3 to 4 feet.

FIR, Scotch, 1½ to 2, 2 to 2½, and 2½ to 3 feet.

FIR, Spruce, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 4, and 4 to 5 ft.

All these are stout, good plants, and properly rooted. The prices quoted will be very reasonable in order to clear.

Apply to **JOHN HILL**, Spot Acre Nurseries, near Stone, Staffordshire.

OWEN'S "IMPERIAL" BEGONIAS.—New and distinct strain. Awarded many Certificates and Prizes. The finest strain in the world, possessing a greater variety of colour than any other strain, the result of fifteen years' labour. Dwarf vigorous habit, flower-stems erect, blooms of great size and substance with every shade of colour found in Begonias. Tubers, single, extra for pots, 6s., 9s., 12s., 15s., and 21s. per dozen; Double, 12s., 15s., 24s., and 30s. per dozen. Mixed Singles, 4s., 6s., and 8s. per dozen. Extra large tubers, for specimens, 12s., 15s., and 20s. per dozen. Seed, Single or Double, 1s., 1s. 6d., and 2s. 6d. per packet. In separate colours, same prices as above.

ROBT. OWEN, Floral Nurseries, Maidenhead.

ASPARAGUS, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. **SEAKALE**, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.

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GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.

The **SPRING FLOWER SHOW** will be held within the City Hall, Glasgow, on **WEDNESDAY**, March 29, 1888.

The **SUMMER and AUTUMN SHOWS** will be held within the Buildings of the International Exhibition, Glasgow, on **JULY 11 and 12**, and **SEPTEMBER 12, 13, 14** respectively.

Prize Schedules and Tickets of Admission to be had from the Treasurer, Mr. CHAS. MACDONALD WILLIAMSON, 194, West George Street, Glasgow, any of the Directors, or at my office here. Member's Ticket, 5s. each.

FRANC GIBB DOUGALL, Secretary, 167, Canongate Street, Glasgow.

GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.

GRAND FLOWER SHOWS.—**FIVE HUNDRED POUNDS PRIZE MONEY** for July and September Shows, granted by the Executive Council of the International Exhibition, Glasgow, 1888, in whose buildings the Shows will be held.

SPRING SHOW, MARCH 29.—Prize Schedules now ready, also *Subscribers' and Members' Tickets*—21s., 10s. 6d., 5s., admitting to Spring Show in City Hall, and Summer and Autumn Shows in the International Exhibition.

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FRANC GIBB DOUGALL, Secretary, 167, Canongate Street, Glasgow.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on **FRIDAY**, July 13 next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than **Monday**, 23rd day of April next.

A. F. BARRON, Hon. Sec., Royal Horticultural Society's Gardens, Chiswick.

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A. F. BARRON, Honorary Secretary, ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK, LONDON, S.W.

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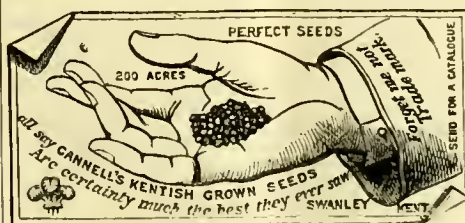
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TO THE

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FOR

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WILL BE

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OF A

GROUP of DAFFODILS,

With Key.



THE

Gardeners' Chronicle.

SATURDAY, MARCH 24, 1888.

DARWIN'S GARDEN.

THE grounds at Down House, the residence of the late Charles Darwin, have not only been laid out with taste and care, but planted with a rich assortment of rare trees and shrubs, a few notes on which latter we jotted down the other day when on a long-wished-for visit to that remarkable place—remarkable as having for many years been the home of that once much-maligned but greatest of modern naturalists—and which may be opportune, particularly at a time when that great name has again been brought prominently forward by the publication of his life and letters.

Some of the finest and largest of our forest trees, particularly the Oak and Beech, are growing alongside the "sand walk"—a favourite resort of Darwin's, and near the shrubbery, which is a small wood, composed principally of Oak, Elm, Beech, Birch, and Ash, with an undergrowth of Privet.

Opposite to the stile which conducts one from the little park to the walk above-mentioned, and with its buttressed roots extending for a considerable length, is growing an old and gnarled Oak, whose stem at a yard from the ground girths fully 16 feet, the well-branched head having a spread of 39 feet in diameter. Not far from this giant specimen, and growing on the same side of the path, is one of the Beech whose lofty head and noble proportions indicate great age, combined with a most suitable soil and situation for its perfect development. At a yard from the ground the deeply furrowed stem girths 14 feet 7 inches, and the far-reaching branches cover a ground space of no less than 84 feet in diameter. The total height of this fine tree is nearly 80 feet, and, judging from the well-rounded and twiggy head, as likewise sound and glossy trunk, it is in perfect health, and will yet, should no accident befall, attain to much larger dimensions than those here recorded. A twin-stemmed Ash, of great size and natural beauty, ornaments the path high where it enters the woodland, while

goodly-sized specimens of many other trees are freely scattered about. The shrubbery, with its well-kept green walk, Holly hedge, and Ivy-clad summer seat, is such a place as anyone might well be forgiven did they covet, and must have been such a secluded spot as was well suited to the taste of its illustrious owner.

Two remarkable Scotch Firs, not remarkable for their great size, but for their peculiarly rounded and weeping heads—this latter is particularly noticeable in one of the specimens—stand in the park just outside the lawn. These trees are certainly well matched both in size and shape, although the head of one is more rounded and weeping, though of the same height as the other; indeed, the umbrella-like head of one is as peculiar as it is unusual.

Of that interesting Conifer, *Thuopsis dolabrata*, we noticed at least two well-grown and flourishing plants; while the true *Thuia plicata* was represented by a goodly sized fan-branched specimen of some 25 feet in height.

Growing at some distance from the latter is a fine and rapid-growing *Sequoia gigantea*, the stem of which measures 6 feet 10 inches in girth at 3 feet from the ground, while the branches have a spread of fully 20 feet. This and the latter Conifer are growing in too close contiguity for either ever to become perfectly developed. Lambert's Cypress (*Cupressus Lambertiana*) shows off its true character to perfection, and the specimen here recorded is not only the best finished but brightest foliaged specimen that I have seen for some years. It is 38 feet in height, has a branch spread of 5 yards diameter, and a stem which, on measuring, we found to be 37 inches in circumference at 3 feet up.

Prince Albert's Fir (*Abies Albertiana*), judging from a specimen in the grounds here, seems to be well suited for the particular soil of the locality, and being an ornamental tree of no mean degree, is well worthy of more extended culture than it has yet received at the hands of the British arboriculturist. The specimen under notice is of neat upright habit, not dumpy and carrot-stemmed as we too often see, rather sparsely branched—this being usually noticeable in fast-growing trees of Prince Albert's Fir—and about 27 feet in height.

Almost opposite to this tree is growing a fairly perfect specimen of the Japan Cedar (*Cryptomeria japonica*), a fine bushy-headed, fan-branched plant of nearly 40 feet in height, and with a trunk of good shape, and which reveals in a very decided manner the beautiful warm buff-brown of the bark, and which colour is frequently noticeable in healthy free-growing trees of this peculiarly distinct Conifer. Conspicuous not only for its size, but for its wealth of deep bluish-green foliage, is a well-balanced and upright habited specimen of Lawson's Cypress (*Cupressus Lawsoniana*), this associating nicely and affording a perfect contrast to the mass of round-headed trees in its close environment. It is 42 feet in height, well furnished throughout, and of an easy and pleasing outline.

On the lawn are numerous well-arranged tree-groups, one in which a far-spreading evergreen Oak, of some 56 feet in height, is conspicuous, being very effective when viewed from the house, the rich dark green of the Oak just mentioned harmonising so pleasantly with the lighter tints afforded by the numerous other evergreens which constitute the clump. At a respectable distance from this tree group grow three large Yews, these also, from their close proximity forming a group of imposing grandeur, and doing much to lighten up and diversify the mass of hard-woods by which they are backed up. There is, likewise, a goodly specimen of the Mulberry, and one which from the numerous props and girders with which it is held together and saved from destruction, must be highly valued by the members of the family. It is truly a picturesque tree, with large and shapely limbs, and a far-spreading and well-branched head, one side of which has, however, been considerably marred by the wind divesting it of one of the largest branches. Amongst other trees of in-

terest we noted a Walnut, a young and rapid-growing tree, of about 50 feet in height, and from which annually, we were told, a large quantity of superior fruit is obtained. Growing hard by it is a fine example of the Stag's-horn Sumach (*Rhus typhina*), with thick, supple branches, and a well-formed stem, which shoots upwards for about 25 feet. Seldom, indeed, have we noted a more healthy-looking plant of this Sumach than that just recorded.

Of shrubs worthy of note, by far the most remarkable are two plants of the Wig tree, or Venetian Sumach (*Rhus cotinus*), and which, even during the dull January days, were full of interest, and highly conspicuous from the feathery inflorescence with which nearly every shoot was well provided. Although the flowers of this rarely-seen shrub are small, and, may be, inconspicuous, yet the transformation of pedicels and hairs into white feathery awns, not unlike that of the Old Man's Beard (*Clematis vitalba*), imparts a most distinct and peculiar appearance to the inflorescence, and renders the plant one of great interest during the autumn and winter months. The plants in question were growing one on either side of the neatly-kept walk that leads from the house to the garden and conservatory, and from their large size and great branch-spread—for these extended for fully 9 feet—must have been planted for several years, and in a position and soil well suited for their most perfect development. In passing it might just be noticed, that to anyone in search of a distinct and curious plant, this Sumach is worthy of attention.

Darwin's Barbary (*Berberis Darwinii*) is here represented by at least one noble specimen, it being 10 feet in height, and with branches extending for fully 9 feet in diameter. The thick gnarled stems of this plant indicate great age, and a luxuriance of growth that we have rarely seen excelled. Proud must its owner have been of so fine a specimen of his Barbary; indeed, it is not hard to fancy how pretty a sight would be revealed by so magnificent a plant when in full bloom. *Hydrangea hortensis* looked happy and flourishing in this Kentish garden, quite as much so as we have ever noticed even when fanned by the warm and gentle breezes of the Menai Straits. Many other shrubs were noticed, all in the most luxuriant health, while a line of far-spreading Limes afforded just the protection necessary for the numerous specimens of our native Ferns, amongst which we could not help noticing several fine examples of that most distinct and pretty evergreen species—*Polystichum angulare*. A. D. Webster.

PROLIFERATION IN UTRICULARIA.

THESE are two small plants of *U. longifolia* at Kew, and one of these last year was placed by way of experiment just over a small water-tank in the propagating-pit, the basket in which the *Utricularia* was planted being 1 inch in the water, which was kept at a temperature of about 75°. Under this treatment the plant grew rapidly, and some of the leaves bent over the side of the basket so that their tips touched the water. In a short time they pushed out root-like growths as well as leaves from the extreme tip, and from these secondary growths were developed. One of these leaves is represented life-size in the accompanying drawing (fig. 54) made by Mr. Weathers, and in which the nature of the proliferation is well shown. The base of the leaf is at the top in the figure, and the apex, which touched the water, is shown with its "family" of leaves, roots, and bladders. The root-like organs bearing bladders are not true roots, but rhizomes, according to Darwin, from whose book the following is taken. He is writing of *U. montana*, which belongs to the same section of the genus as *U. longifolia*, and which is very similar in leaf and habit:—

"The leaves are entire, elongated, about 1½ inch in breadth, and furnished with a distinct footstalk. The plant produces numerous colourless rhizomes, as thin as threads, which bear minute bladders. These rhizomes appear exactly like roots, but occasionally throw up green shoots (? leaves). They penetrate the earth sometimes to the depth of more than 2 inches."

The development of leaves on these root-like

rhizomes, as shown in the figure, is explained by Darwin's note, but the young leaves are just as prolific as the rhizomes, and this seems to point to a close similarity, if not in function, at least in bud-development, between the leaves and rhizomes in this *Utricularia*. It ought to be added that this semi-aquatic treatment did not agree with the health of the plant, which apparently thrives much better when planted in baskets suspended from the roof and watered every day. W. Watson. [We commend this very interesting specimen to the notice of morphologists. It may help them to the explanation of the highly peculiar structure of these plants. En.]

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM LATHAMIANUM, n. hybr.

THIS hybrid between *Cypripedium villosum* (male) and *C. Spicerianum* (female) was raised by and has just bloomed with Mr. W. B. Latham, Curator of the Botanic Gardens, Birmingham, who kindly sent me a good peduncle, and whose name it duly bears. It is one of those hybrids which produce flowers with the characters of both parents. You might call the flowers those of *Cypripedium villosum* with the median sepal of *Cypripedium Spicerianum*. The leaves are stated to be exactly like those of the last named species. The peduncle is ochre-coloured, covered with thin short hairs. The bract is green with the usual dark spots at the base, not equal to the ovary, that is light greenish-ochre-coloured, with reddish and white scattered hairs. The flower was a *fac simile* of that of *Cypripedium villosum* in its general shape and in its size. The median sepal, however, is rather that of *C. Spicerianum*, white, with a dark mid-line of purple, green at the base with a few lines, cuneate elliptic apiculate, with replicate sides. Petals light greenish-ochre-coloured outside with a dark mid-line and brown margins undulate near the apex. Inside, the superior part is light ochre-coloured at the base, then dark brown to the top, greenish at the apex and lower sides. Dorsal sepal cuneate oblong, minutely acute, greenish, shorter than the lip, which is like that of *C. villosum*, though it is of a lighter, greenish-ochre colour. Staminate nearly square, as in *C. villosum*, with red hairs at the base, white borders, on the side, retuse and most obscurely apiculate, and with a green knob in front of the apex. H. G. Rehb. f.

ONCIDIUM KRAMERIANUM (Rehb. f.) RESPLENDENS, n. var.

Oncidium Kramerianum was dedicated by me to the late Herr Obergärtner Kramer, of Klein Flottbek, near Hamburg, who was the Orchid grower of our late excellent Senator Jenisch, one of those rich amateurs who, like Herr Kammerath Frege, at Leipsic, was desirous of possessing a good botanical library, and of consulting it as often as possible. Mr. Kramer has to be ranked as one of the fathers of European Orchid growing, and this fact should be kept in mind. I published a figure as early as 1854 in my *Xenia Orchidacea*, i., t. 33. I must, however, remark, that the peduncle is usually provided with very much stronger and larger knobs than are represented. I have now at hand a splendid variety, with much larger flowers, brighter colours, and the wonderfully wavy anterior lip, but no trace of the usual brown margin, whether that consist of conferruminate spots or of a continuous line of colour. The callus of the lip is distinct by being longer, yellow at the base and at the apex, white in the middle, with purple-mauve partly thicker bars, while the base and top are adorned with purple-brown bars and spots. I have to thank Mr. W. Bull for this unexpected novelty. H. G. Rehb. f.

ODONTOGLOSSUM DICRANOPHORUM, Rehb. f.

Mr. W. Bull kindly informs me that this plant is exactly like a well developed well characterised *Odontoglossum Pescatorei* in size, in shape, in markings of the bulb, &c. In fact, in the absence of



FIG. 54.—PROLIFERATION IN UTRICULARIA. (SEE P. 360.)

flowers it would be put down for an undoubted *O. Pescatorei*. *H. G. Rehb. f.*

CATTLEYA LABIATA PERCIVALIANA BELLA.

A most remarkable *Cattleya*, with very hard wavy petals. It is of the brightest purple colour; the sepals, petals, and anterior purple part of the lip are

covered with very numerous scattered dark purple spots. It is a special ornament to one of the finest collections of *Cattleyas*. It was kindly sent me by Mr. W. Bull in February last. *H. G. Rehb. f.*

LÆLIO-CATTLEYA BELLA ×.

I am indebted to the Messrs. Veitch for a mag-

nificent raceme of this splendid hybrid, obtained from another plant from Mr. Seden's original cross; the first having flowered in 1884. *Lælia purpurata* is the mother plant, the pollen having been obtained from *Cattleya labiata* (the original autumn-flowering type).

The flowers are of great size, the segments bright rosy-lilac, the petals a little darker than the sepals, and much broader; in which character it resembles the pollen parent. The lip, on the contrary, recalls *L. purpurata* in its general appearance, though, like the segments, somewhat intermediate. The front of the lip is intense crimson-purple, the veins being a little darker, and the apex a little paler than the rest; behind this is the pale throat, which towards the base is broken up by purple radiating lines. The spathe is large, olive-green above, somewhat suffused with purple-brown below. The pollen masses are unequal, as in the whole series, both of natural and artificial hybrids, between *Cattleya* and *Lælia*—now a rather numerous assemblage—while the true species of these genera have four or eight pollen-masses respectively. It is a great acquisition as a garden plant. *R. A. Rolfe.*

LÆLIA VIRENS, Lindl.

Here is "a first-class rarity," as Prof. Reichenbach remarks—a plant, moreover, not to be found in Messrs. Veitch's *Handbook*. It was described by Dr. Lindley, in 1844, from a single flower; which unique example now forms one of the treasures of the Lindley Herbarium, at Kew. Prof. Reichenbach remarks that as the plant did not reappear he thought it must be an abnormal state of *L. xanthina*, and treated it as such in the sixth volume of *Walper's Annalen*. However, in 1879 it did reappear, as may be found recorded in these columns, n.s., xi., p. 716, a specimen having been sent by Messrs. Haage & Schmidt. And here it is once more, sent by Mr. Henry Beerling, gardener to E. C. Ball, Esq., Down Lodge, Fairlight, Hastings, to Mr. Kent, and by him forwarded to me for determination. Mr. Beerling observes that the pseudobulbs are 2 to 3 inches long, by $\frac{1}{2}$ to 1 inch broad, the full grown leaves about 3 inches long by 1 inch broad, and that he was given to understand it came direct from Brazil. This is doubtless correct, as Lindley gives Brazil as the source of his original plant. The short peduncle is two-flowered, and the spathe about $1\frac{1}{2}$ inch long. The flowers are about the size of those *L. albidia*, the segments pale green and the lip white, this organ being somewhat obscurely three-lobed.

The colour is not at all striking, but it is a genuine *Lælia*, with eight equal pollen-masses, and moreover a very distinct species. *R. A. Rolfe.*

MASDEVALLIA CULEX.

I observe at p. 245 that at the meeting of the Scientific Committee of the Royal Horticultural Society, "Mr. O'Brien remarked on a so-called *Masdevallia culex*, but which is really *Pleurothallis Barbarea* (*sic*), bearing minute delicate flowers." Some few days ago Miss F. H. Woolward showed me a most beautiful drawing, made from a plant bearing either this name or *M. culex*, but no doubt representing the same plant. I instantly recognised it as *Pleurothallis macroblepharis*, *Rehb. f.*, a plant closely resembling *P. Barberiana*, *Rehb. f.*, and which might indeed be taken for it if apart, but not if the two are placed side by side. Both are in flower at Kew; indeed, they have been so for a long time past. *P. macroblepharis* has the general appearance of *B. Barberiana*; its lip is very hairy and flat, not glabrous and sac-shaped, its petals narrowly acicular, not gradually narrowing upwards from a broad base, and its leaves longer and more acute than the obovately-elliptical ones of *P. Barberiana*. There are other differences, but these are the most obvious ones. Can it be that both are known under this spurious name in gardens? And if so, where did the name originate? Perhaps Mr. O'Brien will kindly say if it had the glabrous, sac-shaped lip of *P. Barberiana*, which is well represented in the *Botanical Magazine*. *R. A. Rolfe.*

ROSES.

THE MASSING OF ROSES.

No plant comparable to the Rose in merit has suffered so severely from isolated planting. The general practice of planting each variety of Rose in units has reduced its effects in landscape almost to zero. This mode of planting originated in the scarcity of Roses, and with few exceptions it has prevailed till now. The intrinsic worth and inherent scarcity of Roses was the mother of the invention of bald and bare isolated planting. But now that each popular Rose is propagated by the thousand and tens of thousands, and good available stocks of Roses may be reckoned by millions, there is no longer the shadow of an excuse for the perpetuation of our present mode of planting. Roses are cheap as well as plentiful, but they cannot be moulded into landscapes unless they are boldly massed and skilfully grouped.

To ensure the highest artistic effects Roses must not merely be massed, but grouped. The words here are not used synonymously. Any number of Roses, planted anyhow together form a mass; by a group we mean a mass of one sort of Rose, or of Roses, of different varieties, that will go or harmonise well together. Hence, in forming groups, the influence of colour, form, habit, stature, and general character of the plants must all be taken into account. The effect of each group in itself, its relation to other groups, and to other features in the landscape, must also be taken into due account. Each group will thus be made to form an indispensable feature in the landscape, its secondary and hardly less important function being to strengthen and enrich every other portion of the same. In a word, each group should be strong and definite enough to stand alone, as well as to lend a helping strengthening hand to every other group within range of its influence, the correlation of groups thus giving the finishing touches of grace and beauty to the landscape.

In planting, as in painting, it must never be lost sight of that colour upsets the legitimate influence of mere size; otherwise mere mass would be might, and, in a sense, beauty, in landscape and on canvas. But fortunately it is not so; and the colour of the leaves as well as the flowers, the stature and general habit of the plants all materially affect, and greatly modify the influence of groups of Roses on one another and upon surrounding objects.

The latter must by no means be lost sight of in the determining of the place and size of Rose groups. For example, a group of a dozen or a score of Roses might form a suitable or even a massive one for one garden, while a hundred or more ought not to be excessive for another. As a rule the brighter colours used the smaller the groups may be, and *vice versa*. Again, the larger the demesne the larger the group may be, with good taste and propriety.

In massing different varieties into one group, the law of congruity must be adhered to in regard to stature and general character, as well as colour. Novices will find it by far the easiest course to eschew mixtures and form each group of one variety. This has substantial cultural as well as artistic merits, enabling the cultivator to adapt with the greatest nicety his sites and soils, and modes of cultivation, to the wants of each plant in his many separate groups. For example, the harder climbing or other Roses may be posted in the more bleak places, while the more tender Noisette, Tea, or Bourbon Roses may be planted on sunny banks, sheltered nooks, and warm dells. The food wants of each group of Roses may be easily provided for, while foreign and robber roots may be the easier shut out through the system of grouping Roses in large masses.

To insure the perfection of each individual in the group is the only way to have the group perfect, and this result can only be reached by a careful selection of plants and by planting them in such soils or on such sites as will ensure vigorous growth and preserve them in health. As to culture, the grouping of Roses affords a wide choice, from the highly arti-

ficial system of close pruning and training mostly adopted with show and dot-planted Roses to the virtual freedom of Nature, in which the cultivator seldom interferes unless to remove some dead or useless branchlets or blooms. I will name a few of the best and most readily and cheaply procured, without making any pretence to an exhaustive list of varieties for grouping.

Though most of the hybrid China and Bourbon Roses bloom but once, they form magnificent groups. Hardly any two Roses can match Coupe d'Hebe and Charles Lawson, while Paul Ricaut, Chenedolé, Vivid (Paul's), Louis Oider, Brenns, and the two whites, Madame Plantier and Triomphe de Bayeux, are all that can be desired for effective grouping.

Among Chinas, the common pink, or blush and crimson, Fellenberg, and Mrs. Bosanquet, are good, and the best of the Bourbons are Queen of Bourbons, Queen of Bedders, Baron Goeella, Souvenir de Baron de Rothschild, and Souvenir de la Malmaison.

The Noisettes furnish a matchless white in Aimée Vibert; and others, mostly yellow Roses, in Celine Forestier, Triomphe de Rennes, William Allen Richardson, and Caroline Kuster; while the well-known Fellenberg furnishes a show of crimson in a class specially short of such colour.

Among hybrid Teas Cheshunt Hybrid is a host of itself, although the colour is objected to by some. We have now the so-called red Gloire de Dijon, viz., Reine Marie Henriette, to lighten it up; Pierre Guillot, Madame Etienne Levet, and are vigorous-growing and fine Roses for grouping in this class, which is now being enriched almost daily, Her Majesty and W. F. Bennett being the latest additions, of which it is too early to write with authority or experience.

Among Teas, the Gloire de Dijon is still by far the finest of its colour and its class, and probably the Beauty Glory—that is, the Gloire de Bordeaux—forms about the most useful and showy second for grouping. Among rose-coloured Teas it is difficult to beat Adam and Souvenir d'un Ami. Duchess of Edinburgh gives us a dash of crimson among Teas. The following will also prove good for grouping in most localities:—Alba rosea, Anna Olivier, Bougère, Devonensis, Etoile de Lyon, Homère, Letty Coles, Madame Charles, Madame Lalort, Madame Willermoz, Marie Van Houtte, Marie Sisley, Safrano, Souvenir de David, Souvenir d'Elise.

Hybrid Perpetual White.—Boule de Neige, Coquette des Blanchés, Mabel Morrison, Mlle. Bonnaire, Madame François Pittet, Madame Lacharme, White Baroness.

Bright Crimson and Scarlet.—Alfred Colomb, Beauty of Waltham, Charles Lefebvre, Camille Bernardin, Crimson Bedder, Comtesse d'Oxford, Dupuy Jamaica, Duke of Edinburgh, Duke of Connaught, Etienne Levet, Fisher Holmes, John Bright, Marie Baumann, Red Dragon, Sénateur Vaisse, Star of Waltham.

Dark Crimson.—Abel Carrière, Baron de Bonstetten, Baron Adolphe de Rothschild, Duc de Cazes, Duke of Wellington, Felix Gené, Ferdinand de Lesseps, Maréchal Vaillant, Prince Camille de Rohan, Xavier Olibo.

Carminé.—A. K. Williams, Boildieu, Edouard Morren, Hippolyte Jamaia, Jules Margottin, Madame Charles Crapotelet, Madame Victor Verdier, Marquise de Castellane, Paul Néron, Penelope Mayo, Victor Verdier.

Pink and Rose-coloured.—Abel Grand, Duchesse de Cambacères, La France (by far the best of its class and colour), Madame Montet, Magna Charta, Miss Hassard, Rev. J. B. M. Camm, Royal Standard, William Warden.

Blush and Flesh-coloured.—Baroness Rothschild, the first of its class and colour; it would be almost impossible to have too many masses of this and La France in any garden or landscape; Bessie Johnson, Captain Christy, Comtesse de Serenyi, Madame Rivers, Madame Vidot, Thyra Hammerich. *Rosa*.

NEGLECTED ROSES.

I am very pleased to see the suggestion made for again cultivating some of our almost forgotten Roses. I do hope the hint will be taken by our

large growers. I cannot help thinking that, for the last ten or twelve years, we have given too much attention to the exhibition class; or, to put it another way, we have been wanting on our part to keep the garden Roses so noticeable as should have been. Certainly we may admire, and admire again, the beautiful exhibition Roses for their size, exquisite shape, distinct and clear colour, and some for their fragrance; but when we come to the main object, viz., to supply the multitude, I venture to say a great many of the grand exhibition Roses are not suitable to a grower who has but a small and confined garden, and may only require perhaps half a hundred trees. Every grower cannot be an exhibitor, yet they have the same love for the Rose as those who grow their hundreds or thousands. The conclusion I arrive at is we must not let our best garden Roses die out, but in the large gardens may they find their place in the rosery, and also in the borders of our villa residences, to which purpose they are especially adapted by their real hardiness, durability, and free-blooming qualities. Besides, such Roses as have been mentioned in your recent issues, I may name the following:—Pius IX., Paul Ricaut, Géant des Batailles, Madame Rivers, William Griffiths, Bourbon Queen, Mrs. Elliott, Duchess of Norfolk, Fellenberg, and the Boursault. We should probably have fewer complaints as regards so many plants dying, and one might cut and come again. *F. P.*

The list given by your correspondent on p. 302 of the Roses with which he won the 10 guinea cup at the first National show, on July 1, 1858, is a remarkable one as showing what thirty years have effected; but surely your correspondent must be wrong as to one Rose, Charles Lefebvre. It was not in existence then, nor was it let out until three years afterwards—in 1861. *Wild Rose*.

THE HERBACEOUS BORDER.

IRIS CAUCASICA.

AMONGST the early flowering Irises capable of being grown outside in this country the above takes a first place. It is a very interesting species, and said by Marshal von Bieberstein to be frequent on sunny hills round Tiflis, flowering early in spring. The golden-yellow flowers are produced from the base of the three upper leaves. The falls are marked with blackish-brown streaks and spots. The leaves are narrow, pointed, bright, shiny green on the upper surface. This appears to be a most useful plant for outdoors; it is perfectly hardy even in exposed positions, the flowers being of such substance as to withstand considerable cold without injury. It is also known under the name of *I. orchidioides*, Nippon, &c. Now in flower in the alpine-house at Kew. *D.*

"LENTEN ROSES."

From a state of semi-obscure these Lenten Roses have, almost by a single stroke of the camel's-hair pencil, been raised to a position demanding the attention of all lovers of spring gardening. Some twenty years or so ago many of these were to be met with only at rare intervals in the gardens of the curious; but now, so rapid has been the development, that few places of note but can boast of good selection. *I. colchicus*, *I. guttatus*, and perhaps *I. orientalis*, have contributed the largest share to what, for convenience sake, may be termed the florist varieties, many of which are exceedingly beautiful both in form and marking. For ordinary purposes they divide naturally into two groups; first, the *I. orientalis* section, retaining their leaves throughout the winter season, and having large ornamental flowers; and the *viridis* section, having deciduous or non-persistent leaves [?], and small or medium-sized usually green or lurid-purple flowers. To the latter section belong such well-known garden plants as *I. dumetorum*, *I. pallidus*, *I. Bocconi*, *I. purpurascens*, *I. viridis*, &c., and to the *orientalis* section belong all those of real commercial value, including *I. antiquorum*, *abchasicus*, &c., to which we wish to draw attention, as this is the group that has been so wonderfully improved by the hybridists. In 1874, vol. i., n.s., of the *Gardeners' Chronicle*, these

hybrids were noted for the first time by the late Professor Koch, who had given considerable attention to the working out of this genus; and in a later volume a figure was given of one of the first batch of seedlings raised by M. Heinemann, of Erfurt. Since then the improvement has been rapid, as they readily cross themselves; seed gathered from a mixed group is sure to give results. The colours range from pure white in *H. orientalis* to deep wine-purple in *H. colchicus*, with various purple spots, and blotches as in *guttatus*, and the hybrids between that species and *colchicus*. They bloom at a time when flowers in the open air are rare and when planted with a view to shelter from the spring winds surprising results will be obtained, and a certain source of replenishing the flower baskets. Indeed, to their general adoption the only serious drawback is their liability to suffer from the cold east wind when planted in exposed positions; this, however, it is possible to remedy, and abundance of good bloom may be had by a judicious choice of situation. *D. D.*

NOTICES OF BOOKS.

HOW AND WHAT TO GROW IN A KITCHEN GARDEN OF ONE ACRE. By E. D. Darlington and L. M. Moll. (Philadelphia, U.S.A.: W. Atlee, Burpee.)

We are by no means unfamiliar with prize essays in this country, and, as a rule, have not found them to prove very valuable or permanent additions to our literature. The book before us with the above heading is a prize essay, but of American origo, and of trade origo also, for the donors of the prizes which served to evoke this effort are seedsmen of Philadelphia, and, as the book shows, have no want of modesty in getting their respective specialties pretty considerably recommended. The book has two divisions, one being the lengthy essay of a Mr. Darlington, evidently a very good practical gardener as they run across the Atlantic; and the second a shorter essay by a Miss Moll, whose remarks are terse, but not specially lucid. The peculiarity of the book is, that it is written for Transatlantic readers solely, and treats of gardening, such as it is, as practised in America; for that reason the work has no special interest for home readers, except for Canadian Britons and such as may contemplate emigration to the Great West; and as the style of the book leads to the inference that such practical gardening as we have here is rather scarce in America, so also does it seem as if good garden labour—we beg pardon, the book has "labor," so sparing are the Yankees of needless vowels—is also.

In advising the formation of a garden, we learn that a square of 208 feet each way is the best, because it facilitates cultivation with the "plow." Here we find ample evidence that labour-saving implements seem to dominate gardening in America, as home gardeners would laugh at the idea of cultivating a kitchen garden with the "plow" only, and for further economy have no cross footpaths, or indeed any whatever, but 10 feet headlands. It seems absurd to term a piece of ground so cultivated and fashioned a garden. What sort of products come from garden soil worked with a plough, only 8 or 9 inches in depth, may well be imagined. Little is heard of the spade or digging-jerk. Possibly the innate powers of American soil are so great that even the proverbial scratching with a rake produces grander crops than do 3 feet trenching and liberal manurings in this old and effete England. We say possibly, but at the same time we think that, with English cultivation, our best home gardens may well rank as relatively—about the most productive spots of soil in the world. That there are odd notions prevalent in the book, to our way of thinking, is evident, from the instruction to plant with vegetables rows of Grape Vines, Blackberry Vines, Sweet Corn, Water Melons, &c.; even Strawberry plants being treated as annuals, and ruthlessly ploughed up after fruiting

to make room for Cabbages. Generally the book indicates that American gardens are cropped with vegetables pretty much as ours are, but with rather diverse designations, with some few exceptions, such as Peas and Potatoes. The essayists, however, do not err on the side of profuse lists when referring to kinds or sorts of vegetables, and thus leave their readers less room for doubt as to which may be the best. The publisher has dotted the book pretty liberally with the usual stock woodcuts of any seed list, and so far from publishing it in its present form it does seem as if it would have more fittingly formed part of or a supplement to the seed list by the firm which has shown so much enterprise in procuring the publication.

It is a little distressing to the novice to find one essayist advising the application of manure in the autumn that it may during the winter become thoroughly incorporated with the soil, and the other strenuously urging that such autumn dressing would lead to waste, through the wasting effect of the winter rains. Possibly a more novice would try both plans, and find out for himself which was the best, but a guide to practical gardening should not leave such an elementary matter a subject for doubt.

THE FARMER'S FRIENDS AND FOES. By Theodore Wood. (Swan, Sonnenschein, Lowrey & Co.)

The object of this book is most laudable. No doubt a vast deal of mischief is done and much useless expenditure occurred as direct consequences of our ignorance. Most of us cannot or do not distinguish rightly between our friends and our foes—gardeners too often slaughter their friends, and encourage their enemies. This arises in most cases from prejudice begot of sheer ignorance. But after making this admission there is something to be said on the other side—something which the naturalist does not sufficiently take into consideration. It is all very well for Mr. Wood to tell us that "Nature is far more competent to destroy any animal than we are; so long as we refrain from interfering with her regulations, she will preserve her own balance, and will allow none of her creatures to increase and multiply beyond their due limits; and a very important point is this to ourselves—she will perform the required work at only a small charge, whereas we cannot carry it out save at great and even excessive cost."

We do not question the correctness of this as a general statement, subject to modifications according to the conditions and requirements of particular cases. Nature, to use Mr. Wood's phrase—Nature, left to herself, quietly crowds out the weak and unsuitable, who perish at the hands of their stronger and more pliant colleagues; and so long as the conditions remain tolerably uniform, a sort of dead level of mediocrity is attained to, in which no one plant insect, beast, or bird has undue prominence over another. It is a sort of socialism wherein there is no room for superior talent or skill, but where all the workmen are placed about on the same level. From North-west Africa to Scinde is a long stretch, but the conditions are so uniform that the flora is nearly the same throughout the whole distance. Change the conditions only in the slightest degree, and the equilibrium is upset. By way of illustration, let the reader bethink himself of the meadows and downs, the bogs and heaths of his native country. Each has its characteristic population over the whole area. Break up the pasture land, cut down the trees, drain the bog, and a change in the population at once takes place. But—and here is our point—the farmer and the gardener do not want any such socialistic uniformity and even balance as Nature left to herself would induce. The cultivator in a general way wants to grow one particular crop in one particular place, and he does not want intruders of any kind. So far as he can, the cultivator takes care to place his plants under those conditions which he knows to be advantageous, and he exerts himself, or ought to do so, to counteract or evade those influences which he knows to be preju-

dicial. It is not the balance of Nature that he wants, it is the welfare of some particular crop that he endeavours to secure. Looked at from this point of view the farmer and gardener are right enough in principle in harring what they take to be their enemies—their mistake occurs, as we have said, in not sufficiently recognising what will help and what will injure them. If Mr. Wood's principles were pushed to extremes we should have to allow the locusts to take full possession of Cyprus or the rabbits of Australia. Doubtless Nature would in the end restore the balance somehow—the locusts and rabbits would disappear when there was no more food for them, prior to which time, however, the settlers would have disappeared also and a desert would restore physical equilibrium and the balance of Nature!

In order to see what Mr. Wood would recommend us to do to avoid the damages inflicted by the short-tailed field mouse or vole, whose mischievous propensities have formed the subject of some correspondence in our columns of late, we turned to the chapter on that subject in his book. Alas! the balance of Nature has been so interfered with, as he might argue, that owls and kestrels are quite insufficient to keep these marauders in check, while near towns their aid is altogether wanting. As a set-off, cats are more frequent, and do some of the work that owls and hawks would do if they could. Against all the mischief effected by the field vole, Mr. Wood can "set no compensating benefit whatever, and so must consider the campaignal as one of the worst enemies with which the farmer has to deal." Unfortunately Mr. Wood tells of no means whatever by which this avowedly *mauvais sujet* may be kept in check.

Another instance of the one-sidedness of naturalists in dealing with this question is afforded in the account of the starling as given in these pages. Mr. Wood admits that he is a little too fond of ripe Cherries, and if our living depended on the Cherry crop—as that of many Kentish farmers largely does—we should use much stronger language. It is all very well for Mr. Wood to point to the hosts of Daddy-long-leg grubs which the starling devours, but if we were Cherry growers, and not graziers, we should not get much comfort out of that, though, to be fair, it must be added, that in many of the Kentish Cherry orchards grass grows between the trees and starlings might be of use therein when there was no fruit. We are in such thorough sympathy with Mr. Wood in the main, that he will excuse us for twitting him with holding the balance somewhat unevenly in his attack on the farmer. As we have endeavoured to show, there is more than one way of looking at things, and the things themselves have many sides, all of which must be looked at, and a compromise arrived at, from the consideration of many, and, it may be, conflicting points of evidence. In this way the battle of "Common Sense against Prejudice" may be best fought, and we cordially join in the aspiration with which Mr. Wood closes his book, "and let us earnestly hope and trust that Common Sense will win the day." It is only just to the author to say that his book is well calculated to increase and diffuse that exact knowledge without which there is no "common sense."

FRUIT REGISTER.

DIOSPYROS WIESENERI.

IN a recent number of the *Revue Horticole* is a coloured figure of a new variety of Kaki, or Persimmon, in which the fruits are of the size of a bantam's egg, oblong, very obtuse at the base, slightly pointed at the apex, and of a rich orange-red colour. The shrub is, when in fruit, very ornamental, while the berries themselves are said to be good cooked or in the form of jelly. Other varieties require to be blotted before they are edible, and we presume this will be the case with this variety also.

PEACH COMICE DE BOURBOURG.

The last number of the *Bulletin d'Arboriculture* contains a coloured figure of this Peach, which is

recommended by M. Burvenich as one of the most productive, vigorous, and hardy varieties. The glands are small, globular, sometimes reniform; fruit very large, unequal, deeply furrowed, downy, rose-coloured on the sunny side. Flesh white, juicy, aromatic, with a pale red coloration round the stone, which separates readily from the flesh. Season, middle of September.

PLUM PROFESSOR WITTMACK.

This is a Plum belonging to that section of Plums known as Quetsche or Swetsche—excellent fruits for either the kitchen or dessert, and much employed in the fabrication of prunes, and also spirits (*pfauengeist* of the Germans). It ripens at the same time as the larger Green Gages and Kirke's. It is a free-stone of good substance and great sweetness, and is well adapted for the dessert, for drying, and as a preserve. The dried fruits are so sweet in themselves that when made into compotes no sugar need be used.

The parentage is not known, but is supposed to be the Yellow Mirabelle, from which the seed was taken, and the Italian Swetsche on the other side. From the same sowing of Mirabelle seeds the raiser, Herr Uhlhorn, of the firm of Uhlhorn & Co., millers, at Grevenbroich, Lower Rhenish Prussia, mentions the following fact:—"Out of twenty-five seedlings there have been up to the present time only a single Mirabelle, but several Egg Plums and Swetsche, various Damsons, one Apricot Plum, and several Sloe-like fruits. Most probably the fertilisation by bees will account for this variety of form. *Gartenflora, March*."

HOLOTHRIX LINDLEYANA.

WHEN this plant was exhibited as *Tryphia secunda* in the shape of a single specimen from the Royal Gardens, Kew, lately, it is hardly to be wondered at that it made little impression on the eyes of beholders accustomed to gorgeous *Cattleyas* and quaint *Cypripedia*. "Horticulturally," said a correspondent, "it is worth knowing only that one may avoid it." We do not think any horticulturist with an eye for something more than the shop-counter of a florist would pass over such a group as that now figured (fig. 55) from a photograph for which we are indebted to Mr. J. O'Brien, who states that the clump had not been arranged, but that it is in the condition in which it was secured.



FIG. 55.—HOLOTHRIX LINDLEYANA: FLOWER REAL SIZE; LIP MAGNIFIED.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM MORGANÆ ×.

A GRAND hybrid, figured in the *Gardeners' Chronicle*, Aug. 21, 1886, p. 241, and raised between *C. superbiens* and *C. Stonei*. We find this variety requires the same treatment as *C. superbiens*, thriving best in the East India house; it enjoys a liberal supply of moisture to its roots during active growth, and, indeed, during the whole year, in order to keep the foliage plump and vigorous; in the summer time a slight syringing daily will be found highly beneficial, but avoid heavy syringing, as the water is liable to lie in the axils of the leaves and injure the young growths. These plants do not form pseudobulbs, and consequently they have nothing to support them during the resting season; if they are subjected to drought at that time, therefore, a moderate amount of moisture is necessary in winter to maintain them in a healthy condition. *Cypripediums* should be grown near the glass in order to obtain all the light possible, so that their growths may become well matured, without which they cannot bloom freely; the ripening of the growths produces stronger spikes, and intensifies the colour in the flowers. The material we use in the cultivation of this plant is a mixture of rough fibrous peat, sphagnum moss, and potsherds, the pots being well drained, which keeps everything clean and sweet about the roots. The best time for repotting is just after the flowering season, at which time it commences to make new growths. A thin shade should be used to screen this plant from the

sun, but it should never be shaded unless the sun is shining. *Cypripediums* are subject to the attacks of red and black thrips, but we find these pests are readily destroyed by steaming with the thanatophore, the use of which is becoming very general on account of its cleanliness and the safety with which the remedy may be applied. *B. S. Williams in "Orchid Album," January*.

HOULETTIA ODORATISSIMA ANTIOQUIENSIS.

This *Houlletia* is free growing, and we find it thrive well in baskets suspended from the roof, where it is well exposed to the light, although it requires to be shaded from the hottest sun in summer. The growing season commences when the flowers are over, and during the formation of new growth a bountiful supply of water is necessary. After the pseudobulbs are mature the plant should be subjected to a period of rest; but during this resting time a little water should be given occasionally in just sufficient quantity to keep the bulbs plump. The bulbs must never be allowed to shrivel, or the plant will rapidly deteriorate, and dwindle away. The material we use for this plant is good rough fibrous peat, from which all the fine particles have been shaken, to this we add some living sphagnum moss and a few broken potsherds or nodules of charcoal. This material will keep open and free, so that no stagnant moisture remains about the roots; drain well, and do not overload the roots with potting material. Moderate-sized baskets are preferable to large ones, but if desirable this plant may be grown

admirably; for although we cannot imitate or produce such an amount of moisture as that which envelopes them at night in their native country, we endeavour to represent the natural surroundings as nearly as the means at our disposal will allow; thus they are kept cool and moist, and as much air is admitted, both by day and night, as the condition of the outside temperature will permit. This plant requires very little fire-heat; indeed, the cultural instructions which we have so frequently given in connection with *Odontoglossum Alexandræ* and its varieties will suit it exactly. *Oncidium*s of this section, when once established, dislike having their roots disturbed, and these being thick and fleshy, are very liable to injury unless great care is exercised in removing old soil and renewing it. Like the *Odontoglossums*, this plant requires shading during the summer; indeed, this is the chief secret in maintaining the leaves in their rich deep green colour. *B. S. Williams in "Orchid Album," January*.

CALANTHE STRIATA.

This Japanese Orchid belongs to the evergreen section of *Calanthe*, which has such a useful and well-known representative in our gardens as *C. veratrifolia*. Like that species it flowers from the centre of the current year's growth, but does so at a much earlier period; in fact, the new growth and the flower-spikes appear almost simultaneously. The flower-spikes are erect, 15 to 18 inches high, and bears on the upper half over a dozen flowers, each $\frac{1}{2}$ inch in diameter. The sepals and petals are of a purplish-brown colour, changing to dull yellow at the edges; the three-lobed lip is pale yellow, the crest being of a deeper shade. Contrasted with the dark green plaited leaves the inflorescence has a very pretty and distinct effect. *C. striata* thrives well at the cool end of the Cattleya-house, or even with the *Odontoglossums*, and should be potted in a mixture of fibry loam, leaf-mould, and a little sand. From the absence of any mention in popular gardening works it would seem to be somewhat uncommon at the present time, but judging by a plant at Kew now bearing two strong spikes, it is quite deserving of a permanent place in our collections. *W. B.*

LÆLIA CINNABARINA.

This *Lælia* requires to be grown in the Cattleya-house, and in a position that will afford it all the light possible; very little shade is necessary, except during the hottest part of the day in summer. It thrives equally well in a pot or a basket, but requires a liberal supply of water in the growing season, which commences soon after the flowers have faded. If the plants require shifting, the best time to re-pot or re-surface them is just as the flowers begin to lose their beauty; this operation must be carefully carried out, avoiding the breakage or bruising of roots. The compost should consist of rough fibrous peat and a little sphagnum moss, whilst drainage must be of the best. After growth is mature reduce the water supply, but not to such an extent as to cause the plant to show signs of distress. This *Lælia*, conjointly with the majority of Brazilian plants, is peculiarly subject to a white mealy scale, which, however, may be eradicated by washing whenever it makes its appearance; but if neglected the plants become permanently disfigured, therefore we cannot too strongly urge upon cultivators the necessity of at once destroying any insect enemies the moment they make their appearance. *B. S. Williams in "Orchid Album," January*.

DENDROBIUM CRASSINODE.

The above most beautiful Dendrobe I observed flowering to perfection when passing through Mrs. Arbutnot's collection, at Bridgend Place, Bexley (gardener, Mr. Mitchell). It had 125 fully developed flowers. I also noticed some very good varieties of *Cattleya Triane*, and *Odontoglossum crispum*, which were flowering very freely. *J. Carnell*.

ONCIDIUM LAMELLIGENUM.

This *Oncidium* grows upon the branches of the forest trees in its native country, affecting situations which are cool and moist; we therefore place it in the *Odontoglossum*-house, in company with *O. macranthum* and other plants that grow naturally in the same region, in which situation we find it thrive

PEATS AND LOAM.—Samples of the above have been sent to us by Messrs. W. Wood & Son, of Wood Green, N., which seem to be everything that a plant grower could desire, the peat for Orchids, and the loam—a soft, silky, friable sort—being of rare quality.

PLANT NOTES.

SAXIFRAGA LUTEO-PURPUREA, Lap.

This is undoubtedly the proper name for the plant shown by Messrs. Paul & Son, from their Broxbourne nursery, and which received a First-class Certificate at the last meeting of the Floral Committee, under the name of *S. Frederici Augusti*. The name *Frederici Augusti* was founded on a plant found by Baisoletto, when on a voyage to Dalmatia, under the auspices of Fredericus August, King of Saxony in 1841, and which is figured in a pamphlet with the above title published about that date. In Boissier's *Flora Orientalis* it is placed under *S. porophylla* of Bertoloni, as a syn., the original figure in *Bais.*

pubescent. In the *Flora Græca* figure, which is coloured, the leaves are more pointed, the spicate form of the inflorescence is the same, and the flowers deep purple, as in *S. media*. *S. luteo-purpurea*, the plant certificated is a hybrid between *aretioides* and *media*; and although various forms have been the result of this cross, only two are distinguished—the above, which is our plant, with yellow flowers, and *S. ambigua*, DC., a form nearer *media*, with purple flowers. *S. luteo-purpurea* was first described by Lapeyrouse in the *Flor. Pyren.*, 29; also as *S. Lapeyrousii*, Don, in the *Trans. Linn. Soc.*, 13, p. 397; as *S. aretioides* var. *micropetala*, Seringe MSS., in *De C. Prod.*, iv., 21, with a note that this hybrid is only found where *media* and *aretioides* grow; as *aretioides-media*, Godron, *Fl. de France*, 1, p. 657. With us in the open it is perfectly hardy, and by far the most beautiful of the

TWO GOOD RHODODENDRONS.

R. Hookeri.—This is a dwarf, compact species of the Himalayan lot, and one of the most attractive of them. A plant about 3 feet high is now in flower in the temperate-house at Kew. It is freely branched, the branches covered with a yellowish substance, over a polished bark; leaves thick and leathery, ovate, the apex broad and rounded, and they are 4 inches long, by 1½ inch wide; the petiole is thick, recurved, and about 1 inch long. The flowers are in a compact head or corymb, with from ten to fifteen flowers in each head; the corolla is 1½ inch long and wide, bell-shaped, and coloured deep crimson; calyx large, irregular, and campanulate. The number of stamens in a flower is one of the characters by which *Rhododendrons* are classified, and *R. Hookeri* belongs to



FIG. 56.—*HOLOTHRIX LINDLEYANA*: FLOWERS WHITE. (SEE P. 364.)

Viag. Dalmatia, t. 1, being quoted. It is also synonymous with *S. media*. *Flore Græca*, t. 376—non Gouan; *S. media*; var. *Sihthorpiana*, Griseb.; and *thessalica*, Schott, *Anal.*, 26. In all the above the flowers are distinctly purple, and as such we know *media* of gardens, not yellow, as in the plant under consideration. In Dr. Engler's *Monograph*, p. 256, *S. media*, Gouan, is made the type. *S. calyciflora*, Lapeyrouse, *S. diapiensoides*, Lap., *S. porophylla*, Bert., &c., are considered synonymous; while *S. Frederici Augusti* is placed as a variety under which is ranged *S. thessalica*, Schott, *media* var. *Sibthorpiana*, and *olympica*, *Flora Græca*, differing from the type chiefly by its spicate inflorescence. The latter definition entirely agrees with Baisoletto's figure quoted above, in which the rosettes are medium-sized, lower leaves obtuse, those on the stem somewhat more acute, and the whole plant glandular

early spring alpine Saxifragæ. It forms dense tufts of medium-sized rosettes of closely imbricated leaves, which are lanceolate, apiculate, about six lines long and two broad, margins cartilaginous, finely and irregularly serrated about half their length from the base, with a calcareous coating on their upper half, and nine to seventeen pitted; flower-stems about 3 inches high, with a corymbose paniculate inflorescence of four to eight or more flowers over half an inch in diameter; petals broadly wedge-shaped primrose-yellow, with anthers of a deeper shade. The stem leaves, and oval-acute lobed calyx covered with glandular hairs. Dalmatia, Pyrenees, Saint Beat., Fontaine de Bernadouze, &c. May and June. It is perfectly hardy, and flowers profusely on the open rocky. March and April. With a little protection it blooms much earlier. Now in flower in the alpine-house at Kew. *D. Dewar*.

the ten-stamened group, of which *R. arboreum* is the type. *R. Hookeri* is a native of Bootan, where it is abundant along with *Pilus excelsa*.

R. Thomsoni is somewhat similar to *R. Hookeri*, differing in having shorter leaves, looser corymbs, with fewer flowers in each, and corollas of a deeper crimson, whilst the upper part is dotted with black; the flowers, too, are larger than those of *R. Hookeri*, being 2 inches broad and long. In the form of the calyx and number of stamens these are both alike. *R. Thomsoni* is also in flower at Kew. In the warmer parts of this country these two plants are quite hardy, but the flowers must be protected in spring, or they will be spoilt by cold winds.

GREYIA SUTHERLANDI.

This interesting Cape plant is now flowering at Kew. It has long, thick rather succulent branches,

leafless at the present time, and the flowers are borne in dense terminal clusters of about 34 inches in length. The corolla is composed of five spreading incurved petals, not unlike that of the *Saxifraga* in arrangement, and there is a cup-like disc at the base between the petals and stamens; the latter organs are 1 inch long and curved outwards. Each flower is half an inch across, and is coloured deep scarlet. The leaves are just bursting their buds, and the plant will soon be in full growth. This plant is one of the most gorgeous of the flowering plants found wild in Natal, but under cultivation it rarely flowers, and even when it does flower with us strong plants produce only one or two spikes. The leaves are almost round, with a cordate base and notched margins, and they are remarkable in being either wholly glabrous or wholly tomentose, the two kinds occurring on the same branch, as long since noted by the late Thomas Moore. *W.*

THE APIARY.

HEALTHY stocks of bees are now hard at work on fine days bringing in pollen, and breeding is now going on. Take care to keep all warm. Do not attempt to lift out frames of brood at present, as dire results will happen if the brood gets chilled. When the bees are flying generally—i.e., most days of the week—it will be safe to give them a little liquid food. Remember that the object of feeding now is to stimulate the queen to lay, not for the purpose of storage; therefore only give them a small quantity each day, just sufficient for present use. If this be done it is astonishing how quickly a weak hive may become strong. We have several times before given recipes for food, so it is not necessary to repeat them here—it is sufficient to say that the syrup need not be so thick for spring feeding as it is for autumn feeding. I was surprised a few days since at the quantity of pollen the strongest stocks were bringing in, as there appeared to be nothing but *Snowdrops* in the immediate locality. Noticing that the bees seemed very fond of a high damp wall I examined it, and found it was covered with a quantity of mossy stuff—something of the nature of lichen, but of shorter growth. From this the bees were evidently getting something of use to them. It will soon be time to give the bees artificial pollen in the shape of peanmeal amongst shavings. I do not, however, advise too much of this kind of treatment. It is preferable to put a little in the *Crocus* flowers as soon as out, as the bees love to revel in flowers. *Walter Chitty, Pewsey.*

CULTURAL MEMORANDA.

TROPEOLUM TRICOLORUM.

THIS tuberous species of *Tropeolum* does not seem to be so well known to gardeners as it ought to be. It is a charming greenhouse climber, flowering in March, and continuing to April and May. The slender stems grow to a length of 5 or 6 feet, and are laden with pretty three-coloured flowers, scarlet, black, and green. The tubers should be allowed to ripen in the greenhouse at midsummer, and when the leaves have decayed the pots should be placed beneath the shade of larger plants or under the stage in the greenhouse, and no water given. Early in September growth commences if the tubers be at that time planted in the pots in which they are to flower. It is a good method to plant three tubers in an 11-inch pot, and this affords space for a large handsome specimen to grow. The soil ought to be such as *Pelargoniums* will thrive in, and if a little fibrous peat be added it will be so much the better. When the stems first appear they are so slender as to be scarcely discernible, but they should be trained betimes to the wires of the trellis employed, as the growths are easily injured. The shoots increase in thickness as they become longer, and by the time the first flowers open the whole trellis will be hidden

by the lively green leaves and the very numerous flowers. A more natural and picturesque specimen is produced by fixing a tree branch of some suitable kind in the pot instead of a trellis; but in either case the shoots must be guided regularly over the twigs, as they are apt, if left to themselves, to twist round each other, which spoils the effect the plant would otherwise make, and they require to be trained when in full growth at least twice in a week. The shoots very naturally grow most freely towards the top of the trellis; it is, therefore necessary to have some of them tied down nearer the base in order that the whole plant may be well furnished with flowering growths from bottom to top. We grow them with the *Pelargoniums*, their general treatment being the same. The plants should have sufficient water when in bloom, or the flowers will fade rapidly, and a good succession will not be kept up.

Tubers may be produced freely by simply layering the stems into the pots in which the plants are growing; or another pot may be filled with compost, and be placed beside that in which the parent plant is growing; a stem may be taken and twisted round and round just under the surface; tubers will form at the base of each leaf. Seeds may also be obtained, but they take a long time to vegetate; but it is said that they will vegetate speedily if steeped for twenty-four hours or more in water. Place the seed-pots in a hothouse, and young plants will appear in a short time. *J. Douglas.*

WOAD.

WHEN recently in Lincolnshire, I was much interested in the manufacture of woad. I had an opportunity of inspecting a manufactory on a farm at Skirbeck, Boston, and I was informed there were only two persons at Boston who carried on the manufacture of this dye, and one on the borders of Cambridgeshire where it adjoins Lincolnshire. The woad is manufactured from a British biennial, *Isatis tinctoria*, and it is somewhat remarkable that the dye obtained from it was known to the ancient Britons; those in the South painted their persons with it, hence they were termed Britons from the Celtic word *britho*, to paint, and were thus distinguished from the Picts, who dwelt in the North. It would appear that woad is not such an important article of commerce as formerly; indigo, which can be procured at a much cheaper rate, having taken its place. What is now manufactured goes to the woollen districts of Yorkshire, such as Leeds and Bradford, where it is said to be used with indigo to dye blue, woad being found of great service in fixing the colours.

At the time of my visit, women were engaged in gathering the leaves of the *Isatis* in the fields. The plant has a large woody root which finds its way somewhat deeply into the ground, and it sends up several branches; when the leaves are fit to gather (and it is usual to gather two crops in the year), the women take hold of a handful, and by means of a quick wrench tear them off without pulling up the plant; they are then laid in heaps, and carted to the mill. Gathering is done in dry weather.

Arrived at the mill, the leaves are laid in a circle 2 feet or so in width and several inches in depth, upon an asphalted or concreted floor, and then ground to a paste by means of two ponderous wheels, of singularly uncouth appearance, worked by steam-power. Behind each wheel are a pair of boards so fixed that they collect and place in the circle any portions of the leaves thrown aside by the action of the wheels, and there it is in proper position for the next wheel to grind. I was informed that three-quarters of an hour is the time required to grind the leaves to the proper consistency, and then it resembles Spinach chopped up finely. When ready the wheels are stopped, and the workmen take the woad up in shovels and throw it into vat-like receptacles, and the next morning women proceed to make it up into balls by means of their hands, the balls being of the size of a large Cocoa-nut. They are then taken to

covered sheds, open at the sides, with five tiers of shelves resembling those of a bottle-rack; hurdles are placed upon them, and the balls laid out to dry. Here sun and air combine to dry them until they form a firm crust on the outside. In the process of drying the violet tint can be detected.

In course of time another process is gone through. The balls are beaten up small until they are in the form of a coarse powder; it is then moistened with water and kneaded up until it forms a paste, and then allowed to ferment, being moved about at times for a few days, and then it is placed in large barrels, where it remains until it settles down and forms a hard substance, and in this condition it is sent away to the districts where woollen cloths are dyed.

The most important part of the manufacture appears to be when the balls are kneaded up into a paste and allowed to ferment. I imagine the workmen who take this process in hand know by a kind of instinct when the fermenting process has proved adequate to the end sought, and I was informed that during this process close attention and observation is required, as there is danger of the whole being rendered worthless.

On the fine fertile loam of Lincolnshire the *Isatis* does remarkably well, growing strongly and producing luxuriant crops of leaves. It is about July that the seeds are sown (some being saved for the purpose), and when the plants have attained to a certain size they are thinned out and any weeds removed. The first crop is gathered in July following or a little earlier, according to the season; and the second crop at the end of August or early in September. The following year the plants will produce but few leaves, and run to seed. *R. D.* [A good account of the method of culture pursued is given in vol. xv. (1881) of the *Gardeners' Chronicle*, p. 787, and three illustrations of the mill will be found in our number for March 11, 1882. Ed.]

PINE-APPLES SMOOTH CAYENNE AND CHARLOTTE ROTHSCCHILD.

[SEE SUPPLEMENTARY SHEET.]

THESE two useful varieties of the Pine-apple are almost too well known to cultivators to need more than a few words from us. The former is one of the best of the Pine-apples for fruiting in the winter months, swelling quickly with much juice, and of excellent flavour. It can be grown to a weight of 10 lb.; the fruit figured weighed 9 lb. 10 oz. These weights, however, may be considered as quite outside ones, it being a good fruit that will turn the scale at 7 lb. In habit this Pine is rather taller than the Queen, and more spreading, and the leaves are broad, dark green in colour, and brittle.

Charlotte Rothschild, which in form resembles the Providence, is a delicious Pine-apple, with flesh melting like that of a Peach, and equally good for winter and summer; the weight to which it may be grown being about the same as that of the Smooth Cayenne. The one figured weighed 9½ lb. It is a variety allied to the Prickly Cayenne, and was, we believe, first seen in this country at the meeting of the Royal Horticultural Society held on September 16, 1862, three specimens having been sent by Mr. Chantrier, gardener to the Duc de Levis Vantadour, of Noisiel, near Paris. One of these weighed 7½ lb., and the others rather less.

We are indebted to Mr. T. Coomber, The Hendre Gardens, Monmouth, for the photograph, and he was likewise the grower of the satisfactory specimens here shown.

FORESTRY.

EFFECTS OF SEA-WATER UPON FOREST TREES, &c. —I have frequently been asked questions as to the effects of sea-water upon forest trees, and specially upon young and tender plants. A case in point occurred a few years ago; a consignment of plants being sent from a Scotch nursery to Ireland, and in the transit (the sea being rough) the plants got soaked with the salt water. The person to whom the plants were sent hesitated to plant them, and

inquiry was made by the nursery firm as to whether the trees were seriously, if at all, injured by the water. In order, therefore, to prove satisfactorily how far salt water is really injurious to the different species of common forest trees, I made the following experiments:—In the month of April, 1882, I had a bundle of fifty plants of each of the following species tied up in the manner usually adopted by nurserymen in lifting, viz., fifty plants each of 2-year seedling Scotch Fir, 2-year seedling Silver Fir, 2-year seedling Larch, 2-year seedling Norway Spruce, 3-year seedling Oak, 3-year seedling Birch, all 1-year transplanted. The plants were all grown in the home nursery at Cullen House, and were in good health at the time. They were taken to the sea, and allowed to remain in it twenty-four hours, when they were taken back to the nursery, and shingled into the earth till next day, when they were planted into lines in the usual manner. The results were eagerly watched during the first and second year's growth, which was as follows at the end of the two years:—

Results.

Species.	Healthy.	Sickly.	Killed.	
Scotch Fir	29	16	5	The foliage of the evergreens was yellow, and growth less vigorous than those in their natural state, and nearly all the foliage fell off.
Silver Fir		31	16	
Larch		42	8	Though mostly killed down a few inches yet all of the 42 Larches recovered after careful treatment and pruning.
Norway Spruce		45	5	All more or less injured, foliage fell off, and what remained yellowish in colour.
Oak		48	2	All were more or less sickly and injured, but though put far back in growth ultimately recovered.
Birch		14	33	

Those of the Birch that were not killed the first season died down to the surface of the ground the second year, and had to be cut over and a new leader started at the surface of the ground. I also tried the effects of washing in fresh water the same species and the same quantity of each species of plants to lie twenty-four hours in a running stream of fresh water. I planted them also in the nursery line in the same manner and at the same time as the salt-water ones. I had the roots all thoroughly washed, so that not a particle of earth remained adhering to them. The result in this case was that about 10 per cent. died of all the species. By way of forming a proper means of comparison, however, I had a sample of each of the different species planted into the nursery in the usual way without subjecting them to any treatment beyond what nursery plants usually receive in lifting and transplanting, and out of the whole only one plant died, and that was an Oak, C. Y. Michie, Cullen House.

THE FLOWER GARDEN.

RENOVATING LAWNS.—To have lawns in the best possible condition—i.e., with a close, rich, and dense green sward—good treatment is required in periodically top-dressing with manure or soil-ashes, &c. Taking away the grass, and leaving nothing on the sward always causes the growth of moss and a thin grass plant, and which for a lengthened period of the year assumes a rusty appearance, and becomes quite an eyesore in course of time. Lawns which have been allowed to get into this state may be thoroughly renovated by cleaning, seed-sowing, and top-dressing with a rich compost.

Cleaning consists of thoroughly scarifying and clearing away the greater part of the moss, or as much as is practicable in extreme cases; it would be next to impossible to get the whole of it out. With small grass plots and between flower beds the best plan will be found to use a coarse-toothed iron rake, working it each way; but on lawns of large extent this method would be too tedious and laborious, and recourse must be had to other means. The most

efficacious and expeditious plan will be to employ horse labour and a chain harrow; well drag the lawn over with this, crossing and recrossing three or four times each way. Not only will this harrowing loosen a greater portion of the moss from the grass, without injury to the latter, but it will leave the lawn in the best possible condition for seed sowing and top-dressing. After dragging with the harrow nothing further in the way of cleaning will be required, except raking up with wooden rakes and clearing away the loose moss. On this point it only remains to be said that damp dull weather should be taken advantage of for this operation, and should precede seed sowing and top-dressing.

Compost is a matter of importance, and its preparation should take place some time previous to using it, and may consist of rich loam, lime, soot, and wood-ashes, mixed in the proportion of four cart-loads of loam to one of lime, one of wood-ashes, and fifteen bushels of soot; the lime should be unslaked, and, if possible, fresh from the kiln; in ordering the same, it is best to state the purpose for which it is required, so that a suitable quality may be sent, and which should be mostly of a refuse character, i.e., dust and small lumps. In mixing the compost there should be a layer of lime with every alternate layer of loam, and in the event of the first named being in large lumps, as sometimes is the case, sprinkle each layer lightly with water through a rose-pot, which will facilitate slaking. When the heap is made up, allow the same to remain undisturbed for twenty-four hours, then turn it over twice; at the second turning pass it through a screen to free it from rubbish. This should be spread over the lawn sufficiently thick to fill up all small inequalities a fortnight or ten days previous to sowing.

Seed Sowing.—Opinions regarding the right time for spring sowing vary considerably. Some persons advocate its being done at the end of February, some say in March, and others again the first week in April. Having tried each period, I much prefer the last-named. Its advantages are twofold: first, the atmosphere and surface soil is warmer, the seed germinates quicker than if sowed earlier, and thus there is less loss from the depredations of small birds; and liability of young plants to injury from late frosts; and it goes without saying that an unchecked growth is far better than the opposite. The seed should be sown broadcast at the rate of from 12 to 20 lb. per acre according to the state of the lawn, the latter being sufficient for those that are in a very bad state—selecting a calm day for the work, going twice over the ground, and crossing at right angles to ensure even sowing, after which rake in the same, and roll with a light wooden roller. For the succeeding fortnight keep a vigilant look out for small birds, or the consequences will be in some districts the disappearance of a large portion of the seed.

The first cutting ought not to take place before June; immediately afterwards roll and mow with the machine as often as occasion demands. J. Horsefield, Heytesbury.

FRUITS UNDER GLASS.

ORCHARD-HOUSE.—Cherries and Plums, which have finished stoning, may have the temperature increased to 55° on cold nights and 60° on mild ones, with abundance of moisture on shutting-up time, when 80° for an hour or two with sun-heat will do no harm, if afterwards the temperature is allowed to gradually decline to 55° or 60°. The orchard-house proper, as a rule, comprises a miscellaneous assortment of Apricots, Cherries, Plums, Peaches, Nectarines, Pears, Figs, and a sort of compromise must be made when the different varieties are in blossom. The Apricots will now be set; then Cherries and Plums will come next, followed by Peaches and Nectarines. The Pear under glass is the most unaccommodating fruit of any, and must not be coddled in any way while in blossom. While any of the trees are blossoming guard against undue excitement by allowing the temperature to rise suddenly. If the morning presages a bright hot day let a little air be put on betimes, gradually increasing the quantity until noon, when it must be reduced by degrees. When the trees are blossoming the pipes may just be made warm, but not hot; much syringing should not be indulged in, nevertheless a dry parched atmosphere must be equally guarded against, as this weakens the organs of the flowers, and causes the fruit to drop when the critical stage of seed forming

arrives. Attend to disbudding and pinching; a couple of leaves left where a shoot is removed will help on the roots,—thin the blossom-buds where standing too thickly.

Strawberries.—As soon as the fruits on the earliest lot are picked remove the plants to a pit or other place of shelter. If this be done and attention given to watering until such time as the plants get hardened off, they may be planted out about the middle of next month. I have had splendid crops of fruit in September and October off plants thus treated, and the autumn propitious. Attend to the thinning of the fruits on succession plants as they advance, and place little forked sticks to support the fruits, or the stems are liable to get injured; it also keeps the manure-water from the fruit. It may now be necessary, during bright sun and drying winds, to water the plants twice a day, in the morning and again at shutting-up time.

Continue to introduce fresh batches of plants to maintain a constant supply, putting the plants into a cold pit for ten days or so, prior to removing them to the forcing-house.

Melons.—The earliest will now have been stopped, and in order to secure an even set it may be necessary to pinch out the first female flowers, next the main stem towards the bottom of the trellis; these will show again about the same time as those at the top. Some growers are in the habit of placing a large body of soil over and around the roots of their plants after they have set their fruit. The system which I have tried and found best, is to secure some good strong loam, and as the roots appear on the surface give the soil a good dusting over with Vine manure, adding afterwards 1½ inch of the loam. This keeps a host of voracious roots on the surface, where they are in direct contact with the warm atmosphere of the pit. A large body of soil rendered sodden by heavy applications of manure-water is a fertile source of canker. Maintain a genial atmosphere by sprinkling and syringing, and secure a good temperature at shutting-up time of 90°–95°, and 70° on cold, 75° on mild nights, with a little ventilation after 6 p.m. Make such successional sowings as the conveniences of the garden will allow of being grown.

Cucumbers.—The earliest will now be showing fruit, and may be top-dressed as recommended for Melons, using a compost of one part turfy loam, one leaf-mould, and one old Mushroom-bed manure; pinch early at every joint, and do not over-crop. As soon as the young plants are in full bearing the old winter fruiterers should be cleared out. Attend to pinching and training of young plants on hotbeds—one plant to a light will be found to be ample. As soon as the plant has made four leaves, pinch out the point, and four shoots will result. Train one towards each corner, and when these have reached within a foot of the front and back, pinch the points, and the lateral growths at each joint. Wm. M. Baillie.

THE HARDY FRUIT GARDEN.

STRAWBERRY PLANTING.—It sometimes happens that planting cannot be done in the autumn, and must be deferred till the spring. The plants set out now will not bear a crop this season, but they may be allowed to bear a few berries; still were the whole of the flowers pinched off as they appear it would be better for the plants. The plants would then be enabled to grow and mature their buds if the cutting off the runners received proper attention also. The ground to be planted should have been prepared by manuring and trenching, and will now be in a suitable condition to plant. After it has become settled and is sufficiently dry to walk upon tread the surface till it is firm, and if some of the sites selected be borders the alleys had better be lined out before the treading is begun. The runners for the spring planting to the requisite number should have been pricked out into lines or beds last autumn, and should be carefully lifted with a trowel, securing a good ball of soil, and planted singly in rows, pressing the soil firmly round the roots. This latter is an important matter and should on no account be overlooked. The distance apart at which these should be planted is 18 inches between the plants, and between the rows 2 feet. After planting it is a good plan to mulch the surface of the ground with short dung; but if space is valuable the space between the rows may be lightly cropped during the present season. A. Ward, Stoke Edith Gardens, Hereford.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, MAR. 27 { Royal Horticultural Society; Scientific, Fruit, and Floral Committees.

SHOWS.

WEDNESDAY, MAR. 28 { Glasgow and West of Scotland Horticultural.

THURSDAY, MAR. 29 { Liverpool Horticultural Association.

SALES.

TUESDAY, MAR. 27 { Orchids, in Flower, at Protheroe & Morris' Rooms.
Roses, Conifers, and other Plants, at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, MAR. 28 { Roses, Fruit Trees, Shrubs, and other Border Plants, at Stevens' Rooms.
5000 Lilium auratum, from Japan, at Stevens' Rooms.
Lilium auratum, and other Plants, and Bulbs, at Protheroe & Morris' Rooms.
Nursery Stock and Greenhouse Plants from sample, at Protheroe & Morris' Rooms.

Industrial Horticulture.

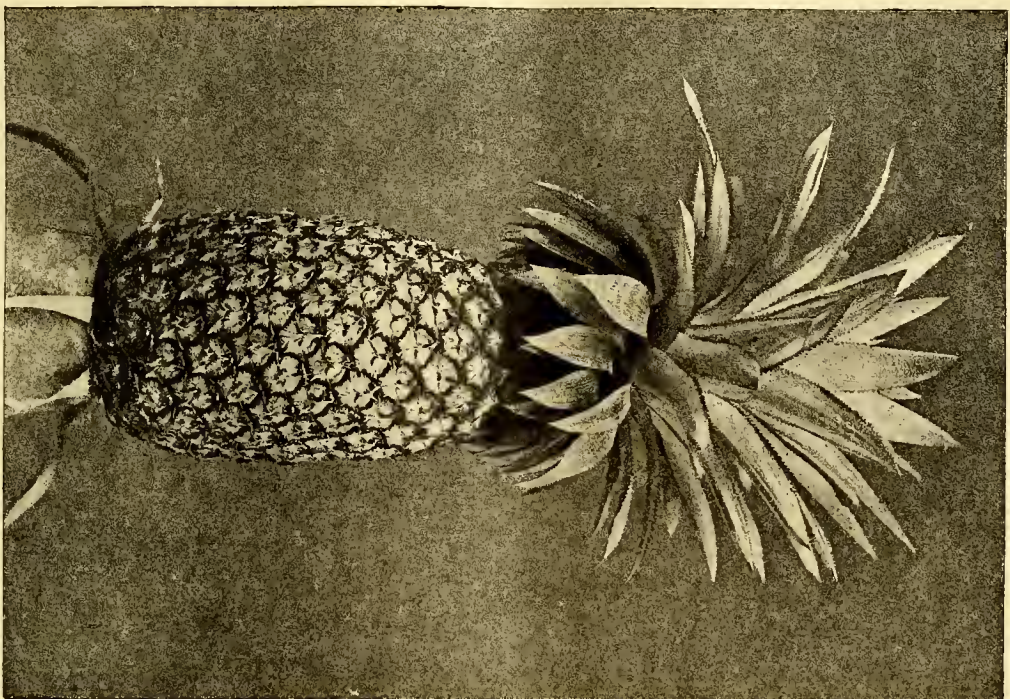
THE advertisement of a host of valuable prizes taken during the past year by a well-known gardener, and which was published last week, may well have aroused in the minds of thoughtful readers strange reflections, and possibly led them to wonder whether this sort of thing ought to be the great aim and object of horticultural exhibitions. We hardly know whether on the one hand to congratulate the successful competitor on his wonderful run of luck, or to console with horticulture, that in its development so many of its devotees should seem to exhibit no higher aims than mere pecuniary ones. However, it is money which sets the machine in action, and shows exist only because created by money, and because to many they mean money. Even the Council of the Royal Horticultural Society, although now alive to the other requirements of Horticulture, is endeavouring to get access to the City of London, because it hopes in so doing to tap a store of wealth which there lies either inert, or perhaps unwisely applied. The Council wants to see some of this wealth flowing into its own impoverished coffers, and some of its members individually, with many others outside,

would like to see that wealth more largely diffused amongst the horticultural trade. These are legitimate aspirations, but the Society in visiting the City has other aims than the merely selfish one of filling its own pockets. Horticulture as a great national industry, as important in some ways, if not more so, than Agriculture itself, is not recognised by the public in general as anything more than an agreeable pastime, or a means of contributing to the luxuries of the few. It is time that business men, at any rate, should realise that Horticulture has a very high place in the commerce and industry of the country.

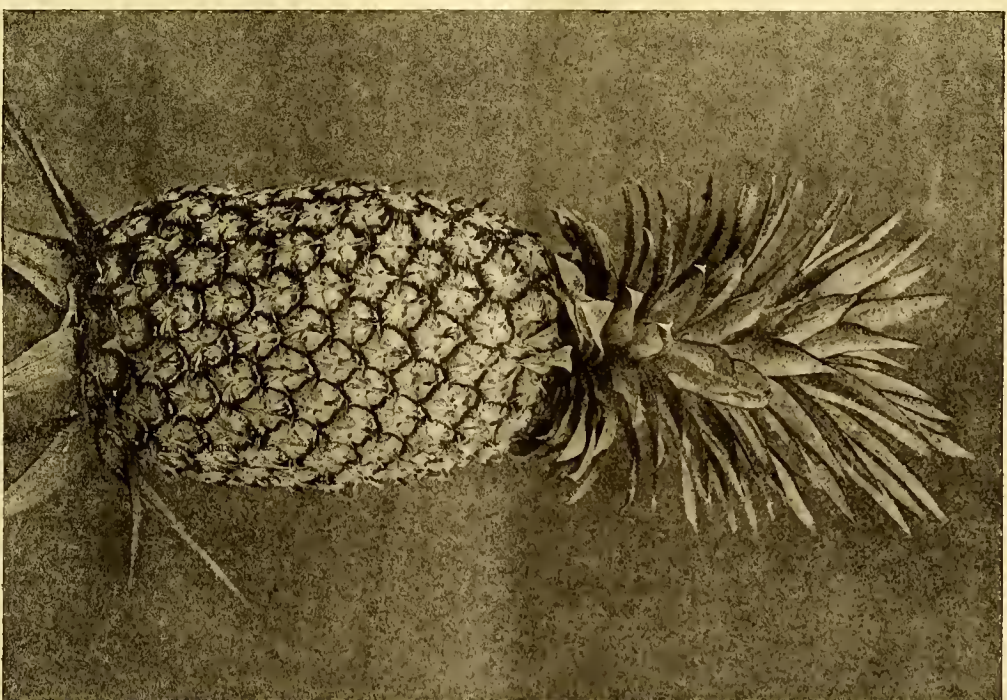
That a flower show is a beautiful spectacle, we all admit; that it is a good object lesson horticulturally is true also; but if the lessons deduced and the sentiments inspired are all rendered subservient to the one desire of some individuals—to get gold—how utterly must the show fail of all higher good. Even if such exhibitions did temporarily stimulate plant trading, the benefit would be felt in a very limited circle of trade, and possibly the results would be fleeting.

If we must have exhibitions of horticultural produce we must have some bold and national aims in view—aims which shall ensure national interest, and evoke national approval. The many Chrysanthemum exhibitions held in the country (and they are legion) have all a prize-winning or money-getting basis, but still they have done much to inspire a wide interest in the flower. Again, the ease with which the Chrysanthemum can be grown has in turn helped to stimulate the existence of these shows; but this reciprocity has not been found so largely in relation to any other plants; and, if every Chrysanthemum Society were to die to-morrow, the flower would remain as popular and be as widely grown as ever; indeed, we could no more dispense with our Chrysanthemums now than with our Roses, Apples, or Potatoes. Now, the great aim of all our shows should be the establishment of horticulture universally so firmly in the estimation of the people that exhibitions may be no longer regarded as essential aids, but as mere manifestations of what has become a solid and substantial element of our social life. In this direction there is no more worthy field open to the Council of the Royal Horticultural Society, if it wishes to do practical work, than the attempt to secure such a development of hardy fruit culture at home as shall enable us to compete with the foreigner in the amplest fashion. To secure a sale for a few plants may have a passing benefit, but to improve the hardy fruit trade of the kingdom by promoting fruit and vegetable culture at home would be to perform a patriotic and truly national benefit—one, indeed, which might in its development obtain the support of myriads otherwise unconcerned as to the welfare of the Royal Horticultural Society, or even of the horticultural trade. The Council has, we are informed, approached the LORD MAYOR of London for the purpose of getting his support of a flower show in the City, and has reason to be satisfied with the courteous and practical reception accorded it. It might be well also for the Council to invite the support of the City authorities, and especially that of the Fruiterers' Company, to the holding of a grand hardy fruit show and conference in the City during the ensuing autumn, with the object of inciting and stimulating landowners, farmers, and gardeners to plant the right sorts of Apples, Pears, &c., largely, that we may have at home an abundant supply of what at present we have to purchase so largely from abroad. While agriculture with us is paralysed an appeal thus made, which is irresistible, would carry with

it the sympathy and support of the nation at large. In such case we should see less of the pot-boiler influence operating and more of generous enthusiasm to assist in what would be a national object. The present year seems to be peculiarly a fitting one for the object in view. Never did the Royal Horticultural Society need an opportunity to perform great usefulness in the eyes of the nation—more than now. Here there is now a promise of a good fruit season, and the special object of the show should be to elicit from all parts of the kingdom such a response as shall enable consumers to see how far a supply of hardy fruits is already at hand here, and how much is lacking. It would, in pursuance of that object, be even desirable to have a section devoted to foreign grown fruits, that we might be able to compare the merits of fruit imports with our own products. Specially, as we find our chief competition in hardy fruits in the late autumn and winter, it would be desirable to hold the show not earlier than November, as by that time we should be in a good position to judge from the exhibits what were fitting competitors with the choice Canadian and American products. Very likely if we were in time to cut up that class of fruit trade, our export trade in some other direction would suffer, as of course Apples are not paid for in gold but in commodities. Still that could not be avoided, and possibly the home producer might become, on the whole, the best customer for other goods. What we have to look at first is the state of things at our own doors, and both charity and economy must begin at home; therefore if we can, through any instrumentality, aid in the widening of our home fruit trade, especially in the direction indicated, a very worthy and meritorious act will have been accomplished. There are other reasons also why the show might be well held this year. In the first place, Alderman DE KEYSER, as ample evidence was afforded in connection with the International Potato Exhibition, is a large hearted man, and specially has a fondness for gardening. Perhaps as a born Belgian he could hardly be otherwise. His successor in office will probably be Mr. Alderman WHITEHEAD, a gentleman having broad liberal sentiments, and something more than a mere City magnate; and should the show become a reality, and be held in November, then it would fall into Mr. WHITEHEAD's term of office. The City has but one available place for the holding of the show, and that is the ancient Guildhall, but even that spacious building would be far too small for the purpose unless the aid of the large annexe, which is always erected for the festivities of Lord Mayor's Day could be utilised also, and to gain the assent of the General Purposes Committee of the Corporation, for the use of these buildings during the week after the Lord Mayor's banquet, should not be difficult. The Fruiterers' Company should be approached and invited to give moral and pecuniary support. Probably, that body would be glad of the opportunity to show that it was something more than a name and had the interests of the fruit growers of the kingdom really at heart. A conference would be an indispensable feature of this gathering, because it is of the first importance the best information helpful to intending planters of fruit trees should be widely diffused, and if the matter were taken up in a worthy way immense good might result. Possibly, once again Horticulture might be recognised at the Mansion House as a worthy British institution, and that, if little, would be something gained. The chance is a great one, and if the Royal Horticultural Society Council finches, no doubt some other body will



PINE-APPLE.
CHARLOTTE ROTHSCHILD: 9½ lbs.



PINE-APPLE.
SMOOTH CAYENNE: 9 lbs 10 ozs

"INK PHOTO" SPADULE & CO. 22, MARTIN LANE, CANNON ST. LONDON, E.C.

GROWN AT THE HENDRE GARDENS, MONMOUTH.

strive for the credit. Another illustration of the commercial importance of Horticulture and of its relation to Agriculture is given in the report of the Notts Horticultural Society at p. 374, and to which we desire to call special attention.

DAFFODILS.—In our next number we intend to present our readers with a supplement in the form of a double-page engraving, representing a group of named Daffodils, from a drawing by Miss Bana. It is expected that most of the kinds will be exhibited on Tuesday next, at the meeting of the Royal Horticultural Society.

ROYAL HORTICULTURAL SOCIETY.—The next fortnightly meeting will be held on Tuesday March 27, at the Drill Hall of the London Scottish Volunteers, near St. James' Park Station, on the Underground line, and a few hundred yards distance from the new offices of the Society, at Victoria House, 111, Victoria Street, Westminster. All three committees will, we believe, meet in the Drill Hall—the Scientific Committee in the club-room up-stairs, the others in the hall. An excellent grill-room will furnish the means of luncheon. It is believed that a very good show of spring flowers will be held, as many of the leading exhibitors intend to give one more proof of their loyalty to the old Society, and that an attractive exhibition will be the result.

MEETING OF THE COUNCIL.—A special meeting of the Council was held on the 20th inst., when a report was read of the visit of the deputation to the Lord Mayor on the 10th inst., in reference to a proposed flower show to be held in the City in the month of May. A report of the Exhibition Committee was read in reference to the flower shows to be held in future in the Drill Hall of the London Scottish Rifle Volunteers, James Street, Victoria Street, Westminster; the first show to be held on the 27th inst. It was resolved that a special general meeting of the Fellows be called for April 10, to consider the new and amended bye-laws.

THE SCIENTIFIC COMMITTEE.—This committee will meet in the Drill Hall on Tuesday next, an arrangement which is decidedly inconvenient, as the library, which is largely made use of on these occasions, is in another building but, indeed it could hardly be made accessible on that day. Every allowance, must be made for imperfect preparations. The books and pictures will, it is supposed, be all removed from South Kensington to 111, Victoria Street, S.W., by to-day, and when that is accomplished, the Fellows will feel as if a heavy burden is taken from them. They will once more be free, and the Society left at liberty to do its work in its own way.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION), AND NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—It has been again decided to hold the exhibitions in connection with the Royal Horticultural Society; the former on Tuesday, April 24, and the latter on Tuesday, July 24. Owing, however, to the transition state of that Society the Council are unable to vote the usual grant of £15 to each Society as heretofore. Under these altered conditions, the committee trust that members and friends will try to make good this amount. By the kindness of a few friends an extra sum was collected last year as a Jubilee gift. It was under consideration to expend this sum in preparing cards for certificates on a new and original design, a sketch for which has been prepared by Mr. ALFRED SLOCOMBE; under the altered financial conditions, however, it has been proposed to postpone the preparation of the certificate cards. The committee suggest that if each member of either Society would obtain another by personal solicitation, a great success for the ensuing year would be assured. Mr. J. DOUGLAS, Barking Side, Ilford, Essex, is the Honorary Secretary.

NARCISSUS COMMITTEE, R.H.S.—Mr. C. R. SCRASE DICKINS, Hon. Sec., desires us to intimate that the meetings of this committee on March 27, April 10 and 24, and May 8, will be held in the new premises of the Royal Horticultural Society in Westminster, and that all plants and flowers intended for the committee should be sent to the Drill Hall of the London Scottish Volunteers Westminster, S.W., instead of to South Kensington.

THE HORTICULTURAL CLUB.—The usual monthly dinner of the Club took place at their rooms on the 13th inst. Mr. JOHN LEE in the chair. There was a large attendance of members. Amongst those present were Dr. Hogg, the Rev. F. Gale, Messrs. Llewelyn, Crowley, Harry J. Veitch, W. Bull, H. J. Pearson, A. H. Pearson, J. S. Consens, George Paul, &c. The discussion was opened by Mr. Llewelyn, who gave a most interesting account of Sikkim Rhododendrons in South Wales, and detailed many of the experiments which he is carrying out. As this was given from notes, it is impossible to reproduce his interesting remarks. A discussion took place afterwards, which was joined in by Dr. Hogg, Messrs. Veitch, Paul, Bull, and others.

Ghent CHAMBRE SYNDICALE.—At a recent meeting it was resolved that, in order to give to the representatives of horticultural industry of all countries the opportunity of extending their commercial relations and of discussing their common interests, a second international meeting of horticulturists should be held at Ghent from April 14 to 22. The dates of this meeting coincide with those of the Ghent quinquennial show; thus attractions will be afforded to the members of the meeting. A reduction of 50 per cent. will be allowed on the fares of the Belgian railways. A member's-ticket will be sent to each person attending the meeting which will enable him to partake of all advantages. Apply to M. le President du Meeting International des Horticulteurs de 1888 à Gand (Ghent), Belgium. At a meeting held on the 12th inst., the following awards were made:—

First-class Certificates.—To Mr. A. D'Haene, for *Lycaste plana Measuriana*; to Mr. Jules Hye-Leyen, for *Cypripedium Argus Moensi* and for C. Wallisi; to Mr. A. Van Geert, for *Philodendron Andreanum*; to Mr. A. de la Devansaye, for *Anthurium Scherzerianum Marie Thérèse*; to Messrs. Desmet Frères, for *Epacris onosmaeflora*; to Mr. A. Peeters, for *Cypripedium Wallaertianum*; to Mr. E. Pynaert, for seedling *Clivia*; to Messrs. Vervae & Co., for *Cattleya Trianae Loni*; to Mr. A. Van Imschoot, for *Odontoglossum Rossi majus nilacea*.

Floral Certificates.—To Mr. L. Desmet-Duvivier, for *Impatiens Hawkeri*; to Mr. J. Hye-Leyen, for *Cypripedium grande*.

THE GARDENERS' ORPHAN FUND.—It has already been announced that a dinner will take place on the day fixed for the first election to the Fund, on Friday, July 13. The sub-committee have arranged for the dinner to be held at the Cannon Street Hotel, at 5 p.m., and it is well it should be stated that no attempt will be made at the dinner to obtain funds. It is intended solely as a social gathering, at which the executive committee can meet such of the local secretaries and their country supporters who can make it convenient to attend the election. Farther particulars will be announced in due course.

EXPORT OF PLANTS TO FRANCE.—Difficulties have arisen at Calais as to the certificates of origin required by the French Customs authorities in regard to plants, &c., exported to France from this country, and signed by English magistrates, but without the affix of any official seal or stamp. A correspondence has taken place between the Government of this country and that of France on the subject, copies of which have been forwarded to us for publication, the gist of the matter being that exporters will do well to obtain from the certifying magistrate, not only the signature, but an official

seal or stamp. The letter from the British Ambassador in Paris to our Minister for Foreign Affairs sums up the whole matter in the following terms:—

"Paris, February 22, 1888.
"My Lord,—With reference to your Lordship's despatch, No. 179, Commercial, of December 15 last, I have the honour to enclose herewith a copy of the reply which I have received from the French Minister for Foreign Affairs to the inquiry addressed to him in accordance with your Lordship's instructions by Mr. EGERTON, whether the French Government would be willing to give orders that the declarations required by the French Customs in regard to plants imported into France should for the future be accepted, although attested without seals. Monsieur FLOURENS states that he is informed by the Minister of Finance that the attestations of English magistrates are accepted, provided that they are self-evidently authentic, but that their authenticity cannot be considered as established beyond doubt unless they bear the seal or stamp of the official from whom they emanate, and that his Department could not without inconvenience deprive itself of this guarantee. I have the honour to return the original enclosure in your Lordship's despatch under reply.—I have the honour, &c.,
(Signed) "LATTON.

"The Marquis of SALISBURY, K.G., &c."

HOOKE'S "ICONES PLANTARUM."—Usually the plates and descriptions of plants in this publication are of purely botanical interest, but the March number contains in addition several which would attract the attention of horticulturists. The plates are devoted to the illustration of new and rare plants selected from the Kew herbarium, as the *Botanical Magazine* comprises those of the garden. The *Icones* thus forms an illustrated record of the most remarkable plants collected in the various Government expeditions, as also by travellers and missionaries in various countries. In the present number are figures of numerous plants from the Gilgit expedition and from Central China. The latter country especially proves very rich in novelties, and when the Orchid mania has ceased to monopolise attention it is to be hoped that some of our enterprising plant-importers will turn their attention to so fruitful a source of supply. The first plant, t. 1726—

Nanolirion copense, is what the French would call a "little droll of a plant," consisting of a thread-like rhizome like the runner of a Strawberry, giving off at intervals little tufts of linear leaves about 2 inches long, and in the centre of each tuft a short flower-stalk with one to three Crocus-like, purple flowers, each a little less than half an inch across. The structure of the flower shows them to be Liliaceans.

Satyrion princeps, t. 1729, is described as one of the handsomest of the genus, with bright carmine flowers deepening to crimson, the bracts a dull raw sienna, the scape reddish with dark green leaves. Mr. BOLUS' description ought to make an orchidist's eyes glisten. It grows near Port Elizabeth.

Tubebuia longipes, t. 1733, is a showy Bignonial of arboreous habit, not a climber, as is usual with most of its allies.

Actinotinus sinensis, t. 1740, represents a new genus of Caprifoliis, described by Professor OLIVER, and is remarkable for having the digitate foliage of a Horse Chestnut (*Aesculus*), in association with the flowers of a *Viburnum*. The neuter flowers are enlarged and petaloid as in the Gueldres Rose. It is a native of Central China.

Decumana sinensis, t. 1741.—Apart from the great interest attaching to it as representing a genus hitherto known from the south-eastern States of North America, this seems likely to make a handsome creeper or wall plant, allied to Saxifrages and with obovate leaves and terminal heads of white fragrant flowers. Like the former it is a native of Central China.

Hamamelis mollis, t. 1742, is like the other species of the genus, but has leaves downy on the under surface. Central China.

Chrysosplenium macrophyllum, t. 1744.—Those who know our pretty little bog plants will stare to see

this Chinese representative with its large battledore-shaped leaves.

Urera tenax, t. 1748, from Natal, is remarkable for supplying abundance of fibre of good quality.

Abutilon sinense, t. 1750, from Central China, is such a handsome species that Professor OLIVER wonders "that a species so conspicuous and suited for home-cultivation, should have escaped us so long." It is a shrub or low tree with yellow flowers, $1\frac{1}{2}$ to 2 inches across. Native of South-west China.

RHODODENDRONS.—Dr. BREITFELD, in ENGLER'S *Botanische Jahrbuch*, has published the results of his investigations into the leaf-structure of Rhododendrons and their geographical distribution. Dr. BREITFELD groups the various species under various heads according to the construction of the epidermis, the relative size of the water-cells, the folding of the cuticle on the under surface, the nature and amount of the hairy or scaly covering, the number of raphides, the presence or absence of pitted cells, &c.

MALESIA.—From time to time we have called attention to this valuable publication of the eminent botanist and traveller, Signor BECCARI. This has been devoted to the description and illustration of the plants of New Guinea and other islands in the Malay Archipelago, and is of very great botanical interest. The Italian Government has seen fit to withdraw the slender encouragement it accorded to the intrepid traveller and scientist, and the work would have ceased with the publication of the plates of the *Durioneæ*, a highly important and curious group of Malvaceæ, monographed by Dr. MASTERS in the *Journal of the Linnean Society*—had it not been for the Bentham Trustees, who have, we learn, resolved to devote some portion of the funds bequeathed to them by the late Mr. BENTHAM towards the completion of Signor BECCARI'S work.

ROYAL PARKS AND PLEASURE GARDENS.—A return moved for by Mr. PICKERSOILL, M.P., was issued lately, giving the areas, uses, &c., of the Royal Parks in the United Kingdom. Battersea Park, which covers an area of 199 acres, is practically entirely devoted to the public, only about 2 acres being reserved for frame ground to propagate plants and for necessary buildings. Bushey Park contains 994 acres, but from a large portion of this the public are excluded. No fewer than 104 acres are kept as meadow land for hay, and 55 acres for timber, and these 159 acres produce the small revenue of £91 per annum. Then there is a reservation of 75 acres for the Royal paddocks, 36 acres for enclosures for deer, and the total reservation amounts to about 320 acres. Greenwich Park contains 185 acres, almost all devoted to the public; and Hampton Court Park, with an area of 752 acres, is wholly unreserved; and the same may be said of Hampton Court Green (17 acres), and Hampton Court Enclosure Gardens (42 acres). Hyde Park, with 360 acres, is also practically unreserved; and the public have equal freedom in Kennington Park (19 acres), Kensington Gardens (274 acres), Kew Gardens (248 acres), and Regent's Park (472 acres), the largest reservation in Regent's Park being 31 acres for the Zoological Gardens. Other portions also are let, bringing in a total revenue of £2344 18s. 10d., to which £358 0s. 9d. is contributed by the Zoological Society. There are also the four contributions to the revenue—Baptist College and grounds, £273 8s. 9d.; St. Dunstan's Villa and grounds, £256 16s. 7d.; St. John's Lodge and grounds, £234 2s. 3d.; Botanical Society's gardens, £360; and South Villa and grounds, £333. There are also some smaller tenancies, which make up the total. Richmond Old Deer Park, containing 363 acres, is not open to the public at all, and produces a revenue of £972. Richmond and Petersham Parks cover 2470 acres, but from these the following reservations are made:—Plantations, 142 acres; mowing ground, 104 acres; deer paddocks, 137 acres; Ranger's meadow, 20 acres; arable land for growing roots for deer, 18 acres. There are several minor areas from which the public are excluded, and the

revenue per annum is set down at £400 for the sale of timber, and £100 for feeding cattle. St. James' Park (93 acres) and Victoria Park (212 acres) are unreserved, but from Windsor Great Park, which covers 5300 acres, no less than 1395 acres must be deducted from which the public are excluded. The revenue of this park is also *nil*. Windsor Home Park consists of 73 acres, with no restrictions to the public. Other parks in the kingdom are mentioned, the largest being Phoenix Park, Dublin, which covers 1752 acres, and of which area 421 acres are reserved for the Vice-regal Lodge and other Government purposes.

FOREST FIRE AT CAPE TOWN.—Our Cape Town correspondent informs us of a most disastrous fire which raged on the north-western slope of Table Mountain, on February 26. Thousands of young trees were utterly destroyed and the undergrowth reduced to ashes. The fire soon reached the outskirts of the virgin forest on the western Van Breda estate. Seven years ago this forest was destroyed by fire, but Mr. BREDA who is a forester of great reputation and well-known energy and taste, replanted the whole of the estate. Valuable Australian trees, a number of young Sycamores, promising Oaks, and many splendid example of the mountain Pine, had sprung into existence, and the beautiful virgin forest that ornamented the rough slopes of this part of the great mountain was the admiration of every visitor to Cape Town. Mr. BREDA seldom, if ever, visited this portion of his estate without dropping a few seeds, and his experiment in the culture of trees were being watched with interest. Seven years' undergrowth, too, had sprang into life, and this was the medium of supplying thousands of gallons of water during the year to the reservoirs of Cape Town.

"THE BRITISH UREDINEÆ AND USTILAGINEÆ,"—Mr. CHARLES B. FLOWRIGHT intends to bring out a work on this subject as soon as the requisite number of subscribers has been obtained. It will comprise descriptions of the British species of these fungi, and will also give a full account of their biology, as far as this is at present known, including the methods of observing the germination of their spores, and of their experimental culture. Intending subscribers should communicate at once with Messrs. KEGAN, PAUL, TRENCH & Co., publishers, 1, Paternoster Square, London. The interest of these plants from a cultural point of view is so great and the extraordinary phenomena of their life-history so little known, though of such great importance, to cultivators, that we hope Mr. FLOWRIGHT will receive every encouragement in his useful labours.

"NOMENCLATOR FLORÆ DANICÆ."—The *Flora Danica* was commenced by G. C. OEDER in 1761, and the work was completed by Professor LANGE in 1883. During the interval various Professors have acted as editors. The work now comprises more than 3000 illustrations, with descriptions of the plants, not only of Denmark, but of Scandinavia generally, Iceland, and Greenland. Nothing more need be said to indicate its value to botanists. The work was more than a century in progress, and during that interval many changes in nomenclature have naturally been necessitated, either by increase of knowledge or as a result of different ways of looking at things. A general index has, therefore, become a necessity, and this Professor LANGE has supplied in the publication before us. The *Nomenclator* comprises first of all a list of the plates in order, as they were published, and with the names then employed, together with the names as now accepted. Numerous annotations follow. Next comes a systematic enumeration, according to the natural orders, of the several plants with references to the plates and to the occurrence of the plants in one or more of the countries already mentioned. Lastly comes an alphabetical index of all the plants figured. A little bit of political history comes in unexpectedly in a scientific publication, when we are told that while at the outset the text was written in Latin,

German, and Danish; after the year 1864, when the Duchies were taken from Denmark (*ducatu a monarchia Danica diremptis*), the German tongue was no longer employed. As not only the flowering plants but the Cryptogams are included, this index, even apart from the plates, will be of the greatest service to botanists.

TEA CULTIVATION.—Indian Tea now forms 50 per cent. of all the Tea used in this country, whereas no longer ago than 1865 China furnished 97 per cent. According to an article in *Nature* the Australians consume 81 oz. per head of the population, English people 73 oz., while the inhabitants of the United States come next with 21 oz., those of Russia, Belgium, Holland, and Denmark consume only from 7—8 oz. per head of the population. Unfavourable contrasts are sometimes drawn between the services rendered by botany and botanists to the State, and those rendered by chemists and engineers. The botanists, however, can show a good record—Indian Tea, Cinchona, Cotton, Indianrubber, Gutta-percha are all substances, the development, and, in some cases, the discovery of which was due to botanists, and their culture to horticulturists.

ARAUCARIA BIDWILLII.—Mr. WATSON, of Kew Gardens, writes:—"A correspondent at the Cape sends me the following note of a cone produced by a tree cultivated in a garden in Uitenhage, near Port Elizabeth:—"The largest cone of *A. Bidwillii* I have ever seen was exhibited last week at the Town Hall here. Its height was 10-16th inches, its circumference lengthways 30 inches, its diameter at its thickest part 8 inches, with a girth of 26 inches, an irregularity not often met with; its weight was 9 lb. This truly marvellous cone fell from a tree growing in front of Mr. G. BLACK'S house in Cuyler Street while a strong gale was blowing."

THE HAIRS OF THE PLANE.—Mr. HILLIGER, a German living at Barcelona, in the monthly *Proceedings of the Natural History Society*, writes on the influence of *Platanus* on the health. For years past Mr. HILLIGER and his household have regularly every spring been afflicted with severe coughs. On examining microscopically a portion of the expectorated matter he found it full of remarkable star-shaped bodies, apparently of the same nature as the dust which was resting on the window-sill. Further research showed that these forms were, in fact, identical with those found on the young foliage of *Plane* trees, and which, to the naked eye, appear like fine, dusty, shining, star-like hairs. Hence it is inferred that this dust falling from the *Plane* trees which surround Mr. HILLIGER'S house in a double avenue is the cause of the prevalent coughs. Moreover, the *Monatlichen Mittheilung* remarks that the fact of the evil influence of *Planes* upon the health, though but little noticed now, was well understood by the ancients. Dioscorides mentions the fact, and GALEN more especially refers to the manner in which the dust from *Platanus* leaves irritates and dries, not only the throat but also the eyes and ears. It would be interesting if those people who live in districts where *Plane* trees have been largely planted would make and record their observations on the prevalence of coughs in those districts. There is much wisdom in the sayings of the two old physicians. GALEN remarks:—"We must guard against the dust from *Platanus* foliage, because if we draw it in with the breath it irritates and dries up the windpipe, injures the voice, and the eyes and ears if it enter them." Dioscorides, in the 107th chapter of the first book of his *Materia Medica*, states that the dust from *Platanus* leaves and fruit balls "does harm, if it reach them, both to the organs of hearing and of vision." Moreover, the late Professor KARL KOCH, in his work, *Trees and Shrubs of Ancient Greece* mentions that in PLATO'S *Phædrus*, in the description of the *Plane* tree under which SOCRATES and PHÆDRUS were conversing, reference is made to an injurious "perfume" exhaled by *Planes*. Respecting this, KOCH remarks:—"This fragrance arises apparently from fine

hairs which, as the leaves unfold, fall from their under surface and which are injurious to the eyes and produce an unpleasant rough feeling in the œsophagus. A contributor to the *National Zeitung*, refers to the matter as follows:—"The injury to human health caused by Plane trees is by no means unknown. It is said that three years ago the planting of Plane trees in the neighbourhood of school-buildings was forbidden in Alsace-Lorraine." Both species of *Platanus* (*Platanus orientalis*), the Eastern variety, and the Western species (*P. occidentalis*), and which originated from America, possess these starry hairs. At first they cover both leaves and pedicels, but fall off when they have fulfilled their mission, which is that of protecting the young and tender organs from the external influences of frost and wet. The young foliage of other trees, such as the Linden (*Tilia*) and some Oaks (*Quercus*) is similarly hairy in the spring. The *Berasteia* Oaks more especially have this peculiarity, so that where they grow the atmosphere in spring must be much charged with these star-like hairs. The old Greeks apparently did not attach much importance to the harm done by Plane trees as known to them. They planted this splendid tree in preference to others, not only in their cities, but also in the suburbs. A contributor to the *Rundschau*, whence we take the above notes, remarks that it would be interesting to find out whether, in districts where the genus *Levkoyen* (Stocks) is largely cultivated, as in Erfurt, for example, people are subject to unusual coughs, or lung diseases in the spring or summer, as the scales on the leaves of *Levkoyen* bear a resemblance to those of *Platanus*.

THE GLOUCESTERSHIRE ROSE SOCIETY.—A large and influential meeting of ladies and gentlemen of the city and county was held at Gloucester on Saturday last, the 17th inst., for the purpose of starting a Rose society for the county, the result of the meeting being the formation of the above Society, which promises to be exceedingly well supported. Mrs. GAMMER PARRY, of Highnam Court, Gloucester, was unanimously elected President, and several ladies and gentlemen of the city and county have consented to become patrons and patronesses. An influential committee was appointed, and the Rev. T. HOLMES, Sandhurst Vicarage, Gloucester, and the Rev. F. R. BUNNISE, Chipping Campden, were elected Hon. Secretaries. Mr. HATHELEY, manager of the National Provincial Bank, Gloucester, was appointed Hon. Treasurer. The first show of this new Society will be held in the Corn Exchange, Gloucester (a room admirably suited in every way for a Rose show), on Thursday, July 12. The committee hope to be able to frame a liberal schedule, which will be issued by the end of April or the beginning of May.

MR. CHARLESWORTH'S ORCHIDS.—Mr. CHARLESWORTH, of Bradford, having completed the building of his Orchid-houses, is about to throw his nursery open for the inspection of the public for one week (Sunday excepted).

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—The prize schedule for the grand floral *fête* to be held under the auspices of this Society in the Duthie Public Park, Aberdeen, on August 24 and 25, has just been issued. Hitherto the Society has held two exhibitions during the year, but at the annual meeting it was decided that one grand exhibition should be held this year. The schedule, which is neatly got up, extends over fifty pages. There are 284 classes, divided under four heads—plants in pots, cut flowers, fruit, and vegetables. The table of horticultural produce will again form a feature of the show. A good many additional classes have been added for Ferns, Orchids, Chrysanthemums, Vines in pots, annuals, Potatoes, fruit, &c. The entry form has been simplified, and made more comprehensive. The total number of prizes is 853. A large amount of the prize-money has already been collected through the efforts of the Chairman of the Society, Town Councillor LYON. The Secretary is Mr. A. M. BYRNE, C.A., 21, Bridge Street, Aberdeen.

PRESENTATION TO THE SECRETARY OF THE ANCIENT SOCIETY OF YORK FLORISTS.—At a meeting of the Ancient Society of York Florists, held at the "Golden Lion" Hotel, Church Street, York, recently, Mr. JOHN LAZENBY, the Secretary, was the recipient of a token of esteem and

goodwill. Mr. G. COWPER, who presided, made the presentation. He reviewed the history of the Society, and alluded to the great services which Mr. LAZENBY had rendered in these its latter days, when its usefulness was very great. Others added complimentary expressions to those uttered by the Chairman, after which the testimonial, consisting of a purse of gold, was handed to Mr. LAZENBY, who suitably acknowledged this kindly recognition of his services.

THE COVENT GARDEN CLUB.—This Club was opened on Wednesday evening last by a concert at the Covent Garden Hotel (where the Club is located), there being a large and enthusiastic gathering—Covent Garden salesmen and country growers being largely represented. The President, Mr. J. B. THOMAS, announced that upwards of eighty members were already enrolled, and there was every prospect of the number being largely increased. The Club has been promoted chiefly for the accommodation of salesmen in Covent Garden Market, and of growers and senders of produce from the country.

SCOTLAND.

EDINBURGH BOTANICAL SOCIETY.

(Continued from p. 344.)

On Temperature, Vegetation, &c., at the Botanic Garden, Glasgow, for February, 1888. By R. BULLEN, Curator.—The sharp frosts which were experienced at the end of last month discontinued after the night of the 1st of the present month, when 5° were registered. The effects of the earthquake, which was distinctly felt here about 5 o'clock the following morning, seems to have changed the temperature, for no more frost was recorded until the night of the 9th, when the temperature, which had been unusually high, again fell to the freezing point. From this date to the close of the month frost has been registered on nineteen nights—from the 10th to the 18th severe. Since then 3° have been the lowest record on any one night. The total record for the month is 88°, of which 10° were registered during the night of the 11th, and 16° during the night of the 15th. Vegetation was in a forward state during the early part of the month. Several hardy deciduous trees were also showing signs of early bloom, the catkins of the common Hazel being both early and unusually numerous. A Japan Quince, although growing in an exposed situation, had developed numerous young leaves; also the variegated form of the common Elder and *Elæagnus macrophyllus*; while Lilac, Ribes, and Roses were just bursting their leaf-buds, so that the visits of Jack Frost at that time proved quite opportune.

On Vegetation, Temperature, &c., at the Royal Botanic Garden, Edinburgh, for February, 1888. By Mr. R. LINDSAY.—The past month has been exceedingly wintry. Frost was registered on twenty-three mornings indicating collectively 121° for the month as against 76° for the corresponding month last year. The lowest readings of the thermometer were on the mornings of the 12th (when the glass fell) to 18°; 13th, 23°; 15th, 24°; 16th, 9°; 17th, 21°. The lowest day temperature was 34° on the 24th, and the highest was 52° on the 8th of the month. Snow began to fall on the 12th. On the 13th there was a fall of about 5 inches, and renewed falls more or less heavy occurred at intervals till the end of the month. Vegetation, which had started rather early in consequence of the mildness of the previous month, received a decided check. This has been beneficial, rather than otherwise, in the present case, the amount of snow which had fallen having preserved plants from injury. Various half-hardy plants are, as yet, uniajured in the open ground. The following spring plants annually recorded came into flower, viz.:—

Feb. 3. <i>Rhododendron atro-</i>	Feb. 11. <i>Nordmannia cordi-</i>
<i>viridius</i>	<i>folia</i>
" 4. <i>Leucocodium vernum</i>	" 22. <i>Bulbocodium vernum</i>
" 6. <i>Arabis albidia</i>	" 22. <i>Daphne Mezereum</i>
" 8. <i>Symlocarpus fo-</i>	" 23. <i>Crocus vernus</i>
<i>tidus</i>	" 23. <i>Iris reticulata</i>
" 9. <i>Tussilago alba</i>	

On the rock garden twenty-nine plants came into flower during the month as against forty-five during February, 1887. The finest in blossom were:—*Muscari lingulatum*, *Iris histrio*, *I. reticulata*, *Leucocodium carpaticum*, *Galanthus Elwesii*, *G. plicatus*, and *G. Redoutei*, *Chionodoxa sardensis*, *Colchicum crociflorum*, *Crocus Imperati*, *C. annulatus*, and *C. Sieberi*, *Erica herbacea* and *E. herbacea alba*, *Hepatica triloba*, single and double varieties.

VEGETABLES.

EXHIBITION ONIONS.

The Onion has come to play almost as important a part on the exhibition table as the Potato. Several new varieties have been introduced of late, and some of these have been grown to a prodigious size. When the Onion contest at Banbury was at the very height of its popularity a dozen bulbs would weigh 14 lb. to 14½ lb.; now they can be got to 18 lb. and 20 lb. the dozen, and the new variety, the Cocoa-nut (which is stated by the raiser to be a large growing selection from Cranston's *Excelsior*), if the seed be sown in August or September on a bed, and transplanted to the open ground in February, will, with careful culture, produce bulbs 2 lb. to 3 lb. in weight. A dozen bulbs of this variety staged at the Chrysanthemum show at Banbury in November last were of very large size, and handsome. Though in appearance it seems to partake of the character of the imported Spanish Onion, it is said to be a very good keeper.

In order to have fine exhibition Onions, the best growers recommend that the seed should be sown as early as October. Having selected the site for the bed, the first spit of soil is dug out, leaving a trench the soil below that removed is forked up, and 6 to 8 inches depth of rich rotten manure placed upon it; and then the soil which was removed is placed back upon the manure. This bastard trenching goes on until the whole of the bed is manured in this manner, and then it is allowed to lie until January. In that month a good dressing of soot is given; it is found very helpful, not only as a stimulant, but it is destructive to grubs and other insects. Two or three days after the bed is lightly forked over, when the weather is favourable, and the surface made firm. The seedlings and the seed having been sown in pans or boxes in October, are re-transplanted to this bed in March, the soil pressed firmly about them. They are well watered when the weather is at all dry; indeed, one of the secrets of successful Onion culture is giving plenty of water, and one noted grower will water profusely even when rain threatens. Growers appear to differ about the utility of top-dressing the Onions; one very successful exhibitor top-dresses with well-decomposed manure from spent Mushroom-beds, another does not apply any surface stimulant beyond an abundance of water. As a matter of course, the largest, and, at the same time, the heaviest and handsomest bulbs, are selected for show purposes, and when they are pulled, and turned neck downwards on a rack, to admit of any juices freely running from the necks. How far high-class culture goes in the direction of increasing the size of Onions was abundantly shown on several occasions at South Kensington during 1887. R. D.

PLANTS AND THEIR CULTURE.

FEANS.—Many of these are showing signs of starting into fresh growth, and no time should now be lost in potting any which may require it, and top-dressing others; but if the potting cannot be done before the fronds are too far advanced, it is better to defer it till those fronds are a little matured. These remarks apply chiefly to *Adiantum*, *Pteris*, *Nephrodium*, and *Gymnogramma*; but those species with creeping rootstocks, such as many of the *Davallias*, *Gleichenias*, and *Acrostichums*, may be potted at almost any time during the growing season. *Adiantums* are those which will first require attention.

They present no difficulty in growing them to a large size in a comparatively short time, provided as much light and exposure as possible be afforded them. Do not let them become dry at the roots, neither must they become sodden, which would prove as fatal to them as dryness. If the back wall of the house be of soft stone, Ferns will plant themselves there, and grow with freedom, their brown fibry roots spreading over all, showing that, although they like moisture at the roots, they enjoy abundance of air. The compost employed, should consist of a soil which, while affording a firm roothold, like the stones, will at the same time be porous enough to admit air to freely percolate the ball, and be composed of friable loam, with one-fourth of fibry peat and chopped sphagnum—the refuse from the Orchid potting-bench is admirable when chopped up fine enough to go through a quarter-inch sieve; the remaining quarter of the compost may be sharp silver-sand and charcoal broken up rather finely, with a sprinkling of bone-dust. In potting, see that the drainage is thorough, and for the usual kind of pot one-fourth in depth should consist of drainage, and which should have a layer of sphagnum or fibry peat placed over it. If the compost is neither too light nor too adhesive it will be impossible to make it too firm in the pots, and difficult to render it sodden afterwards. Reduce the old ball of the plant by shaking it, or cut it down to the desired size with a knife, leaving the solid mass of the middle intact. If the crowns of the plants have become very large it is better to cut them up into the required size. After potting the plants should be dewed occasionally, but Ferns of this class dislike syringing, as it causes decaying of the inner fronds, and should be avoided if possible; but the stages, paths, and all available surfaces should be frequently damped. For the stove kinds a temperature of 60° at night, rising to 75° in the daytime will be ample. The greenhouse kinds should be kept at ordinary greenhouse temperature, and both sections require air to be given freely, but not so as to create a draught. Fronds produced under these conditions have more substance, and do not shrivel up nearly so soon as fronds which have been produced in a close atmosphere, and under heavy shading; the shading employed should be of the lightest and movable. *F. Ross, Pendell Court.*

MANGO GRAFTING.

THERE are Mangos and Mangos—some not inaptly described as a mixture of tow and turpentine, while we do not remember anything more delicious in the way of fruits than one particular Mango—it was but one—that came to us from Jamaica some years ago. This difference being so marked it is no wonder that our Indian fellow subjects take care to graft upon the wild stock scores of the best varieties or of those found by experience to be the best suited to particular localities. How it is done is shown in our illustration (fig. 57), for which we have to thank Mr. Woodrow.

The natives are so deft in the use of their fingers that the clumsiness of their tools seems rather surprising.

HOME CORRESPONDENCE.

COPYRIGHT OF FRUITS.—The *Gardeners' Chronicle* never fails to take a keen and lively interest in all matters which may advance the well-being of horticulture. The question of the copyright of seedling fruits having attracted its attention proves that it is worth consideration. The result of a copyright protection may be more important than appears on the surface, for there is no finality in the excellence of fruits, and a knowledge that the right of property may exist for a given time will lead to the adoption of a more scientific method than the present haphazard system. It is our duty to leave the world better than we found it, and what is more enduring than a good fruit? Some philosophers hold that an excessive civilisation will result in a return to first principles. It will be a comfort to know that our remote descendants, when they have returned to the prototype, "a hairy quadruped with pointed ears and a long tail," probably arboreal, will have something better to chatter over than the bips and nnts of the primeval forest; and that a part of their gratitude may be earned by the improvement of fruits

is the anxious desire of their ancestor, *T. Francis Rivers.*

BEGONIA LUBBERSII AND B. ARGYROSTIGMA.—"Mediocriter" does not know *B. argyrostigma*, or he has not made a comparison between it and the figure of *B. Lubbersii* in the *Gardeners' Chronicle*, p. 301. The two are widely distinct. *B. argyrostigma* is synonymous with *B. maculata*, which has leaves 6 to 8 inches long by 2½ broad, the upper surface shining green, with roundish blotches of silvery-green, and the under surface is purple. In form it is ovate, obliquely cordate (*i.e.*, there is a division in the blade from the side to the petiole). The flowers are in long drooping clusters, and they are coral-red. It is unnecessary to compare this description with the figure and description given of *B. Lubbersii*, in which the leaves are small, peltate, the blotches very irregular, and the flowers, which are white, are crowded in the apex of the shoot. Certainly *B. Lubbersii* is a well marked plant, totally different from *B. argyrostigma*, and as far as I know from all other cultivated Begonias. *W. Kew.* [We have letters to the same effect from Count de Kerchove, Mr. Lubbers and others. *Ed.*]

CYMBIDIUM ELEGANS.—I think that the statement at p. 331, that *Cymbidium elegans* seems to be but a variety of the well-known *C. eburneum*, should not be allowed to pass unchallenged. *C. eburneum* has erect spikes bearing one or two large well-expanded white flowers, while *C. elegans* has long nodding racemes of comparatively small partially closed yellowish flowers, often fifty to eighty on an inflorescence. To me the two species named represent extremes of the genus, and I await further information from the writer of the paragraph on the subject with interest. The statement, too, that the plant grows freely among the *Odontoglossums* requires qualification—it all depends how warm the *Odontoglossum*-house is kept. If kept cool, as that term is generally interpreted, none of the *Cymbidiums* will be safe there. *James O'Brien.*

CLIVEA MINIATA VARIETIES.—As a winter bloomer this is a plant which should not fail in any garden, but yet it does not receive all the attention it merits as a decorative plant in pots or when the flowers are cut. It may be seen treated as a stove plant, which it assuredly is not, although during the earlier stages of growth the moisture and temperature of a stove suits it admirably, but it is more at home in an intermediate-house than in that, for when making its growth a night temperature of 55° to 60° will be found high enough. As a cool greenhouse plant it is scarcely worth house-room, although after it has matured its growth it will do perfectly well in a temperature of 40°, provided it does not receive too much water. Its usual season of blooming is the months of February and March, but so accommodating is it, that it may be bloomed all through the winter months (not the same plants, but by introducing a few every two or three weeks). The *Cliveas*, not being bulbous-rooted, must never be dried off in the same manner as their allies, the *Amaryllis*. They grow well in a mixture of two-thirds good fibry loam, one-third leaf-mould and sand, with a little charcoal added to the soil. The pots must be well drained; one-fourth of the depth, at least, should be given up to drainage. The best time to repot is just after the plants have done flowering, when large masses may then be successfully broken up into single crowns. This requires to be done with caution, so as to damage the roots as little as possible. Place the stronger crowns singly in 6 or 7 inch pots. If it be desired to grow larger specimens, shift on into pots 4 inches larger than those they now occupy, without disturbing the roots more than by merely removing the crocks and any old soil round the neck of the plant. As soon as potted place the plants in a temperature of 55° to 60°. I grow mine on the back shelf of a Peach-house. If the plants have been placed in suitable compost it is not necessary to shift them every year. Those I have, frequently burst their pots before they are shifted. When the plants are growing freely water twice a week with weak manure-water, and the treatment accorded Peaches just suits them as regards syringing. As the days shorten lessen the supply of water at the root and discontinue syringing. In November plants may be introduced into a temperature of 50° to 55° when the flower-spikes will soon be brown up. When coming into bloom place them as close to the glass as possible facing the sun. Grown in 6, 7, and 8-inch pots and thus treated, they form striking objects in a conservatory or as house decora-

tive plants. Treated as greenhouse plants and allowed to come into flower in that structure the blooms are deficient in size and in colour. Some new and striking departures in form and colour may be expected from the Continent shortly, as great progress has been made in cross-fertilisation, and it is anticipated that ere long a pure white form will be obtained. There are, however, many new forms of this gorgeous and long-lasting flower already in commerce. The following are amongst the best forms which have been obtained by selection and hybridisation:—*Clivea Meteor*, *C. cruentum*, *C. Martha Reimers*, *C. Baroness Schrieder*, *C. Van Houtte*, *C. miniatum splendens*, *C. m. princeps*, *C. Ambroise Verschaffelt*. There is not much difference in point of colour, as most of the varieties may be classed as orange-scarlet or orange-vermilion, with a yellow colour at the base of the petals. The most important distinction noticeable from the old miniatures is the depth and width of the perianth. *W. M. Baillie.*

NEW DEPARTURE IN CHRYSANTHEMUMS.—The first number of the *American Garden and Forest*, just to hand, contains a photographic reproduction of a large white Chrysanthemum, named Mrs. Alpheus Hardy, the broad incurved florets of which are studded with large glandular hairs, almost spinose in their general appearance. It seems to be a decided advance or new departure, and a Japanese botanist who saw the variety in America says it is distinct from anything he remembers to have seen in Japan. It came direct to Mrs. Hardy from Japan as one in a set of thirty varieties sent to her on his return home by a Japanese student whom she had befriended in America. The flower as figured has a very peculiar appearance, and a friend who saw it suddenly exclaimed, "Why, here's a Chrysanthemum like a Sea Anemone crossed with a Star-fish!" and the flowers really do convey a suggestiveness of this kind and character. The glandular hairs are rather thickly set on the backs of the florets, and are about one-eighth of an inch long, curved like letter s or f. They are unbranched, and built up of cellular tissue, each being terminated by a drop of gum or resin at its apex. We are not told if the flower is fragrant. Judging by the picture this variety is perfectly unique, and it is one of those surprises we are now-a-days half expecting to see from Japan. It was exhibited in December last at the Chrysanthemum Show in Boston, U.S.A., by Edwin Fewkes & Son, of Newton Islands, Mass. It is difficult to predict what may not come to pass when this curious variety gets into the hands of the French raisers of new Chrysanthemums. *F. W. Burbidge.*

UTRICULARIA LONGIFOLIA *alias* *U. CHYTROPHYLLA*.—The plant shown under the latter name by Sir Trevor Lawrence at the last meeting of the Royal Horticultural Society was the true *U. longifolia*. Flowers from a sister plant were sent to Kew for determination by Mr. Sander, and were named by Professor Oliver. *U. longifolia* was described by G. Gardner in Hooker's *Journal of Botany*, vol. i., 1842, and was one of the new plants found by Gardner himself when collecting in Brazil. He states that it grows in moist places and flowers in November. The leaves are from 5 to 10 inches long and 1 inch wide, and the scape is erect, a foot or more high, bearing flowers with large violet corollas and a short spur. Who is the author of the name *chytrophylla*? *W.*

EXTRA EARLY VERMONT POTATO.—Mr. Murphy has over-estimated the date at which this American Potato was introduced, as I think on fuller inquiry it will be found to have been within thirteen years; within that period, indeed, scores of American Potatoes came and went, and now the only one having any considerable reputation is the famous Beauty of Hebron, which stands in higher favour in this country than did either the Early Rose or Snowflake. The Early Rose had obtained a good measure of popularity ere the Extra Early Vermont turned up. Very likely it was a natural seedling from the Rose; in any case, it was so uncommonly like it that only by keeping them separate and named, could the difference be discovered. Shortly, however, the Vermont became absorbed in the Rose, and still later the better Beauty of Hebron elbowed out the others, so that now little is heard of "Roses," and little of "Beauties." As to the latter kind, I think that, too, will presently give place to its white-skinned sport, Duke of Albany, or white Beauty of Hebron, simply because the tubers of the latter have white skins, yet remaining Beauty of Hebron all the same. This early American kind seems to have further elbowed out the Ashleaf Kid-

ney in the market trade generally: for 100 tons of the former are grown to 1 ton of the latter. *A. D.*

— Mr. Murphy's statement in a recent number of the *Gardeners' Chronicle* about the above, that it is not to be found in the catalogues of the present day, except that of Messrs. Cannell & Sons', is not at all surprising, seeing that there is no difference between it and Early Rose. I grew a Potato under the above name about ten years ago, and after growing it separate for three seasons I mixed the produce of the two together, and failed to find any difference. Mr. Murphy says that it is good on light sandy loam, but there is always that objectionable pinky streak to be found running through some of the tubers which you find in Early Rose. Beauty of Hebron I consider far in advance of Early Rose, so have discarded the latter in favour of the former. Is not Mr. Murphy mistaken when he alleges that Extra Early Vermont was grown here forty-two years ago? —as I have an impression it was sent out about the same time as Early Rose, which certainly has not been grown in England for so long a time as that. I have grown a great many of the American varieties,

the number of 500, in at least half that number of varieties. From, therefore, several years' experience, I radically differ with Mr. Horsefield in at least two points. Japanese are not too tender; they do as well as any other with me, while the shape and form, but especially the colours, come much best in the open air. When cut they hold perfect for weeks together. 2. I propagate most of my plants in boxes from cuttings, but rooted offsets do admirably. I never think of planting whole potfuls together — this would spoil the chance of success. This system, rest assured, has a future. *W. J. Murphy, Clonmel.*

THE ORIGIN OF EVERGREENS.—In the report of the paper read on this subject by Mr. P. Geddes (p. 278) there seem to me to be some questionable statements, such as, "It is well known to every gardener that plants generally deciduous will in certain favourable winters persist as evergreens." It would have been more satisfactory if the essayist had given the names of a few of the plants that behave like this. [*Ligustrum sinense ovalifolium*. Ed.] He says also: —"Again, plants which in one country are deciduous

which I had not met with, until kindly forwarded through several correspondents. I do not understand Mr. Brockbank to affirm that all Solomon's Seals are fragrant; after the proof afforded no one can deny that there is a sweet variety, and it proves a most welcome addition to the hardy flower bed or border, as well as a valuable plant for forcing alike for its grace and its fragrance. *D. T. Fish.*

TOBACCO CULTURE IN SCOTLAND.—Some interesting, if unobtrusive, experiments have been carried out this last season in the growing of the Tobacco plant by Mr. Barron, gardener to Mr. R. C. Urquhart, of Meldrum, Aberdeenshire. About four poles of garden ground, with a south-westerly exposure, were planted out, the drills 2 feet apart, and the plants every 18 inches in the drills (though it is said 3 feet each way would give a thicker leaf). The manure used was—first, farmyard along with artificial, rich in potash; on another part the artificial manure alone; and on a further portion farmyard by itself. They stand as above in the order of their usefulness. The Virginian variety of Tobacco was that



FIG. 57.—GRAFTING THE MANOO. (SEE P. 372.)

and I consider Snowflake, *alias* Pride of America, and Beauty of Hebron, the two best varieties the Americans have sent us up to the present time. Were I bound to grow but one variety of Potato I should have no hesitation in plumping for Beauty of Hebron, having always found it a heavy cropper, and of good quality on most kinds of soils. *J. W. Sedgley, Rose Hill, Worcester.*

— I am surprised to hear that this variety has been in cultivation for so long a time, having thought it was of more recent introduction, as it was well exhibited at the first International Potato Show in 1875, and it was placed fourth in the class for single dishes, thirty-three competing. This was a class that, in the opinion of the *Gardeners' Chronicle* reporter, was badly judged, or the variety might have held a higher position. It is, as Mr. Murphy says, a fine variety, and I suppose it, like many more good things, has got elbowed out by novelties. *G. Potts, Jun.*

CHRYSANTHEMUMS ON WALLS FOR CUTTING.—Your correspondent, "J. Horsefield, Heytesbury," does good service to specially draw attention (p. 303), to the advisability of planting these plants just now. I am unusually favoured by having a warm south wall, so my plants have been out for a fortnight, to

annuals will change to evergreen perennials in another when there are more nutritive (?) surroundings." A list of these also would be interesting to some of us, I am sure. The terms annual and perennial, deciduous and evergreen should be strictly defined in a discussion upon evergreens, and it seems that the author in this case has not a clear idea. This is an interesting subject, but a paper upon it which generalises only is worthless. "Such plants as *Rhododendrons*—such plants as *Hellebores*" embraces too wide a view when in both genera there are deciduous as well as evergreen species. Japan may be a land of evergreens, but it is not singularly so; Australia, New Zealand, Chili, California furnish our gardens most with hardy and tender evergreens. *W. G.*

SCENT IN SOLOMON'S SEAL.—Thanks to the courtesy of some of your correspondents I no longer deny that there is a scented strain of this fine old plant. But I am by no means prepared to go the length of "S." p. 277, in broadly intimating that the common Solomon's Seal has a rich fragrance, unless he means that the odour becomes so small by degrees and beautifully less, as to be mostly imperceptible to ordinary mortals. Such, however, is by no means the case with the scented variety,

experimented with. The result in crop was exceedingly satisfactory, the weight of the green crop being estimated at between 5 and 6 tons. Some of the leaves measured 40 inches by 15 across. It is necessary to add that in drying the crop loses about 75 per cent. of its green weight. Mr. Barron had some of the leaf manufactured, which is said to be of fair average quality, and, speaking from experience, of the flavour of Turkish; but manufacturers find it in the meantime more profitable and convenient to use the foreign article; and as the Excise looks with suspicion on the home-growth of the plant, there are considerable bothers attendant. The experiment may be said to have been thoroughly successful in showing that good useful Tobacco can be grown at home, and it only requires that a taste be created for it, and the growth encouraged by some consideration of the duty. *W. Kelly.*

ACACIA ARMATA.—A fine specimen of this well-known plant may now be seen at the Public Park, Preston. The plant has been under the care of Mr. G. Rowbotham for many years, and it already begins to assume the dimensions of a tree. It is over 10 feet in height, 8 feet in diameter, the stem at its base being 15 inches in circumference. In every

respect it is a well-grown plant, since many of the lower shoots are but very little raised above the tub in which it is planted. *W. S.*

SOCIETIES.

ROYAL BOTANIC.

The first spring show of the Society was held on Wednesday, the 21st inst., at the gardens in Regent's Park, when the conditions of the weather were more propitious than they had been for several days previously.

Bulbous Plants.—These were, of course, the most conspicuous features of the show, and were of very good quality throughout. Hyacinths were well represented. Mr. J. Douglas, Great Gearies Gardens, Ilford, E., showed best in the amateur's division, his Lord Derby, King of the Blues, La Grandesse, Princess Amelia, Vuurbaak were noticeable. Mr. H. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, N., followed, also showing well.

In the nurserymen's division the leading position was taken by the exhibit of Messrs. H. Williams & Sons, Fortis Green, Finchley, showing vigorous dense spikes; 2nd, Mr. H. R. Wright, Lee, Kent. This order was reversed in the class for twelve pots of Tulips; but the finest specimens of Tulips came from Mr. J. Douglas, he taking 1st in the amateur's division, followed by Mr. R. Scott, gr. to Miss Foster, The Holme, Regent's Park. Mr. Douglas led again with twelve Amaryllis, showing strong plants bearing large bright flowers, Red Gauntlet and Vesuvius being fine samples. Messrs. Paul & Son, Cheshunt, were a close 2nd. Mr. H. R. Wright, and Messrs. H. Williams & Sons were respectively 1st and 2nd for twelve pots of Narcissus, both showing excellent examples with large flowers; the best varieties were Laura, Her Majesty, and Gloriosa. Crocuses in pots, very well flowered, were best from Mr. R. Scott; Mr. J. Douglas 2nd. Messrs. H. Williams & Sons were 1st for Lilies of the Valley, showing strong specimens not fully flowered; 2nd, Mr. J. R. Chard, Brunswick Nursery, Stoke Newington, with smaller plants. Messrs. Paul & Son, Cheshunt, received 1st for twelve bulbous plants not included in the foregoing classes. *Iris reticulata*, *I. r. Krelagei*, *Scilla sibirica*, *Bulbocodium vernum*, *Galanthus Sharlockii*, and *Leucojum carpathicum* were well shown.

Various.—*Deutzias*, from Mr. J. Douglas, were, as usual, 1st; Mr. Eason and Mr. R. Bulter, gr. to H. H. Gibbs, Esq., St. Dunstons, Regent's Park, were 2nd and 3rd, all showing well.

Mr. J. May, Gordon Nursery, Twickenham, and Mr. J. Odell, Goad's Green, Hillingdon, were 1st and 2nd for Cyclamens (open); and in the amateur's division Mr. D. Phillips, gr. at Langley Broom, Slough, was 1st—good specimens being shown in all cases.

Chinese Primulas were in very good form from Messrs. H. Williams & Sons, and also from Mr. W. Kemp, gr. to H. Barry, Esq., Bushill House, Winchmore Hill, who took 2nd.

Mr. Douglas showed the best collection of hardy Primulas grown under glass. *P. viscosa aivalis* was very well represented, and also *P. marginata*, *P. rosea*, and various others. Mr. C. J. Clements, gr. to L. H. Hicks, Esq., Springfield House, Muswell Hill, was 2nd; *P. verticillata*, *P. obconica*, *P. denticulata*, and *P. rosea*, were prominent.

Greenhouse Azaleas were well shown by the amateurs, Mr. Eason leading well with examples of Mrs. Turner, Jean Vervaene, Apollon, &c.; 2nd, Mr. R. Scott, having smaller plants. Nurserymen made a poor display.

Messrs. Paul & Son were the only exhibitors of Roses, showing Souvenir d'un Ami, Innocente Pirola, Catherine Soupert, and Avocat Duvier, in good form.

Miscellaneous Exhibits.—Messrs. Paul & Son showed a good collection of Roses, receiving a Large Bronze Medal; W. A. Richardson, Celine Forestier, Lady Alice, Dr. Andry, &c., were all well shown. Ghent Azaleas were sent from Messrs. H. Lane & Sons, Berkhamsted, to whom a Large Bronze Medal was awarded.

Groups of Narcissi, &c., came from Messrs. Barr & Son and from Mr. T. S. Ware, the latter showing a quantity of *N. poeticus ornatus*.

Hyacinths were sent by Messrs. W. Cutbush & Sons, which, with other plants, were tastefully arranged in a bank of moss. Messrs. J. Veitch & Sons also sent a large collection of Hyacinths, showing large sturdy spikes. Large Bronze Medal.

Mr. B. S. Williams, Upper Holloway, N., contributed a large and varied group of bulbous plants, of excellent quality, showing almost 200 spikes of Hyacinths; also Narcissi, Tulips, Amaryllis, &c. Large Silver Medal.

A somewhat similar but smaller collection came from Messrs. H. Williams & Sons, who were awarded a similar Medal.

Messrs. Paul & Son staged an interesting collection of hardy plants, including *Megasea Straceyi*, *Saxifraga Barseriana*, *S. Frederici Augusti*, *S. sancta*, *Ranunculus anemonioides*, *Erica herbacea*, &c.

Cinerarias of great vigour, depth of colour, and of large size, came from Mr. James, Woodside, Farnham Royal, Slough. Large Bronze Medal.

Mr. J. Odell, Hillingdon, sent Cyclamen.

CERTIFICATES: BOTANICAL.

Fritillaria Thomsoniana (J. Veitch & Sons)—flowers pale bluish colour, about twenty are borne on a scape 18 inches long.

Trillium discolor var. *atrata* (J. Veitch & Sons)—flowers dark brown, leaves dark brownish-green with splashes of greyish-green.

Saxifraga Frederici Augusti (see Royal Horticultural Society's report March 17 last).

Dendrobium nobile Cooksoni (H. Perkins, gr. to Right Hon. W. H. Smith, M.P., Greenlands, Illey-on-Thames)—lateral petals modified so as to resemble the lip.

FLORAL.

Rose Lady Alice (Paal & Son)—pale blush, full flower, H.P.

Cinerarias from Mr. J. James:—

Maria, white self, disc violet, rays regularly overlapping.

Favourite, brilliant magenta-red, white band round disc, which is violet.

Irene, purple-carmine, narrow white band round the dark violet disc.

NOTTS HORTICULTURAL AND BOTANICAL.

A MONTHLY meeting of this Society was held at the Mechanics' Institute, Nottingham, on the 14th inst., Mr. N. Pownall (Lenton Hall Gardens) in the chair. There were also present:—Messrs. S. Thacker, Attenborough, Branstone, Baker, Kirk, Ralphs, Holmes, Edmunds, A. Page, E. Steward (Secretary), &c. A paper on the "Hyacinth" was read by Mr. Steward, who hoped that it would be the means of opening up a discussion on what, in his humble opinion was really the great question for all gardeners and horticulturists of the present day, namely, how to "crop" their land so that it will pay the occupier and the owner. He should endeavour to show them that money could be made by growing bulbs and other flowering roots as well as it was done in the famous district in Holland. Mr. Steward then traced the history of the Hyacinth from its introduction from Greece in the year 1594. Since then Dutch growers had taken up the growth of this flower, the soil and situation of this district in Holland being particularly favourable for their development. The district in question was 1487 acres in extent, and it was estimated that the imports of bulbs to England annually reached £50,000, the bulb trade being a very extensive one. Few were aware of the amount expended in Hyacinths, bulbs, &c. The London parks required many thousands. Considering the present bad times their agricultural friends were passing through, he would suggest to them the advisability of turning their attention to the growing of bulbs, as he believed we had every variety of soil and climate suitable to their growth in the adjoining county of Lincoln. In fact, he knew of several growers in the neighbourhood of Spalding who raised many thousands of bulbs of various sorts for the trade in London and elsewhere, and he saw no reason why so much money should be sent into Holland, Germany, and other places for roots which could be grown as well, and in many cases superior, in our own country. Not long since he was shown a heap of Snowdrops in one end of a barn near Peterborough, which consisted of about 250,000 roots. This heap was the result of about 2 acres' growth, and had yielded a handsome profit to the owner by the flowers which had been gathered early in the spring, and yet that heap of roots was worth £180. If that was not a paying crop, he should like to know what was. Another item which he desired to mention was the growth of the Lily of the Valley crowns.

At the present time we imported something like 50,000,000 of this particular variety from Germany and Holland at a cost of £25,000 per annum. All this money might just as well be saved and kept in our own country. Many thousands grown in Lincolnshire had been tried, and they had proved better in every respect than those grown abroad. He had had some of the finest *Gladiolus* bulbs he had ever seen grown on poor sand land near the Forest. He might also mention in support of what could be done in England that there were a hundred acres of ground in Cornwall planted with Narcissus, and nearly the whole of the Scilly Islands were planted with the same flowers of various kinds for the supply of cut flowers for the London and midland markets. These flowers found a ready sale, and were extensively used for home and other decorations. They were without doubt one of the most useful of all cut flowers on account of the long time they lasted after being cut. A discussion followed.

LINNEAN.

MARCH 15.—W. Carruthers, F.R.S., President, in the chair. Mr. J. E. Harting exhibited the frontal portion of the skull of a red-deer stag, which, although an adult animal, had never possessed horns, and made some remarks on the occasional occurrence of this abnormality. The stag in question was one which had been shot some years ago by the late Emperor of Germany in the royal forest of Goerde, in Hanover. A discussion followed, in which the President, Mr. Seeborn, and Dr. Hamilton took part. The first paper of the evening was then read by Mr. George Massee, entitled, "A Monograph of the Thelophoreæ," and drawings of several of these fungi were exhibited. A paper by Mr. E. A. Batters, describing three new marine Alga, was then read by the Botanical Secretary, Mr. B. Daydon Jackson, who exhibited the drawings made to illustrate the paper. After some remarks from the President Mr. Harting pointed out the indirect influence of the Gulf Stream in causing a deposition of northern sea-weeds upon the north-east portion of the English coast, where some of the species described had been found. The meeting then adjourned to April 5.

LAW NOTES.

EDINBURGH.

THE First Division of the Court of Session gave judgment on Friday last, in a reclaiming note in an action by William Smith & Son, seed merchants, Aberdeen, against Waite, Nash & Co., seed merchants, 70, Southwark Street, London, for £2500, for alleged breach of contract in connection with the supply of 100 bushels of Old Meldrum Green-top Yellow Turnips. The pursuers resold the seed in various quantities to merchants in Aberdeenshire, and they stated that it proved to be a mixture consisting of from one-half to two-thirds of seed of the Old Meldrum Green-top Yellow Turnip and of seed of an entirely different kind—a Tankard species. On the nature of the seed becoming apparent from the crop, claims of damages were intimated by the purchasers against the merchants who had supplied it, and the merchants, in turn, intimated claims against the pursuers. The pursuers had paid in such claims £172 5s. 8d., and there were other claims unsettled. The defenders pleaded that they gave no warranty for the seed. The Lord Ordinary (McLaren) awarded the pursuers £600 and expenses. The defenders then reclaimed.

Lord Adam, who gave the leading opinion, said that under their terms of sale the defenders "gave no warranty, expressed or implied, as to description, quality, productiveness, or any other matter, of any seeds they sent out, and they would not be in any way responsible for the crop. If the purchaser did not accept the goods on these terms, they were at once to be returned." It was proved that the pursuers knew of these conditions, and if the defenders could get customers to deal with them on such conditions—which he should scarcely have expected—he saw nothing illegal in them. The question, however, was whether the loss which had arisen was to fall upon the pursuers or the defenders. The seed

was accepted by the pursuers on the condition that the defenders did not warrant it, even though of the description ordered. He thought accordingly that the case which had occurred was just a case which the terms of sale were intended to meet, and against which the defenders desired to protect themselves, and he thought they had done so successfully. He could not follow the reasoning of the Lord Ordinary by which he arrived at an opposite result. Being of opinion that the defenders were not liable, it was unnecessary to consider the question of damages.

Lord Kinnear said he thought the whole argument for the pursuers might be summed up in a sentence. The defenders did not perform their contract because they had delivered Turnip seed of a different description from that for which the pursuers bargained. That would be quite an unanswerable ground of action were it not for the stipulation, which, he agreed with Lord Adam, was designed to meet that case.

The Lord President said that he was of the same opinion. If it had not been for the conditions expressed in what were called the terms of sale, the case would have been very clear in favour of the pursuers, because to a certain extent the defenders delivered a different article from that which was sold.

Their Lordships accordingly recalled the Lord Ordinary's interlocutor, and gave expenses to the defenders.

We understand there is every probability of this decision being appealed against. *North British Agriculturist*.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending, March 19, is furnished from the Meteorological Office:—

"The weather has been fairer than of late over the greater part of Scotland, but over England and at most of the Irish stations the conditions have been very changeable and unsettled, with frequent falls of snow and sleet. In all the more eastern and south-eastern parts of England the falls of snow were very considerable.

"The temperature has been below the mean in all districts, the deficit ranging from 5° in the 'Channel Islands,' and 6° in 'Ireland, S.' to as much as 8° or 9° over the northern parts of England, and the east and west of Scotland. The highest of the maxima, which were registered during the earlier days of the period over England, and towards its close in Ireland and Scotland, ranged from 42° over the north of England to 53° in 'England, E.,' 'Ireland, S.,' and the 'Channel Island.' On some days the maximum readings in many parts of Great Britain were very little above the freezing point. The lowest of the minima, which were recorded on irregular dates, were lower in Scotland than elsewhere. At Braemar the thermometer on the 17th fell to 2°, at Fort Augustus to 12°, and at Glenlee to 19°; while in Ireland the minima varied between 21° and 22°, and over England between 23° and 26°.

"The rainfall has been less than the mean in Ireland and Scotland, but rather more over the greater part of England.

"Bright sunshine shows a decided increase in Scotland, as well as in the south-west of England and over Ireland, but a general decrease elsewhere. The percentage of the possible amount of duration ranged from 10 to 16 over the greater part of England to 34 in 'Ireland, S.,' 42 in 'England, S.W.,' and 46 in 'Scotland, N.' In the 'Channel Islands' only 17 per cent. was recorded."

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MARCH 31. (AVERAGE OF FORTY-FOUR YEARS).

Mar. 25	44°·1	Mar. 20	44°·7
" 26	44°·2	" 30	44°·9
" 27	44°·4	" 31	45°·3
" 28	44°·5	Mean for the week	44°·6

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.			
	Above or below the Mean for the week ending March 19.	ACCUMULATED.		
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	7 below	0	67	— 40 + 143
1. SCOTLAND, E. ...	9 below	0	81	— 67 + 93
2. ENGLAND, N.E. ...	8 below	0	69	— 70 + 62
3. ENGLAND, E. ...	8 below	0	60	— 102 + 127
4. MIDLAND COS. ...	7 below	0	57	— 114 + 133
5. ENGLAND, S. ...	7 below	0	41	— 120 + 176
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	8 below	0	67	— 64 + 80
7. ENGLAND, N.W. ...	9 below	0	66	— 89 + 101
8. ENGLAND, S.W. ...	7 below	1	37	— 149 + 207
9. IRELAND, N. ...	7 below	0	48	— 76 + 39
10. IRELAND, S. ...	6 below	6	36	— 113 + 80
— CHANNEL ISLANDS	5 below	5	17	— 134 + 115

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.	
0. SCOTLAND, N. ...	5 less	51	8.6	46
1. SCOTLAND, E. ...	1 less	44	5.2	22
2. ENGLAND, N.E. ...	4 more	38	3.8	10
3. ENGLAND, E. ...	1 more	39	3.8	11
4. MIDLAND COS. ...	2 more	33	3.3	16
5. ENGLAND, S. ...	4 more	35	4.3	14
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	3 less	34	7.7	31
7. ENGLAND, N.W. ...	1 less	41	3.9	23
8. ENGLAND, S.W. ...	0 (aver.)	38	5.4	42
9. IRELAND, N. ...	3 less	38	5.7	26
10. IRELAND, S. ...	1 less	33	6.4	34
— CHANNEL ISLANDS	2 more	50	5.5	17

NOTICES TO CORRESPONDENTS.

* * * GOOD FRIDAY.—We beg to remind our correspondents that it will be necessary to send their communications so as to reach us not later than Tuesday evening next, as in consequence of Friday, we go to press one day earlier than usual.

CINERARIAS: *H. Cannell & Sons*. The flowers in size and form are as good as any we have seen. The crimson shades are very rich, and the white flower is quite pure.

CURRENT-BUD MITE: *A. F.* Read your *Chronicle*. It has been figured and described repeatedly. See February 4 this year, p. 151.

EICHRONIA AZUREA: *John Zazwarka*. We do not think the plant is in commerce, but it can probably be obtained from a botanic garden. Kew and Oxford have the plant.

EUCHARIS: *G. C.* All three samples were attacked with the mite, and with a fungus also.

FLOWERS OF PASSIFLORA PRINCEPS NACEMOSA FALLING OFF: *W. R.* The night temperature is too high by 10°; 60° at night is sufficient; anything higher than that, together with want of air, would have a weakening effect, with our clouded winter sky. Examine the soil at the roots: it may be too dry, or the contrary.

GROWTH OF ALGAE IN A WATER-TANK: *E. J. B.* Put a cover over the tank, so that all light is shut out.

INSECTS: *J. B. T.* The insect which has attacked your young Cucumber plants is one of the plant bugs, *Cimex* (*Phytocoris*) *Chenopodii*. Its habits are similar to those of the aphides, and it may, in like manner, be destroyed by careful fumigation.—*F. S. M.* The Orchis leaf sent is covered with minute dark-cloured spots of various sizes, and occasionally confluent, but we found no insects, nor do the spots show any trace of having been sucked by aleurodes or other insects. We found on the leaf two or three very minute particles of semitransparent scale, or wax-like secretion, which exhibited under high power small, circular, irregularly placed spaces, connected by oval or oblong ones with thickened edges, but which we cannot refer to any insect structure. *I. O. W.*

MELONS: *W. M. B.* Paradise Gem (*B. S.* Williams'), and Improved Victory of Bath (*Gilbert's*), are two excellent early varieties.

NAMES OF PLANTS: *E. H.* 1, *Cephalotaxa* sp.; 2, *Abies nobilis*; 3, *A. pectinata*; 4, *Picea excelsa*, *Clanbrassil* variety; 5, *P. sitchensis*; 6, *Juniperus sinensis*; 7, *Quercus ilex*.—*M. H. F.* *Brassia caudata*, small Brazilian form.—*X. G. C.* *Frenele rhomboidea*.—*Southampton*. *Rhododendron dauricum*, native of Siberia.—*J. F. P.* *Cymbidium Lowianum*; *Oncidium Cavendishii*.—*Eriantha*. 1, *Dendrobium Pierardi*; 2, *Maranta picta*; 3, *Carex riparia variegata*; 4, specimen not sufficient; 5, *Ficus repens*.—*A Subscriber*. *Orchid*: *Cologne cristata*. *Ferns*: 1, *Pteris taenula*; 2, *Aspidium decompositum*; 3, *Davallia canariensis* (probably—send fertile frond); 4, *Polypodium quercifolium*; 5, *Asplenium bulbiferum*; 6, *Onychium lucidum*; 7, *Adiantum Capillus-veneris*; 8, *Aspidium falcatum*.—*An Inquirer*. *Adiantum concinnum-latum*.—*G. M. R.* 1, *Streptocarpus Rexii*; 2, *Polygala Dalmaissiana*; 3, *Sparmannia africana*; 4, *Eunonymus macrophyllus argenteus*; 5, *Blechnum occidentale*; 6, *Adiantum formosum*.—*C. M. Owen*. *Leontice leontopetalum*; the *Crocus* we cannot name without complete materials.—*L. P.* 8, *Acacia longissima*; 9, *Periploca graeca*; 10, *Bryophyllum calycinum*. The others next week.—*S. H. C.* 1, a Broom-rape or *Orobancha*, of which we endeavour to find the name by next week; 2, a Composite, which we will try to discover; 3, *Campanula speculum*, *Venus' Looking-glass*; 4, *Phyllaea angustifolia*.

NEW ZEALAND: *C. H. H.* We cannot answer your questions, but advise you to apply to the Government Emigration Inquiry Office, 31, Broadway, Westminster. There is no horticultural journal published in New Zealand.

ONION GROUND: *P. R.* The "worms" are possibly the dreaded wireworm. The ground should be heavily dressed with soot and lime on being dug. Surface-dressings of soot and wood-ashes, made twice or thrice during the growing season, will encourage growth in the plants, and render the soil distasteful to the "worms."

POTATOS: *J. M.* We cannot name these from one small specimen of each variety.

WISTARIA SINENSIS: *G. M. R.*—Propagate by layering two or three year old shoots at full length in large pots, or in some sandy soil at the foot of the wall. When well rooted (in two years) detach and remove to another site.

COMMUNICATIONS RECEIVED.—*A. E. S.*—*Relivienis*.—*J. G. B.*—*F. Maer*.—*Ch. de Garlache*.—*W. H. Williams*.—*C. R. W.*—*J. H. G.*—*A. M.*—*J. G.*—*J. M.*—*J. E. B.*—*D. T. F.*—*T. S.*—*E. C. Buck*.—*W. D. W.*—*B. P.*—*P.*—*H. W. W.*—*J. H. H.*—*Caledonian*.—*Col. Jones*.—*W. G.*—*R. A. R.*—*F. S.*—*A. H. K.*—*A. L. P.* (next week).—*Mayflower*.—*A. McD.*—*H. G. R. F.*—*Johnston*.—*S. T. N.*—*H. J. Ross*.—*Florence*.—*F. W. B.*—*Dublin*.—*G. J. N.*—*H. Corevon*.—*Geneva*.—*Tuffen West*.—*Count de R.*—*E. P.*—*H. P. D.*—*C. H.*.—*Copenhagen*.—*J. H. B.*—*Mentone*.—*C. S.*—*Brookline*.—*N. S.*—*A.*—*G. S.*—*B. W. S.*—*Marburg*.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, March 22.

No alteration. Market will be very quiet for a fortnight. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½-sieve ... 3 0-6 0	Pears, per dozen ... 3 0-6 0
Grapes, per lb. ... 3 0-5 0	Pine-apples, Eng., lb. 1 0-2 0
Kent Cobs, 100lb. ... 40 0-45 0	— St. Michael, each 2 0-5 0
Lemons, per case ... 12 0-21 0	Strawberries, oz. ... 0 9-1 0

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, p. doz. ... 6 0-...	Mustard and Cress, punnet ... 0 4-...
Beans, Kidney, lb. ... 3 0-...	Onions, per bushel ... 9 0-...
Beet, red, per dozen 1 0-2 0	Parsley, per bunch ... 0 6-...
Brus. Sprouts, lb. ... 0 6-...	Potatoes, per cwt. ... 4 0-5 0
Carrots, per bunch ... 0 6-...	— kidney, per cwt. ... 4 0-5 0
Cauliflowers, each ... 0 3-...	Rhubarb, per bundle ... 0 4-...
Celery, per bundle ... 1 6-2 6	Seakale, punnet ... 1 6-2 0
Cucumbers, each ... 0 6-1 6	Shallots, per lb. ... 0 6-...
Endive, per dozen ... 1 0-...	Spinach, per bushel ... 1 6-...
Green Mint, bunch ... 1 0-...	Spruce, per bundle ... 1 0-...
Herbs, per bunch ... 0 4-...	Tomatoes, per lb. ... 2 6-...
Leeks, per bunch ... 0 6-...	Turnips, per bunch ... 0 6-...
Lettuce, per dozen 1 6-...	
Mushrooms, punnet 1 0-1 6	

POTATOS.—Markets about the same as last week. Hebrons finished.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. ... 6 0-15 0	Evergreens, in var., per dozen ... 3 0-24 0
Azaleas, per dozen ... 9 0-12 0	Ferns, in var., doz. 4 0-18 0
Bovvardias, per dozen ... 6 0-12 0	Ficus elastica, each 1 6-7 0
Cinerarias, per dozen 12 0-24 0	Foliage plants, various, each ... 2 0-10 0
Cyclamen, p. r. dozen 4 0-12 0	Genistas, dozen ... 8 0-12 0
Daffodils, dozen ... 9 0-12 0	Hyacinths, doz. ... 6 0-9 0
Deutzias, per dozen ... 9 0-12 0	Lily of the Valley, 12 pots ... 15 0-18 0
Dracena terminalis, per dozen ... 30 0-60 0	Marguerites, doz. ... 9 0-12 0
— viridis, per doz. 9 0-24 0	Myrtles, per dozen ... 6 0-12 0
Dicentra, dozen ... 12 0-15 0	Palms, in var., each 2 6-21 0
Epiphyllums, doz. ... 12 0-24 0	Pelargoniums, doz. 18 0-24 0
Erechas, various, per dozen ... 9 0-18 0	Primula sinensis, per dozen ... 4 0-6 0
— ventricosa, doz. 18 0-30 0	Solanums, per dozen 9 0-12 0
Eucynias, in var., per dozen ... 6 0-18 0	Spiraeas, doz. 9 0-15 0
	Tulips (pots of), doz. 6 0-8 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Acacia, or Mimosa, per bunch ... 0 9-1 6	Marguerites, 12 bun. 3 0-6 0
Anemone, French, 12 bunches ... 2 0-4 0	Mignonette, 12 bun. 3 0-6 0
— fulgens, 12 bun. 3 0-6 0	Narcissus, paperwhite, Fr., 12 bunches ... 2 0-4 0
Azum Lilies, 12 blms. 4 0-6 0	— Various, 12 bun. 1 6-4 0
Azaleas, 12 sprays ... 0 6-1 6	Pelargoniums, 12 spr. 1 0-1 6
Bovvardias, per bun. 0 6-1 0	— colour, 12 spr. 0 6-9 0
Camellias, 12 blms. 1 0-3 0	Primroses, 12 bun. 1 0-2 0
Carnations, 12 blms. 1 6-3 0	Primulas, double, 12 sprays ... 1 0-1 6
Cinerarias, 12 bun. 6 0-12 0	— single, 12 bun. 4 0-6 0
Cyclamens, 12 blms. 0 4-0 6	Roses, Tea, per doz. 3 0-8 0
Daffodils, double, 12 bunches ... 4 0-6 0	— red, per dozen 2 0-4 0
— single, 12 bun. 4 0-12 0	Safrano, dozen ... 1 6-3 0
Deutzia, 12 bunches 4 0-9 0	Snowdrops, 12 bun. 1 0-4 0
Eucharis, per dozen 4 0-6 0	Tuberose, 12 blms. 1 6-2 0
Gardenias, 12 blooms 6 0-12 0	Tulips, 12 blooms ... 0 6-1 0
Heliotropes, 12 spr. 0 6-1 0	Violets, 12 bunches ... 1 0-1 6
Hyacinths, Roman, 12 sprays ... 0 6-1 0	— French, bunch ... 1 6-2 0
Lilium longiflorum, 12 blooms ... 6 0-9 0	— Fr. Parme, bun. 3 6-4 6
Lily of Valley, 12 spr. 0 6-1 0	White Lilac, French, per bunch ... 3 6-6 0

* * * Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: March 21.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that, as might be expected, the prolonged winter has diminished for the moment the demand for farm seeds; meantime, as previously noted, stocks all round are in moderate compass, and prices stand at a remarkably low level. With favourable weather, an active sowing demand would set in; thus the conditions seem ripe for some rally in values. No variety this week exhibits any important quotable variation. From abroad offerings now come to hand less freely, whilst for Alsike and white Clover rates are harder. Spring Tares realise former terms. Hemp seed is still scarce. Canary seed slow. Peas unaltered.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended March 17:—Wheat, 30s. 6d.; Barley, 30s. 3d.; Oats, 15s. 8d. For the corresponding week in 1887:—Wheat, 32s. 11d.; Barley, 24s. 4d.; Oats, 16s. 4d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: March 21.—Supplies of all kinds of green stuffs have been smaller, owing to the severe weather. Demand moderate, at advanced prices. Quotations:—Cauliflowers, 6s. to 10s. per tally; Savoys, 5s. to 7s. 6d. do.; Brussels Sprouts, 4s. 6d. to 7s. per bushel; Broccoli, 3s. to 4s. 6d. do.; Spinach, 2s. to 2s. 6d. per sieve; Turnip-tops, 3s. to 4s. per sack; Greens, 5s. to 8s. per dozen bunches; Turoips, 2s. 6d. to 3s. 6d. do.; Carrots, 2s. 6d. to 2s. 9d. do.; English Onions, 13s. to 14s. 6d. per cwt.; foreign do., 10s. to 12s. per bag of 110 lb.; Carly, Kale, 2s. 6d. to 3s. 6d. per bushel; Seakale, 1s. 6d. per punnet; Horseradish, 1s. to 1s. 6d. per bundle; Celery 8d. to 1s. do.; forced Rhubarb, 2s. to 3s. 6d. per dozen bundles; natural do., 3s. to 4s. 6d. do.; Cabbage Lettuces, 8d. to 1s. 6d. per dozen; Endive, 2s. to 2s. 6d. do.; Leeks, 2s. to 2s. 6d. do.; Beetroots, 8d. to 1s. do.; Parsnips, 9d. to 1s. 6d. per score; English Apples, 4s. to 7s. per bushel; American Apples, 14s. to 22s. per barrel; Carrots, 30s. to 40s. per ton; Mangel, 20s. to 22s. do.

STRAFORD: March 20.—Quotations:—Cabbages, 8s. to 10s. per tally; Greens, 1s. to 1s. 6d. per cwt.; Turnips, 2s. 6d. to 3s. 6d. per dozen bunches; ditto, 40s. to 60s. per ton; Carrots, household, 40s. to 60s. do.; do., cattle feeding, 26s. to 34s. do.; Parsnips, 6d. to 9d. per score; Mangels, 20s. to 22s. per ton; Swedes, 20s. to 22s. do.; Onions, English, 13s. to 15s. per qr. do., Hungarian, 12s. to 14s. per bag; Apples, American, 18s. to 25s. per barrel; Watercress, 6d. per dozen; Carrots, 3s. to 3s. 6d. per dozen bunches; Radishes, 10d. to 1s. 2d. do.; Parsley, 3d. to 6d. per bunch; Beetroots, 8d. to 1s. per dozen; Leeks, 3s. to 3s. 6d. per dozen bunches; Celery, 9d. to 1s. per bunch; Rhubarb, 2s. to 3s. 6d. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: March 20.—The weather has shortened supply on the markets, and prices are rather firmer, though demand is slow. Quotations:—Regents, 50s. to 100s.; Magnum Bonums, 50s. to 100s.; Champions, 45s. to 70s.; Dutch Rocks, 50s. per ton.

SPITALFIELDS AND COLUMBIA: March 21.—Quotations:—Magnum Bonums, 45s. to 70s.; Regents, 65s. to 90s.; Victorias, 50s. to 65s.; Champions, 50s. to 60s.; Beauty of Hebron, 120s. to 140s. per ton.

STRAFORD: March 20.—Quotations:—Scotch Magnums, 75s. to 90s.; English do., 55s. to 80s.; Fenland, 45s. to 55s. per ton.

Imports.—The imports into London last week consisted of 841 bags from Hamburg and 13 from Harlingen.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 81s. to 97s. 6d.; inferior, 70s. to 82s.; hay, prime, 75s. to 95s.; inferior, 50s. to 70s.; and straw, 30s. to 42s. per load.

PARIS "HALLES CENTRALES," MARCH 21.

LEGUMES.

Per 100 kil.	Per 100 kil.
Ail ... 25 à 30	Haricots verts d'Espagne:—
Persil ... 90 à 100	— fins ... 600 à 800
— Barbeutanne ... 90 à 100	— ordinaire ... 300 à 400
Pois verts:—	Pommes de terre nouvelles:—
— d'Afrique ... 100 à 120	— d'Algérie ... 60 à 70
Pissenlits:—	Behalotes ... 90 à 120
— blancs ... 120 à 150	Raisin de Thomery:—
— 12 blancs ... 80 à 70	— choix ... 400 à 500
— verts ... 25 à 40	— ordinaire ... 150 à 250
Oignons:—	Per 100.
— blancs ... 35 à 40	Artichauts:—
— rouges ... 25 à 32	— Afrique ... 25 à 45
Pommes, Canada:—	Salades de Saint-Remy
— extra ... 100 à 150	et du var.:—
— ordinaires ... 50 à 80	— belles ... 20 à 30
Pommes:—	— moyennes ... 12 à 16
— rouges ... 30 à 35	— petites ... 4 à 8
— grosseille ... 40 à 10	Per dozen.
— reinettes ... 45 à 10	Choux-fleurs:—
— du Mans ... 50 à 60	— Bretagne ... 3 à 6
— Cave ... 50 à 60	

FLEURS.

Le bouquet.	Le bouquet de 12 fleurs.
Violettes:—	Narcisses:—
— russes ... 15 à 25	— blancs ... 08 à 15
— bleues ... 07 à 15	— jaunes ... 06 à 12
— pales ... 05 à 08	Jacinthes ... 05 à 10
Reseda ... 15 à 25	Gillettes ... 50 à 75
Giroflées ... 15 à 25	Roses:—
Anémones:—	— ler choix ... 150 à 250
— extra ... 50 à 80	— 2e ... 40 à 75
— ordinaires ... 10 à 25	Jouquilles ... 10 à 25
Le kil.	Fleurs d'ail ... 30 à 50
Mimosas ... 150 à 250	

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EVERGREENS and FOREST TREES in great variety.
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RHODODENDRONS, Hybrid and Ponticum,
mixed, 1½ to 2 feet, per 1000, £10. HOLLY, common,
12 to 15 inches, per 1000, £5 10s.; do., 1½ to 2 feet, per 100,
24s. GORSE, double, 1 to 1½ foot, per 100, 14s. ASH,
Mountain, 3 to 4 feet, per 1000, 18s. SCOTCH FIR, 2 to
2½ feet, extra transplanted, per 1000, 20s.; do., 2½ to 3½ feet,
per 1000, 22s. The above well rooted. CATALOGUES free.
HENRY DERBYSHIRE, Darley Hillside Nursery, near
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Underwood. Intending Planters should send for CATA-
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Superb strains of PRIMULA, CALCEOLARIA, CINCERARIA,
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COLLECTIONS OF CHOICE FLOWER SEEDS for Large
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ment of really showy and handsome Flowers. No. 1, 10s. 6d.;
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BEE FEEDING PLANT SEEDS, 12 varieties, 2s. 6d.
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Seaforthia elegans, Latania borbonica, Phoenix reclinata,
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Carriage free.

Latania borbonica, Seaforthia elegans, Phoenix reclinata,
and Corypha australis, 20 to 24 inches high, 1s. 6d. each,
16s. per dozen.

Seaforthia elegans, Latania borbonica, Phoenix reclinata,
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Fine feathery-foliaged Seaforthia elegans, 4 feet high, 15s.
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ASPARAGUS.—This delicious vegetable does
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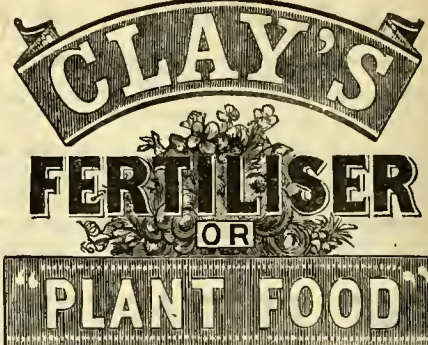
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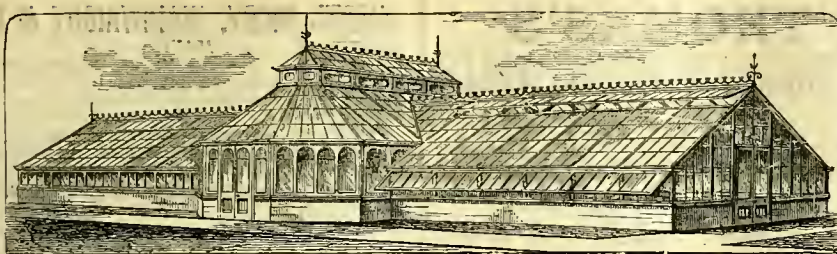
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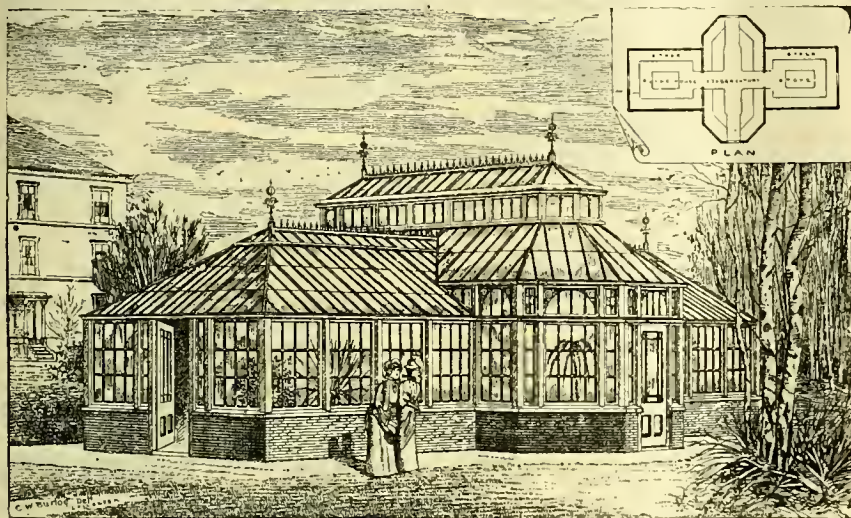
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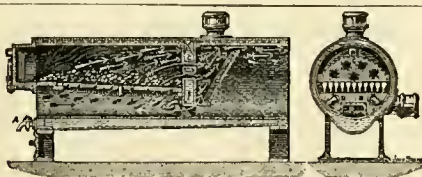
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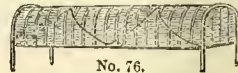


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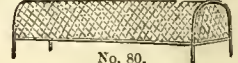
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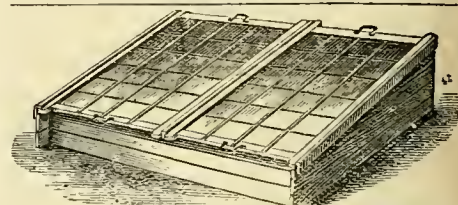
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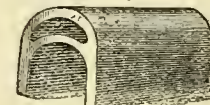
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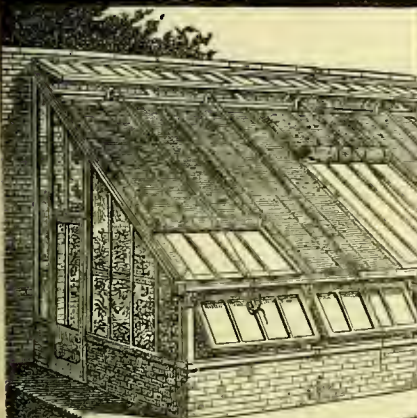
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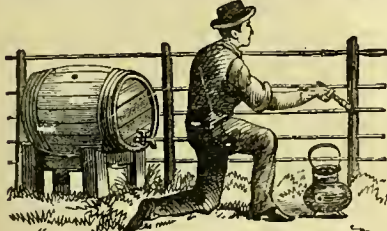
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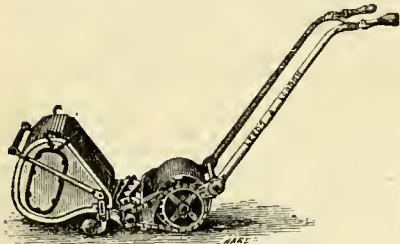
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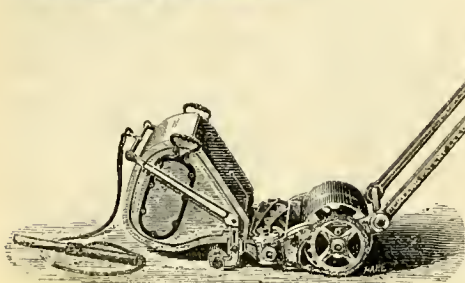
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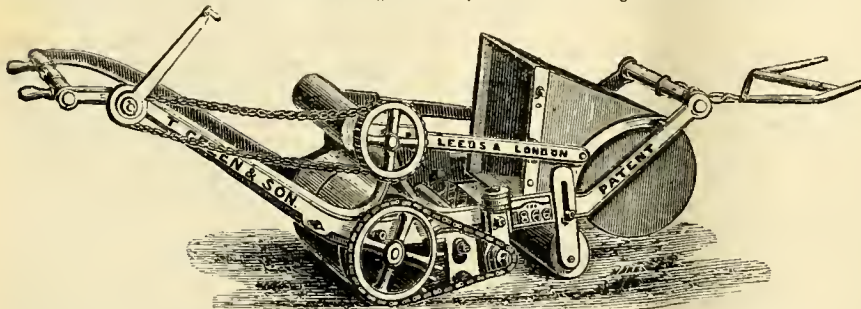
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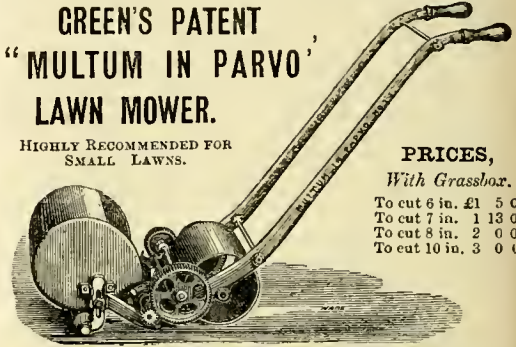
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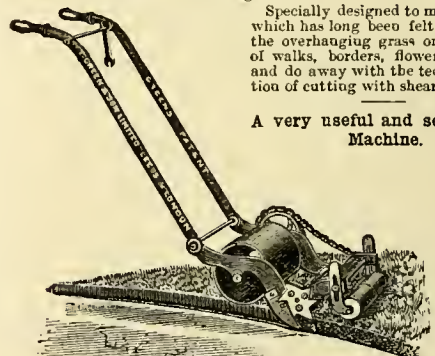
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.
No. 2466.

No. 66.—VOL. III. {THIRD} SERIES.

SATURDAY, MARCH 31, 1888.

{Regt. as a Newspaper.} PRICE 3d.
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ROYAL CALEDONIAN
HORTICULTURAL SOCIETY.

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Mrs. Grace Tiley, Deceased.

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March 21, 1888.

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LAING'S BEGONIA SEED.—Awarded Four Gold Medals. Saved from Prize Plants. Unequalled quality. Choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Order direct from us, to procure the genuine seed. The best and cheapest combined procurable.
JOHN LAING AND SONS, Seedmen and Begonia Grower, Forest Hill, S.E.

BLACKBERRIES—For Gardens—Fields—Railway Banks, &c.—The most suitable variety for this country is *Vertegans' Best of All*, 7s. per dozen; Wilson Junior, 6s. per dozen. Home-grown; carriage and packing free. For novelties not to be found in other Catalogues, see *Vertegans' Illustrated List of Specialities*, post-free.
VERTEGANS, Chad Valley Nurseries, Birmingham.

W. H. LASCELLES AND CO., HORTICULTURAL BUILDERS, 121, BUNHILL ROW, LONDON, E.C. Plants and Estimates Free. See large Advertisement next week.

SALES BY AUCTION.

Wednesday Next.

10,000 LILIAM AURATUM, splendid Bulbs from Japan.
MESSRS. PROTHIEROE AND MORRIS will include the above in their SALE by AUCTION, on WEDNESDAY NEXT, April 4.
 On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.

LILIAM AURATUM, from Japan. A choice assortment of English grown LILIES, including most of the best varieties in cultivation; GLADIOLI; GREENHOUSE PLANTS in variety; Standard and Dwarf ROSES; HERACEOUS PLANTS, &c.

MESSRS. PROTHIEROE AND MORRIS will include the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, April 4 and 7, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED and ESTABLISHED ORCHIDS, many of the latter being in Flower.

MESSRS. PROTHIEROE AND MORRIS will include the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 6, at half-past 12 o'clock precisely, the following ORCHIDS:—

An importation of *Odontoglossum crispum* (Alexandre), the best type, in fine condition; also Established *Odontoglossum*, *Oncidium*, &c., from Messrs. Shuttleworth, Carder & Co.

An importation of *Oncidium flexuosum*, *Cattleya guttata*, *Scuticaria Hadwenii*, *Cattleya Walkeriana*, *Laelia cinnabarina*, *Cattleya Loddigesii*, *Oncidium sarcodes*, and many others, from Messrs. J. W. Steel & Co.

A choice selection of well-grown ESTABLISHED ORCHIDS, many being in flower, and including beautiful varieties of *Odontoglossum Alexandre*.

On view morning of Sale, and Catalogues had.

The Broomfield Collection of Orchids.

IMPORTANT UNRESERVED SALE of the First Portion of this celebrated COLLECTION of ESTABLISHED ORCHIDS, by order of Robert Warner, Esq., who is giving up their cultivation.

MESSRS. PROTHIEROE AND MORRIS are favoured with instructions from R. Warner, Esq., to include the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, April 10, at half-past 12 o'clock precisely, without reserve, the First Portion of his well-known COLLECTION of ESTABLISHED ORCHIDS, consisting of about 2000 *Odontoglossum Alexandre*, almost entirely unflowered plants. Some of the plants imported at the same time are just coming into flower, and prove themselves to be very fine varieties.

On view morning of Sale, and Catalogues had.

Preliminary Notice.—Without Reserve.

The whole of the well-known collection of Specimen Exhibition STOVE and GREENHOUSE PLANTS, PALMS, &c., which have taken so many Prizes at the leading Metropolitan and Provincial Shows, by order of Messrs. T. Jackson & Sons, who have given up exhibiting.

MESSRS. PROTHIEROE AND MORRIS are instructed to include the above valuable COLLECTION of PLANTS, by AUCTION, on the Premises, The Nurseries, Kingston-on-Thames, on THURSDAY, April 26.
 Fuller particulars will appear in future Advertisements.

Friday, April 27.—Established Orchids.

A portion of the well-known collection of ESTABLISHED ORCHIDS, by order of C. Dorman, Esq., of The Firs, Laurie Park, Sydenham, who is making alterations to his Greenhouses, necessitating the disposal of some of the Plants.

MESSRS. PROTHIEROE AND MORRIS are favoured with instructions from C. Dorman, Esq., to include the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, April 27, at half-past 12 o'clock precisely, a portion of his well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following valuable plants:—
Laelia purpurata, magnificent growths, 12 sheaths
Cattleya exoniensis, good plant
 „ *Reineckiana superba*, true
 „ *Wagneri*
Dendrobium nobile Cooksoni.

On view morning of Sale, and Catalogues had.

The Brentnham Park Collection of Orchids.

Highly important unreserved sale of the first portion of this celebrated collection of ESTABLISHED ORCHIDS, by order of Robert Smith, Esq., who is giving up their cultivation.

MESSRS. PROTHIEROE AND MORRIS are favoured with instructions from R. Smith, Esq., to include the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 1 and 2, at half-past 12 o'clock precisely, without Reserve, the first portion of this well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following and other rare species:—
Cattleya Bluntii,
 „ *exoniensis superba*,
 „ *Skinneri alba*,
 „ *labiata* (autumn flowering var.),
Lycaste Skinneri alba,
Laelia anceps Dawsoni.

No Plants will be sold privately prior to the Sale.
 On view morning of Sale, Catalogues of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.—(Sale No. 7652.)

1000 choice named Standard, Half-standard, and Dwarf ROSES, from well-known English Growers; FRUIT TREES, HARDY ORNAMENTAL SHRUBS and CONIFERS, CARNATIONS, PICOTEES, PINKS, HOLLY-HOCKS, and other BORDER PLANTS; GLADIOLI, LILIIUM, SPIRÆA PALMATA, &c.

MR. J. C. STEVENS will include the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 4, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7653.)

10,000 grand Bulbs of LILIAM AURATUM and other LILIES, received direct from Japan, in the finest possible condition.

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

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7653.)

CYMBIDIUM LOWII, DENDROBIUM BRYMERIANUM, ODONTOGLOSSUM CORONARIUM, CATTLEYA LAWRENCIANA, 1000 Barmese DENDROBES, UTRICULARIA LONGIFOLIA, LAELIA AUTUMNALIS.

MR. J. C. STEVENS will include the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, April 5, at half-past 12 o'clock precisely, a splendid importation of the showy and beautiful CYMBIDIUM LOWII, in very fine masses well furnished with numerous healthy breaks and in excellent order for establishing; also a very fine lot of the true long-bulbed variety of DENDROBIUM BRYMERIANUM. This species is one of the rarest and finest in existence, of a lovely rich deep yellow; the labellum, which is very large, is exquisitely fringed. Also the scarce ODONTOGLOSSUM CORONARIUM in fine order, the rare and handsome CATTLEYA LAWRENCIANA, with fine healthy root, splendid pieces of DENDROBIUM WARDIANUM, ARUNDINA BAMBUSÆFOLIA, a quantity of DENDROBIUM THYRSIFLORUM, D. PRIMULIFLUM, GIGANTEUM, ODONTOGLOSSUM NÆVIUM, O. PISCATOREI, with large and fine looking bulbs, O. TRIUMPHANS, ONCIDIUM CUCULLATUM, O. WELTONI, the rare and pretty O. CÆSIUM, BRASSAVOLA GLAUCOA, CYTROPIDIUM SPECIES, CECYLOGYN BARBATA, VANDATERES, ODONTOGLOSSUM GRANDE, and a quantity of the beautiful LAELIA AUTUMNALIS, with sound dormant eyes, and many other fine ORCHIDS.

On view morning of Sale, and Catalogues had.

Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next Sale of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 11, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of entering Plants for this Sale will send list not later than Thursday next.

Collection of Established Orchids.

MR. J. C. STEVENS will include the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 11, at half-past 12 o'clock precisely, the COLLECTION of ORCHIDS formed by A. G. Wallis, Esq., of Thornlea, Balham. Amongst other fine things will be found *Cœlogyne Massangeana*, *Cristata Lemoniana*, *Oncidium Marshallianum*, grand var., *Angræcum sesquipedale*, *Aërides crassifolium*, and the usual varieties of *Odontoglossums*, *Dendrobies*, *Oncidiums*, *Cattleyas*, *Vandas*, &c.

On view morning of Sale, and Catalogues had.

A New Species of Lady's Slipper, from New Guinea.

CYPRIPEDIUM ROTHSCCHILDIANUM. Now in flower at the St. Albans Orchid Establishment, and pronounced by those who have seen it, one of the very finest *Cypripediums* ever introduced.

MR. J. C. STEVENS has been instructed by Mr. F. Sander to include the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, the entire stock of CYPRIPEDIUM ROTHSCCHILDIANUM.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the late John Day, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to include the above by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest. Amongst other varieties will be found a grand collection of the rarest and choicest CYPRIPEDS, in the finest health.

The First Portion of this Collection will be SOLD on WEDNESDAY and THURSDAY, May 9 and 10.
 N.B.—For fuller particulars, see last week's *Gardeners' Chronicle*.

"Coppins," Iver.

APRIL 11, 1888, at 12 o'clock.

MR. MASON is instructed by J. E. Taylor, Esq., to include the above by AUCTION, without reserve, on the above date, the whole of his choice Collection of STOVE and GREENHOUSE PLANTS and ORCHIDS, amongst which are a number of fine *Cattleya Triana*, *Dendrobiums*, a quantity of young *Crotons*, and other Foliage Plants, a number of the best varieties of *Azaleas* and *Camellias*, also *Greenhouse Rhododendrons*, and a very good Collection of Ferns; also about a dozen good Garden Frames with Lights, &c.

On view day previous to Sale, and Catalogues had from Mr. MASON, Auctioneer, Windsor; or Mr. FLETCHER, Gardens, Coppins, Iver, Uxbridge.

EXTENSIVE SALE OF FOREST, FRUIT, ORNAMENTAL, and other TREES previously advertised, and postponed owing to severe weather, at Oaks Hill Nurseries, known as Pontey's Gardens, Huddersfield, will now take place on WEDNESDAY NEXT, April 4, at 11 A.M.

Mr. J. H. LEES, Auctioneer.

Hereford.

TO BE SOLD, a NURSERY and SEED BUSINESS.—The Premises consist of Four large Houses, Pits, and Frames, and Six-roomed House adjoining. A splendid opportunity for two pushing young men. There is a good business now being done, and every prospect of increasing this offers itself to any one knowing the trade.
 For further particulars address J. CONROY, Auctioneer, Broad Street, Hereford.

FOR DISPOSAL, a FLORIST and FRUITERER'S BUSINESS, in main road; also FREEHOLD NURSERY, with Glass Erections, and eight-roomed House, within 5 miles of Covent Garden.
 Particulars of E. R. HILL, Surveyor, Royston, Cambs.

A Rare Opportunity.

TO BE SOLD, with immediate possession, a good going NURSERY BUSINESS, comprising about 2 Acres of Freehold Land, enclosed by Wooden Fence, with Eleven Large Greenhouses, well stocked, and Heated with Hot Water. Usual Outbuildings. Situate Wellbrook Road, Farnborough, Kent.
 Apply to TRUSTEES, 25, Nevill Road, Stoke Newington, N.

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so-called good examples at HIGHAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by
PULHAM AND SON, BROXBOROUGH.

To the Trade.

POTATO, "EARLY PURITAN," New American Variety.
 Raised by same American Grower who introduced Beauty of Hebron, Late Rose and Late Snowflake. It is claimed to be the earliest pure white skinned Kidney ever introduced, and a wonderful cropper. Price per bushel or cwt. on application to WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.

OLD-FASHIONED HEDGES.—English YEWs, bushy and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per dozen, 35s. per 100; 2 to 2½ feet, 8s. per dozen, 50s. per 100; 2½ to 3 feet, 9s. per dozen, 60s. per 100; 3 to 3½ feet, 12s. per dozen, 84s. per 100. Prices of larger sizes and other evergreens, suitable for hedges (e.g., TREE BOX, HOLLY, LAUREL, PRIVET, CYPRESS, JUNIPER, THUIA, &c.) on application.
 RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CUCUMBER PLANTS.—Rollison's Telegraph, strong plants, 6s. per dozen. Terms cash.
 JAMES STYCHE, Nurseryman, Hedon, Huse.

500 BRILLIANT SCARLET GLADIOLI, fine Bulbs, for Beds, Borders, or Massing for Autumn Effect. Sent free on receipt of P.O.O. for 21s.
 BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

TREES and SHRUBS for Game Covert and Underwood. Intending Planters should send for CATALOGUE, Free on application.
 RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. and F. SHARPE will be pleased to make SPECIAL OFFERS of their fine selected stocks of Home-grown MANGEL WURZEL and TURNIP SEEDS, raised from picked transplanted bulbs, and harvested in splendid condition. Prices and Samples may be had on application. Seed Growing Establishment, Wisbech.

PALMS.—A few hundreds, well-grown, strong and healthy.
Seaforthia elegans, *Lantania borbonica*, *Phoenix reclinata*, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Lantania borbonica, *Seaforthia elegans*, *Phoenix reclinata*, and *Corypha australis*, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seaforthia elegans, *Lantania borbonica*, *Phoenix reclinata*, *Enterpe* bulbs, and *Areca lutescens*, 2 feet 6 inches to 3 feet high, 8s. to 5s. each.

Fine feathery-foliaged *Seaforthia elegans*, 4 feet high, 15s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

SPECIMEN CONIFERS, TREES for Avenues, EVERGREENS and FOREST TREES in great variety. CATALOGUES Free on application.
 RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOREST TREES, &c.—Ash, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Beech, 1½ to 2 feet, 14s. per 1000; ditto, 2 to 3 feet, 18s. per 1000. Elm, 3 to 4 feet, 17s. per 1000. Larch, 2 to 3 feet, 18s. per 1000; ditto, 3 to 4 feet, 20s. per 1000; ditto, 4 to 5 feet, 24s. per 1000. Spruce Fir, 1 to 1½ feet, 8s. per 1000; ditto, 1½ to 2 feet, 10s. per 1000; ditto, 2 to 2½ feet, 12s. per 1000. Scotch Fir, 2 to 2½ feet, 12s. per 1000. Oak, 1½ to 2 feet, 12s. per 1000; Pinus austriaca, 2 years transplanted, 1s. 6d. per 1000. Oval Privet, 2 to 2½ feet, 26s. per 1000; ditto, 4 feet, 6s. per 100. Sycamore, 1½ to 2 feet, 12s. per 1000; ditto, 2 to 3 feet, 16s. per 1000. Thorns, 1 to 1½ feet, 12s. per 1000; ditto, 1½ to 2 feet, 15s. per 1000; ditto, 2 to 2½ feet, 17s. 6d. per 1000. Special offers for extra quantities.

GARLIES MITCHELL, Nurseryman, Stranraer.

ASPARAGUS, grand Roots for Forcing, 2s. 6d. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.
 RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ORCHIDS.

THE

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited

are pleased to announce the arrival of another grand lot of

MEXICAN ORCHIDS,

in the best possible condition, including

MANY MAGNIFICENT MASSES

OF

LÆLIA ANCEPS, WHITE,

the same as their last fine importation. The bulbs resemble those of *L. anceps Schroderiana*. The dried flowers sent with the plants are very large, and four and five are produced on each spike. The plants appear to have been very floriferous. The importation also includes a grand lot of

LÆLIA ANCEPS MORADA,

from the same district as the Company's previous importations of this fine variety. Many other grand varieties are included in this large and fine importation.

The Company will also receive, on or about the 31st inst., the largest and finest importation of

EAST INDIAN ORCHIDS

which they have ever had. Many of them have been collected in a part of Upper Burmah never before reached.

This grand importation includes a fine lot of

DENDROBIUM BRYMERIANUM

with bulbs said to be upwards of 2 feet long. Immense masses of

DENDROBIUM WARDIANUM LOWII,
DENDROBIUM THYRSIFLORUM,
DENDROBIUM DALHOUSIANUM,
DENDROBIUM DEVONIANUM,
DENDROBIUM BENSONIÆ MAJUS,
DENDROBIUM ALBO SANGUINEUM,
DENDROBIUM CRASSINODE BARBERIANUM
DENDROBIUM JAMESIANUM,

and many other Dendrobies. Also

CŒLOGYNE BARBATA,
CYMBIDIUM LOWIANUM,
CYPRIPEDIUM BOXALLI,
CYPRIPEDIUM VILOSUM,
TRICHOSMA SUAVIS,

and many other fine species.

The special feature of this importation is the size and quality of the plants.

The Company will also shortly receive a large and fine importation of

CATTLEYA MENDELII

collected by an experienced man, sent out specially to secure fine specimens and varieties of this GRAND CATTLEYA.

Many other fine importations will shortly follow.

As the Company receive Orchids in such large quantities, they are able to offer them at very reasonable rates.

Full particulars will be sent, post-free, to all who favour the Company with their Names and Addresses.

THE VINEYARD & NURSERIES

GARSTON, near LIVERPOOL.

WM. CLIBRAN and SON'S general Plant CATALOGUE for 1888 is now ready, post-free 3d., also CATALOGUE of the best Vegetable and Flower Seeds.

Spring Flowers.

DAISIES, CANTERBURY BELLS, SWEET WILLIAMS, strong blooming plants, all too heavy for post, 5s. per 100, 1s. per dozen.

ARABIS, white, AUBRIETIAS, purple, 8s. per 100, 1s. 6d. doz. AURICULAS, fine Alpine varieties, strong blooming plants, 2s. 6d. and 3s. 6d. per dozen.

Herbaceous and Border Flowers.

CARNATIONS and PICOTÉES to name, 6s. per dozen; Border and Clove varieties, from 4s. 6d. per dozen.

DELPHINIUMS, of sorts, unnamed, 4s. per dozen. IRIS, German varieties, 2s. 6d. and 4s. 6d. per dozen.

English varieties, 1s. and 3s. per dozen.

MIMULUS, or MONKEY FLOWER, 3s. per dozen.

PANSIES, Show and Fancy varieties, 3s. per dozen, 2s. for 6s., or 21s. per 100.

PÆONIES, select herbaceous kinds, 9s. per dozen.

Tree varieties, 2s. 6d. and 3s. 6d. each.

PHLOXES, Herbaceous, of sorts, 2-yr. 5s. per dozen; 1-yr. old plants, 3s. per dozen, 24 for 6s. 6d., 50 for 12s.

POTENTILLAS of sorts, 5s. per dozen.

PRIMULA SIEROLDII of sorts, 6s. per dozen.

PINKS of sorts, 3s. 6d. per dozen, 25 for 6s. 6d.

PYRETHRUMS of sorts, strong, roots from the ground, 4s. per dozen, 25s. per 100.

Stove and Greenhouse Plants.

The best Flowering and Ornamental Foliaged kinds, in various sizes, our selections, 9s. per dozen, 50 for 22s. 6d. and 35s.

CALADIUMS, choice kinds, 6s. per dozen.

FERNS, most useful exotic kinds, 12 varieties for 6s., 50 for 21s. and 30s. Small plants for rockwork and fancy pots, 21s. per 100, 3s. per dozen.

The following popular Plants, to bloom this Summer:—

ABUTILONS, of sorts, 3s. per dozen.

ACHIMENES, 12 corms, distinct sorts, for 2s.; 12 sorts, 6 corms of each, for 6s.

BOUVARDIAS, grand sorts, 12 for 4s., 60 for 12s. 6d., or 21s. per 100.

CHRYSANTHEMUMS, choicest sorts only, 12 varieties for 2s. 6d., 50 for 10s., or 13s. per 100.

DAHLIAS, to name, 12 plants for 3s., 50 for 10s. 6d., or 13s. per 100.

FUCHSIAS, a charming collection, 12 varieties for 3s., 25 for 5s. 6d., 50 for 10s. 6d.; 100 young plants, out of pots, for 15s.; 12 new Fuchsias of 1887 for 5s.

GERANIUMS, zonals, double flowering and Ivy-leaved varieties, 12 for 4s. and 4s.; 50, extra choice, for 21s.

GLOXINIAS, 12 choice varieties for 6s., 25 for 10s. 6d.; Seedlings to bloom this year, 3s. per dozen; seed, 6d., 1s. and 1s. 6d. per packet.

HELIOTROPIS, 12 pretty sorts for 2s. 6d.

LANTANAS, distinct varieties, 2s. 6d. per dozen.

PELARGONIUMS, choicest sorts, 12 varieties for 6s. and 9s., 12 extra good 12s. and 13s.

ROSES in pots, huest Noisette and Tea-scented kinds, for forcing and indoor decorations, 15s. and 18s. per dozen.

SALVIA and TROPEOLUMS, finest sorts, 2s. 6d. per dozen.

See GENERAL CATALOGUE (130 pages), post-free 3d.

WM. CLIBRAN and SON, The Oldfield Nurseries, Altrincham; The Stamford Nursery, Bowdon; and 10 and 12, Market Street, Manchester.

ASPARAGUS.—This delicious vegetable does not require half the expense often incurred. For directions see Illustrated Seed List, free. Strong roots, 2s. 6d. per 100; extra strong ditto, two years old, 3s. 6d. per 100.

RICHARD SMITH and CO., Worcester.

LIMES.—Splendid LIMES, 6 to 8 feet, 40s.; 8 to 10 feet, 50s.; 10 to 12 feet, 80s.; 12 to 14 feet, 25 per 100.

BEECH, purple, 4 to 5 feet, 15s. per dozen, 25 per 100; 5 to 6 feet, 18s. per dozen, 47 per 100.

YEW, English, bushy, 3 to 4 feet, 60s.; 4 to 5 feet, 80s.; 5 to 6 feet, 25 per 100.

BOX, tree, 1 to 2 feet, 14s. per 100.

POPLARS, 10 to 12 feet, 25s.; 12 to 14 feet, 30s. per 100. 10 per cent. off for cash.

J. WRIGHT, The Nurseries, Pontefract.

CREEPERS FOR WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Descriptive LIST and advice Free.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

LONDON PLANE TREES, 20 to 25 feet high, for Street and Avenue Planting, 5s. to 7s. 6d. each.

ELMS, for Park Planting, 20 to 25 feet high, 5s. to 7s. 6d. each.

SILVER BIRCH, Specimen Trees, 20 to 25 feet high, 5s. to 7s. 6d. each.

POPLARS, Italian, Balsam, Lombardy, White Aspen, 20 to 30 feet high, 5s. to 7s. 6d. each.

All the above are very fine Specimen Trees, and will transplant safely.

GOLDEN ELDER Rushes, 6 feet high, 6s. per dozen, 40s. per 100.

Extra strong Fruit-bearing Standard PLUM TREES, 3s. 6d. each.

Extra strong Fruit-bearing Standard and Pyramid PEAR TREES, 3s. 6d. each.

The finest Trained PEACHES, NECTARINES, APRICOTS, PLUMS, PEARS, &c., together with the best Black, White, and Red CURRANT BUSHES. 25 per cent. allowed off Catalogue price for Cash.

JOHN FEED and SONS, Mitcham Road Nurseries, Streatham, S.W.

RHODODENDRONS, Hybrid and Ponticum, mixed, 1½ to 2 feet, per 1000, £10. HOLLY, common, 12 to 15 inches, per 1000, £6 10s.; do., 1½ to 2 feet, per 100, 24s.

GORSE, double, 1 to 1½ feet, per 100, 14s. ASH, Mountain, 3 to 4 feet, per 1000, 18s. SCOTCH FIR, 2 to 2½ feet, extra transplanted, per 1000, 20s.; do., 2½ to 3½ feet, per 1000, 22s. The above well rooted. CATALOGUES free.

HENRY DERBYSHIRE, Darley Hillside Nursery, near Matlock, Derbyshire.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 13 next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next.

A. F. BARRON, Hon. Sec., Royal Horticultural Society's Gardens, Chiswick.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS

WILL BE THANKFULLY RECEIVED BY

A. F. BARRON, Hon. Sec.,

Royal Horticultural Society's Gardens, Chiswick, London, W.

THE NEW CARNATION,

"MRS. REYNOLDS HOLE."

Coloured in *The Garden* of March 17, 1888—a most beautiful and remarkable introduction. 2s. 6d. each, 24s. per dozen.

Printed description, post-free, on application.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

CHRISTMAS ROSES.—Ten distinct varieties of this finest of hardy winter flowering plants, Carriage free, for 10s.

HEPATICAS, angulosa, 3s. per dozen; Single Blue, 2s.; Double Blue, 18s.; Single Red, 3s.; Double Red, 2s.; Single White, 3s. One flowering plant of each, free by post, for 2s. 9d.

MORRISON BROTHERS, Nurseries, Aberdeen.

NEW ENGLISH ROSES,

ready June 1.

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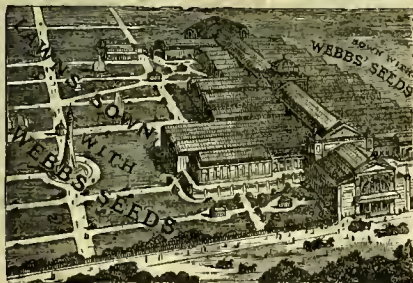
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 31, 1888.

TROPICAL AQUATICS.

BRITISH GUIANA.

EICHORNIAS AT HOME. — Adverting to the excellent illustrations of these beautiful and interesting plants published in the *Gardeners' Chronicle*, vol. xxv., pp. 17, 113, 1886, I may add that three or four species are very common here in Guiana, one of which, *E. speciosa*, occupies thousands of acres, many of which I see almost daily. Georgetown streets are intersected with wide canals, the surfaces of which are at times covered with such gregarious weeds as *Victoria*, *Nymphaea*, *Cabomba*, *Eichornia*, *Pistia*, *Utricularia*, *Ceratopteris*, *Marsilia*, *Azolla*, *Salvinia*, &c. I have said at times, because every now and then, with the general clearing up of the town, the canals are cleared of the surface weeds. If this should seem strange to any Northern reader, who has, perhaps, a high regard for these plants, some of which are very beautiful, let me explain that here springtime and summer are eternal—that weeds spring up in the wide-stretched smokeless towns, as well as in the country, and even their greater *confrères*, trees and Palms, are only kept down by the relentless rigour of municipal order and neatness.

Then the canals which surround the sugar estates, usually miles long, and which intersect the fields at right angles, are also covered in the same way during most of the year with these aquatic; lastly, *Eichornia speciosa* lines several of the smaller rivers in broad bands, which often stretch for leagues unbroken in length. The water in the canals and trenches of the town and the estates varies from 2—5 feet in depth, and in the parts of the rivers that are occupied it is several feet deeper. But in disused trenches on the sugar estates, that are more or less silted up, plants are found in patches, or mixed with sedges and grass here and there, and in these trenches the roots penetrate the mud on which the plants rest. But by far the greater part of the vast abundance of *Eichornia speciosa* found in the

colony—and also that which is most luxuriant—is in deep water, where the roots cannot reach the ground. In such situations it is gregarious, and, like several of the other plants I have mentioned, is rarely, or very little, mixed with the other weeds, and forms glorious unbroken sheets, in its earlier stages of growth displaying a wealth of pale green foliage, and subsequently of delicate azure-blue bloom. On the Canje River large masses frequently break away from the main colonies that line the river, and, meeting together, block the entire width of the river, and greatly impede navigation. Large snakes often lurk in these freed masses, and are with them floated to new situations, and occasionally find their way into boats or vessels lying at anchor, against which the weeds have drifted during the night. At length, after floating in the estuary with the tide for a few days, these plants are carried out to sea, and there perish, with the live creatures they may contain, if they are not caught by the coast currents, and carried to other rivers or situations where they can maintain life—for the water along our coast, owing to the great rivers which pour their volume into it, is only partially salt.

The inflation of the petiole is so contrived as to give the utmost support the tissue is capable of to the leaf, as a sail for the wind to act on; but I do not think this is a chief object, and for this reason, that it is most available where least required for such a purpose. When the plants are young the leaves spread nearly horizontally, and at this period of their growth the petioles are most inflated, and resemble small Oaious or large Gooseberries, of which they are about the size. As the plants develop the leaves become more and more erect, till in time they are quite perpendicular—that is, in beds of large healthy and vigorous plants; and as the leaves thus change the angle of direction the petioles gradually diminish in diameter, till in the ultimate leaves the inflation has almost or entirely disappeared. Here, in Guiana waters, at any rate, the leaves act very little as sails in the dispersal of the plants, which latter, when they break adrift, are carried almost entirely by currents to whatever destination the nature of the place in which they are located may permit of their reaching. All the species I know grow in the full open sunshine.

Like nearly all aquatic plants, the Eichornias spread exclusively by the medium of water. The seed floats, and wherever there is water communication it spreads; but the narrowest strip of land that excludes communication will permanently prevent its passage from one water to another. For instance, in the extensive lakes dug several years ago in these gardens not a plant of *Eichornia speciosa* has yet appeared, though it is growing in profusion in the trenches of all the surrounding properties; and in the Lamaha canal, that supplies Georgetown with water from the interior, I have never seen any such plants—an immunity due simply, I believe, to its high level and still higher banks, which prevent the water of the outside trenches, though only a few yards off, from ever running in. I have no doubt, however, that animals of aquatic habit, such as alligators, as they pass from one water to another, may possibly sometimes carry seed adhering to their bodies, and so aid in the dispersion; but this form of communication, though alligators are common, has not yet occurred in the waters I have just mentioned. Once established, which would soon be done by the introduction of seed or a few plants, it is difficult to eradicate, though this might be done, of course, by removing the plants before they arrive at the flowering stage. It is estimated that about 25,000 dollars are spent in this colony every year in keeping down this and other aquatic weeds in the canals and trenches; for so slight is the fall or gradient available, that a covering of weeds in the draining trenches almost entirely stops the flow,

and in the navigation trenches, by which the cane are transported from the fields to the manufactory, passage would be impossible if the *Eichornias* were not cleared away.

The conditions under which the young plants come into life and spread over the water are very curious. One sees an extensive sheet of water suddenly covered with tiny plantlets, there being no spaces between them, and one would think that the seeds had been placed by hand just so far apart as to give the infant plant the exact room and no more than it required. But at this time the plants are less than one inch high, and when they are full grown one finds they still have just the space required and no more, there being at any time of the growth hardly an inch wasted anywhere. The explanation is that living in such a plant medium as water they make for themselves the elbow-room required by pushing each other outward and onward till the whole water, or the area they require of it, is covered with the sheen of their pure and delicately coloured leaves. At this time each individual plant is free from communication with its neighbours, but subsequently they throw out stolons, just as Strawberries do, and thus they interlace and become in time so matted that the entire lot forms a homogenous mass. Extensive sheets abound of *Azolla* and *Salvinia*; these plants are always free from one another—there is no crowding, no overriding each other, but each plant has exactly the space required for it with hardly room for the end of a quill to be inserted anywhere between them, all other plants are excluded from the community. I may mention that cattle are very fond of both *Nymphaeas* and *Eichornias*, and may often be seen in the trenches of estates up to their backs in water licking the herbage off the surface. Coolies also, who feed cows, invariably cut to the level of the water any *Eichornias* they have access to. *E. speciosa* is the most aggressive, and taking the great extent of it, the most obtrusive species here; but one tires of anything, however beautiful, that is so common; and I think *E. natans*, which has floating leaves not much larger than a shilling, with darker blue flower, and which grows in patches along the rivers, is the prettiest of all the kinds we have. *E. tricolor*, mentioned by Mr. Ridley as common at Pernambuco, I have not come across in Guiana. *G. S. Jenman, Government Botanist, British Guiana, Feb. 1.*



NEW OR NOTEWORTHY PLANTS.

AGAVE (EUAGAVE) BAXTERI, Baker, n. sp.*

This is a new species of *Agave*, which is now in full flower in the Cactus-house at Kew. It resembles *A. americana* and *mexicana* on a dwarf scale. It was received in 1882 from the botanical garden of Oxford, and no doubt is a native of Mexico.

Leaves about thirty, in a dense sessile rosette, oblanceolate, about a foot long, 3 inches broad above the middle, narrowed gradually to $1\frac{1}{2}$ —2 inches above the dilated base, very glaucous when young, the pungent brown tip shortly decurrent, the spreading hooked deltoid-cuspidate brown, marginal spines $\frac{1}{2}$ — $\frac{3}{4}$ inch long at the middle of the leaf. Peduncle 4—5 feet long before the flowers begin. Panicle thyrsoid, lax, 4—5 feet long; branches stiffly erecto-

* *Agave (Euagave) Baxteri*, Baker, n. sp.—Acaulis; foliis circiter 30 dense insulatis oblanceolatis pedalis glaucis, spinâ terminali pungente breviter decurrente, aculeis marginalibus magnitudine medioeribus brunneis uncinatis; panicula thyrsoides 4—5 pedali; floribus ad ramorum apices dense glomeratis; ovario cylindrico-trigono unciali; perianthii tubo semipollicari medio dilatato, segmentis lanceolatis tubo æquilongis; staminibus breviter exsertis.

patent, the central ones not more than 3—4 inches long, bearing the flowers in a single dense cluster at the tip. Ovary cylindrical-trigonal, an inch long. Perianth tube yellow, $\frac{1}{2}$ inch long, suddenly dilated at the middle; segments lanceolate, as long as the tube. Filaments inserted at the throat of the tube, $\frac{3}{4}$ —1 inch long; anthers linear, $\frac{1}{2}$ inch long. Style just overtopping the stamens. *J. G. Baker.* [This handsome species was exhibited at the meeting of the Royal Horticultural Society on Tuesday last, En.]

CÆLOGYNE HUMILIS, (Lindl.) ALBATA, n. var.

This is now blooming in the establishment of Mr. F. Sander, who kindly sends it to me. The sepals and petals are snow-white, the lip also, but with light mauve-purple radiating lines over it, which are seen to consist, when carefully inspected, of numerous small confluent spots. A conspicuous orange spot occurs on each side on the anterior part of the lip. It is a gem quite distinct from *Cælogyne humilis*, Lindl. (=tricolor mihi) that flowered first in March, 1880, with Mr. W. Ball, then with Mr. B. S. Williams, who gave a nice representation of it in the *Orchid Album*, iii., 102. It is a very curious fact that the top of the column in *Cælogyne* is subject to numerous variations. The queerest came from Mr. C. G. Hill. Two flowers from Khasi, given me by my late friend, Mr. J. G. Veitch, have the one an entire, the other a trifid androclinium. Excepting this they are quite equal. *H. G. Rehb, f.*

DENDROBIUM PITCHERIANUM, n. hybr. nat.

Mr. F. Sander kindly sends me a two-flowered raceme of what he supposes to be a natural hybrid between *Dendrobium primulinum* and *D. nobile*, asserting that the stem is quite like that of *Dendrobium nobile*, and wishing me to name it in honour of Mr. J. R. Pitcher, Shorthills, New Jersey, U.S.N.A., a most enthusiastic orchidist. The flowers are equal to those of a good *Dendrobium primulinum*. Both sepals and petals are much like those of that species, as they are rather narrow and straight. The ligulate blunt sepals are whitish, rosy, with fine purple tips. The petals are broader, with a deep purple tip, and a broad distinct rosy mid-line from the tip to the base. It is an exceedingly curious and rare fact, that the colours of the flowers are far deeper outside. The lip is very interesting. From a short stalk, green at the base, it is enlarged into a heart-shaped semi-oblong subacute body. This, however, is the outline after artificial expansion, and it answers well the outline of the lip, not of *Dendrobium primulinum*, but of *Dendrobium nobile*. Naturally the lip is involute at the base and subacute before the apex, thus making a sort of a *goltre* with a flat surrounding margin. Its colour is light sulphur. The callous abrupt line in the middle of the disc before the base is whitish. The apex of the lip is purple, and there are dark purple, nearly parallel stripes on both sides of this callous part. Both sides of the surface of the lip are most densely covered with very short hairs. The column is small, green, with semisigmoid side wings at the sides of the anther, and with a linear purple tooth in the middle of the back. There is no little hollow to be seen at the base of column. It may, however, appear in the established plant. The anther looks quite abortive. It is very thin, its upper part looking like a purple Phrygian cap that has been made of an insufficient quantity of cloth. The bulbs and leaves are said to be like those of *Dendrobium nobile*. I think Mr. Sander's suggestion about the origin is quite right. *H. G. Rehb, f.*

ONCIDIUM (CYRTOCHILUM) DETORTUM, n. sp.*

This is a fine *Cyrtorchilum*, comparable to *Oncidium serratum* and to *O. lamelligerum*. I had splendid materials from Mr. F. Sander, but do not

* *Oncidium (Cyrtorchilum) detortum*, n. sp.—Pedunculo volubili forti multirameo; ramis paucifloris (ad 4); bracteis spatulatis acutis ovaria pedicellata dimidio-subaequantibus; sepalis unguiculatis oblongis acutis undulatis, unguibus basi auriculatis; tepalibus brevibus unguiculatis oblongis acutis undulatis; labello trifido, lacinia lateralibus triangulis divaricatis, lacinia mediana ligulata acuta, carinis infima basi septenis

know the old bulb, which may be like those of the just-named species. The leaves are broad, oblong, acute, and of light green in their youth. The inflorescence must make a considerable mass, the fragments kindly sent me exceeding 5 feet in length. The flowering branches of the very strong twisted peduncle are short, and I have none with more than four flowers. They are of the shape of those of *Oncidium serratum*, but a little smaller. The sepals are very shortly unguiculate and auriculate, cuneate, oblong, acute, wavy, light brown, the odd sepal with a little yellow at the upper part. Petals with shorter stalks, very wavy, yellow, with brown spots. Lip with two rectangular, spreading, triangular side-laciniae, and a ligulate, acute, protruded mid-lacinia. The system of calli is very complicated and peculiar. At the base there stand seven parallel linear keels, three of which are longer than the others, which are easily overlooked. In front there is one keel, and on each side of it a series of four subulate acute bodies. Then there is a keel on each side forcing it from the outside and bent at a right angle parallel with the four small subulate teeth. The column is acute at the top and has two small cuneate bidentate wings. *H. G. Rehb. f.*

DENDROBIUM MACROPHYLLUM (A. Rich.) STENO-
TERUM, n. var.

The greater number of specimens of *Dendrobium macrophyllum* (A. Rich.), (Veitchianum, Lindl.) have irregularly square side laciniae to the lip, and a very conspicuous chin. Mr. W. Bull has just sent me a small flowered raceme. The side laciniae of the lip are triangular and narrow, and the mentum is very inconspicuous. The sepals and petals are ochre-yellow, spotted with dark reddish-brown dots outside (not inside!) The lip is yellow, with numerous dark brown dots on the outside, and rather pallid spots and markings on the inside of the mid-lacinia, while there are a few brown lines on the side laciniae. The column has mauve-purple lines and spots under the fovea. I had the same plant before once, but with yellow flowers. *H. G. Rehb. f.*

CALADIUM BICOLOR GEHEIMRAT SINGELMANN.

Disc of leaf and nerves yellow, with fringes of red colour along the side of the nerves.

SCOTLAND.

TUBEROUS BEGONIAS AS BEDDING PLANTS IN SCOTLAND.

Your note on p. 307 respecting the growing interest in the above in Scotland and America as bedding plants recalls several notes of my own experience on the subject, dating back more than ten years. On reading your note I was reminded of the brilliant effect produced by several masses of tuberous Begonias planted in the kitchen garden at Drumlanrig about eleven years ago. They were ordinary seedlings—very ordinary, as compared with the beautiful varieties that may be reared from seed at the present time; yet they were even then more effective than the average bedding Pelargonium. They stood the climate well—that is, the climate of Drumlanrig—therefore were a good test for Scotland generally, for that famous place for flower gardening has been made so more by the munificence of its late proprietor and the skill of the present gardener than by any local advantages of soil or climate, for these are wholly bad. But to come to the point: it would be interesting to know whether Mr. Thomson still thinks as well of tuberous Begonias as he appeared to do with good reason about the time alluded to. His intention then was to extend his experiments with them. If he did so, his experience would be interesting if recorded.

parallelis, geminoribus externis utrinque minutis, carina anteposita longa serie quatuor papularum subulularum utrinque, carina ex margine extensorius insulante, dein antorsum decurrens parallelis cum apiculis quaternis jam descriptis; columna vertice acuta albis minutis cuneatis apice bidentatis. Mis. ex. Sander. *H. G. Rehb. f.*

From my own experience, though limited to the North in this particular, I can say I am entirely in favour of the adaptability of tuberous Begonias to the purpose of bedding-out in Scotland. In proof let me state, that about nine years ago I had charge of a place not far from Edinburgh, where my predecessor had bedded out a considerable number of the subjects in question the previous summer, but had omitted to lift the tubers in autumn. On commencing in spring to turn over the borders in which they had been planted, a very considerable number of fine healthy roots of the Begonias were dug up. They were perfectly sound, and on being put into heat started with a vigour that soon outstripped the dry stored winter tubers. A selection was kept for the greenhouse and the rest planted out, with the result that they proved the gayest things and most admired flower garden plants that season.

What became of those beautiful varieties of *boliviensis*, *Sedeni*, *Vesuvius*, I know not; but the next prominent example of success with tuberous Begonias as bedding plants that came under my notice in Scotland, occurred last year in Mr. John Downie's nursery, Beech Hill, Edinburgh. In this case the varieties were much superior to those I had to do with nine years previously. The varieties, although represented to me as being merely seedlings, were so fine in the size and colour of the flowers, and in the habit of the plants, as to suggest the idea that they were a batch of selected sorts that had by accident lost their labels, and been planted out, as is often done in such cases, to give an opportunity for identification. My experience of bedding-out in Scotland has been very limited during the past nine years, I am, therefore, unable to say what progress has been made in the use of tuberous Begonias; but Mr. Downie assured me that he was so much impressed with the interest taken by visitors in his display of them last summer, that he intended to have a large stock of tubers to offer to his customers for the next season. *Boliviensis*.

ORCHIDS AT THE KILNS, FALKIRK.

Few places of more interest to the Orchid fancier exist in Scotland than this. It is situated on a steep sunny slope about three-quarters of a mile to the west of Falkirk, well sheltered from the north and east. Mr. Gair's horticultural tastes are thoroughly catholic, consequently he has combined a rich variety of feature with excellent taste. The collection of Orchids is more remarkable for the number of choice and valuable things it contains than for its extent. A flowery collection it could not be called at the time of my visit, but the good health of every plant was a gratifying sight, and reflected credit on the cultural skill of Mr. George Fairbairn, who for the last nine years has had charge of it.

The following amongst other evidences of superior culture were noticeable:—*Dendrobium Jamesianum*, having eleven strong one-year-old growths and many of greater age, is probably one of the finest specimens of this species in the country; *Odontoglossum* have exhibited enormous pseudobulbs, 5 to 6 inches in length, and 2½ inches in diameter, from which were arising spikes of corresponding luxuriance; *O. Pescatorei*, a robust plant and a grand variety, bore three spikes of an average length of 4 feet each, of which one bore ninety-five blooms, and the others eighty each; *O. crispum*, a variety with pure white flowers of great substance and 5 inches across, the spikes rising from pseudobulbs 6½ inches long, is a much prized plant of Mr. Gair's. *Dendrobium Walkerianum* and *D. chrysotoxum* were to be seen in magnificent examples about 3 feet through and correspondingly high, thickly studded with flowering growths. The collection of *Odontoglossum crispum* consists of the best selections from Messrs. Veitch's celebrated importation of 1865. Other forms of the genus are numerous and choice. A fine plant of *O. Rossi majus* was remarkable for the depth and purity of its colour and the size and substance of its flowers which measured over 3½ inches across. *O. cordatum Patersoni* and *O. maculatum superbum*

were blooming freely. Two fine plants of *O. pulchellum majus*, about 2½ feet across, and differing somewhat in the purity and size of the flowers, were unusually free in the display of bloom. *O. bicondense album* was here represented by a very fine plant, blooming freely. A remarkable variety of *O. triumphans*, with a spike of eleven blooms of great substance and depth of colour; and *O. Cervantesi decorum*, which in regard to the chaste and delicate colouring it presents is one of the most charming of Orchids, must close my notes on *Odontoglossum*.

Amongst Cattleyas, one form of *C. Trianae* was very noticeable, on account of a deep yellow bar extending along the middle of the two lower sepals from their base to their tips. The ground colour was deep rosy-purple, and the flowers were otherwise remarkable for their great size and good substance. *C. Trianae alba* was represented in a very fine plant passing out of bloom, and an equally good plant of *C. Warszewiczii delicata*, which was at its best, and in its chaste colours, completes the list of this genus in flower. We noticed, however, splendid plants of *C. crispata*, *C. purpurata*, *C. labiata*, *C. Warneri maxima*, *C. aurea*, *C. exoniensis* × *C. Bluntii*, *C. Harrisoni*, *C. violacea*—the latter said to be the finest in the country, and *C. crocata*, fine well developed plants, in luxuriant health. Regarding *C. dolosa*, which attracted attention by its fine growth, I noted that Mr. Fairbairn, contrary to usual practice, grows it in his warmest houses. He finds it grows more freely and flowers better when so treated.

Cypripediums are well represented by healthy well grown plants.

Of *Cologynas* there are a number of very fine plants of *C. cristata*. A recently imported piece of the species, occupying a pan about 2½ feet through, in flower, showed three distinct forms one the ordinary form and colour, another with a deep orange bar, and the third with a clear pale lemon bar on the lip, each of the two latter having also well marked but indescribable differences in the size of the parts of the flowers. There were also specimens of the old-fashioned but interesting *C. media* and *C. flaccida*.

Calanthe Regnelli was flowering well, and exemplifying its usefulness as a late flowering species. At The Kilns it appears to form branching spikes. Is this the general experience with it elsewhere, or is it merely the result of extra luxuriance? As the branches appear to succeed the principal spikes, the peculiarity is a desirable one, as prolonging the period of bloom.

Aërides, *Saccolabiums*, *Angraecum sesquipedale*, *A. Mastersii*, *A. hyaloides*, and *A. citratum*—the two latter showing their interesting flowers in baskets suspended from the roof—were growing in the same atmosphere as specimens of *Phalaenopsis Sanderiana*, and others, all, particularly the latter, being in splendid health. Near by these also were capital plants of *Dendrobium Brymerianum*, *Cymbidium Lowii* coming into flower, *C. eburneum* in full flower, and fine plants of *C. e. Dayanum*.

Masdevallias are well represented by grand plants, but they had mostly ceased flowering when I saw them. S.

MUSHROOM GROWING WITH LEAVES AND LITTER.

Is the present orthodox system of making elaborate selection and preparation of materials with which to grow Mushrooms essential to success? I consider it unnecessary to follow the instructions generally given, to exclude all the straw from the droppings, to have them removed under cover, and thrown into a heap, then thrown out into ridges, and turned about for the best part of three weeks. Neither is horse manure an essential material wherewith to produce Mushrooms of good quality. This season it so happened we did not require the usual places in the Mushroom-house set apart for the growing of Rhubarb, Seakale, &c., and it occurred to me that this space might be utilised for Mushrooms. I happened to have a large

heap of material of which I was constructing hot-beds and covering Vine borders which contained Vines we had lifted; this heap consisted of old stable-litter, which had laid in a heap for six months, and was quite white with mould, and dry for want of rain sufficient during the late summer to produce fermentation. This dry stuff, be it remembered, had the larger proportion of the droppings shaken out for the forming of Mushroom beds in the usual way as it was brought from the stables. This, with some fresher litter brought from the stables, together with fallen leaves of various kinds—a mixture of Spanish and Horse Chestnut, Lime, Elm, Ash, and Beech—the latter predominating—was all thrown into a heap in the dung-yard in the proportion of three cartloads of leaves to one of litter. The heap was turned three times, at intervals of about four days each, and was then made up into beds in the Mushroom-house, trampling it down hard. The depth of the bed when completed was about 18 inches. When the internal temperature of the bed had fallen to 85°, spawning and soiling over were done in the usual way. To-day the beds are carrying a good crop of Mushrooms, in size equal to those grown on beds formed entirely with droppings. I send you a box with a clump lifted from the bed, also a portion of the material. [A very nice sample. Eo.]

The cause of failure to grow Mushrooms is often to be traced to the bad quality of the spawn, but I have not had a failure for many years. There are many persons who would like to turn their attention to growing Mushrooms, but are deterred therefrom on account of the difficulty of procuring the horse-dung. Now, if any one would-be cultivator will procure three cartloads of dry leaves and one load of long stable litter, and ferment them, he will not fail to get a good crop of Mushrooms.

In these times of agricultural distress I consider it a censure upon our intelligence and enterprise when we import from the Continent every year such a very large quantity of this favourite esculent, which could be reared at home and sent to our markets in good condition, and even exported to the Continent. There are many sheds standing about farmsteads unoccupied during a great portion of the year which might be utilised for the growing of Mushrooms. It is not as if the growth of these deprived the land of its dressing of manure, for the manure is still useful as such after it has yielded its crop. To grow Mushrooms in farmyard manure alone would necessitate its being turned over frequently, in order to get rid of the strong heat. *W. M. Baillie, Luton Hoo.*

ROOT-CROPS.

An important and valuable contribution to agricultural literature has just been published, *On the Growth of Root Crops*, comprising the results of forty-five years' experiments at Rothamsted,* much of which may with advantage be applied to horticultural practice.

The introduction of Turnips, says Professor Gilbert, into agricultural rotations may be said to have been one of the most important improvements of recent times. From certain characters of the Turnip plant, especially its abundant leaf-surface, and from certain conditions of its growth, it has frequently been assumed that it is largely dependent on the atmosphere for its nitrogen, and that it is, in fact, a collector of nitrogen for the crops grown in alternation with it.

But the experimental evidence brought forward from the Rothamsted experiments does not support this conclusion, showing that Turnips depend for their successful development on large quantities of manure; for when grown without manure, even from the same seed as the manured crops, either for a few years in succession on the same land, or even in rotation, they soon revert to the uncultivated condition.

The object to be attained in the cultivation of root crops, says the author, is to encourage by artificial means an abnormal development of a particular part of the plant. If the Turnip were grown for its natural seed product, oil, a heavier soil would be more suitable than when the object is to develop the swollen root; in our climate a biennial habit would be induced, and it would be so grown as to be exposed to the summer temperature at a later stage of the development, or life history, of the plant, that is, at the seed-forming and ripening period. Under these circumstances there would be much less of fibrous root distributed through the surface-soil; the main root would be much less bulbous and more fusiform, tapering rather than spreading laterally; the leaves and stem would be much larger both actually and proportionally to the root, and the enlarged root itself would serve as a store of material for the second or final growth.

If nitrogenous manures are used in excess for the Turnip crop, that is, in such amount as so to force luxuriance that the roots do not properly mature within the season, there is found to be not only a restricted production of root, but an undue amount and proportion of leaf. In fact, it is found that the higher the nitrogenous manuring and the heavier the soil the greater is the tendency to produce leaf rather than root.

In the case of both common and Swedish Turnips, the leaf contains a much higher percentage of dry substance than the root; and the dry substance of the leaf contains a much higher percentage of both nitrogen and mineral matter than does that of the root.

COMMON TURNIPS.

Common Turnips yield a much larger proportion of leaf to root than Swedish Turnips or Mangels, and if the leaf be unduly developed, there may even be more nitrogenous and mineral matter remaining in the leaf to serve as manure again, than is accumulated in the root to be used as food.

The selection of the proper description of roots to be grown cannot be settled merely by a consideration of the amount of produce obtained from a given quantity of manure, or of the proportion of the crop which is available as food for stock, or which only remains for manure again, or of the high or low percentage of solid matter in the food portion of the crop. The general economy of the farm, the character of the soil, but more especially that of the climate of the locality, must also be taken into account. The great influence of climate is strikingly illustrated by the different proportions in which the different descriptions of roots are grown in different divisions of the United Kingdom, as shown by the following table:—

Area under Turnips and Mangels in England and Wales, and Scotland.

Mean of Five Years, 1882—1886.					
		Actual area.		Percent. of total area.	
		England and Wales.	Scotland.	England and Wales.	Scotland.
		Acres.	Acres.	Per cent.	Per cent.
Turnips *	...	1,531,921	437,510	81.9	99.7
Mangels...	...	337,521	1,432	18.1	0.3
Total ...	...	1,869,442	439,242	100.1	100.0

* Including Swedes.

It is seen that the average area under the various descriptions of Turnips is, in England and Wales, rather over 1,500,000 acres, whilst in Scotland it is less than half a million acres. Again, the average area under Mangel Wurzel is 337,521 acres in England and Wales, and only 1,432 acres in Scotland. Further, whilst about 18 per cent. of the total area under roots in England and Wales is devoted to Mangels, less than a third of 1 per cent. of the total area in Scotland is devoted to that crop.

SWEDISH TURNIPS.

The root of the Swedish Turnip contains a smaller

percentage of water, that is, a higher percentage of solid matter or food-material, than that of the common Turnip. The dry or solid matter of Swedish Turnip root also contains a lower percentage of mineral matter, and, consequently, a larger proportion of organic food substance. Superphosphate is more beneficial to Swedes and Turnips than to Mangels, but in each description of plant the amount of dry substance grown has a very direct relation to the amount of nitrogen available within the soil. But more vegetable substance was produced, and more stock food yielded, from a given quantity of nitrogenous manure applied to Mangels than to either description of Turnips.

By the application of nitrogen to the soil for Mangels there was, in many cases, an increased assimilation of about a ton of carbon per acre from the atmosphere.

The experiments showed a higher percentage of dry matter in Swedish than in common Turnips, and a higher percentage in Mangels than in Swedes. But with each description of roots the range in the percentage was considerable, according to season and to manuring. The percentage of dry matter was the lower, the greater the excess of nitrogenous manure, the greater the luxuriance, the larger the crops, and the less matured the roots; and it was, conversely, the higher the more matured the roots. The percentage of mineral matter in the roots was the higher the greater the luxuriance, and the more crude and unripe the roots. The percentage of nitrogen in the roots was small, and very variable. It was the higher the more nitrogen was applied by manure, the greater the luxuriance, and the less matured the roots; and it was the lower the riper the roots.

MANGEL WURZELS.

The proportion of Mangel leaf to root is, as a rule, very much less than in the case of common Turnips, but more than in that of Swedish Turnips.

With the more extended root range of the Mangel, it is less dependent on continuity of rain when growth is once well established; and it requires for its full development a higher temperature than the Turnip.

The Mangel root contains a higher percentage of solid matter than either common or Swedish Turnips. But whilst the Turnip leaf contains a much higher amount of dry matter than the Turnip root, the Mangel leaf contains a much lower percentage of dry matter than the Mangel root, and also a very much lower proportion than the Turnip leaf.

As in the case of Turnips, the dry substance of the Mangel leaf contains a much higher percentage of both nitrogen and mineral matter than does the dry substance of the root. Indeed, the dry substance of the Mangel leaf contains not far from twice as high a percentage of mineral matter as that of the Turnip leaf; but it contains upon the whole a rather lower percentage of nitrogen than that of the Turnip leaf. It would seem that the Mangel leaf is more fully exhausted of migratory organic matters in the greater development of the root than is the Swede leaf; and more still than the common Turnip leaf.

Taking the average of six years the amount of nitrogen recovered in the increased crop of Mangel roots was about 60 per cent. of that supplied when nitrate of soda was used; about 42 per cent. when ammonium salts; about 50 per cent. when rape-cake, and about 46 per cent. when an excessive amount in a mixture of rape-cake and ammonium-salts was employed. There was, also, an additional amount accumulated in the leaves, but these were annually returned to the land as manure.

When farmyard manure is applied for Mangels, larger amounts of nitrogen as supplied per acre than were used in any of the Rothamsted experiments with artificial manures, a less proportion of the nitrogen supplied is recovered in the increase of crop, and more remains for the future crops. It is the nitrogen in the urine of the animals that is first rendered available within the soil, then that of the finely comminuted matter mixed with some

* Lecture by J. H. Gilbert, M.A., LL.D., F.R.S., Sibthorpian Professor of Rural Economy in the University of Oxford, at the Royal Agricultural College, Cirencester.

secretions in the solid excrement, and finally that of the litter.

Nearly two-thirds of the dry substance of Mangels was found to be sugar. The percentage of sugar was the greater as the roots were the more mature, and it was consequently the greater in the roots of the smaller crops. But the amount of sugar per acre was much the greatest with the largest crops; that is, when the most nitrogen was applied in the manure. The roots grown by farmyard manure alone contained more than 1 ton of sugar per acre, and by the addition of artificial nitrogenous manure to the farmyard manure there was an increase of more than half a ton of sugar per acre. In several cases the addition of artificial nitrogenous to a complete mineral manure increased the production of sugar by more than a ton per acre.

By the addition of nitrogenous to a complete mineral manure, 1 lb. of nitrogen applied as nitrate of soda yielded an increase of 22.1 lb. of sugar; 1 lb. nitrogen as ammonium salts, 19 lb. of sugar; 1 lb. as rape-cake, 20.8 lb. of sugar; and 1 lb. of nitrogen applied in excessive amount in a mixture of rape-cake and ammonium salts gave an increase of only 13.7 lb. of sugar.

Feeding roots are essentially sugar crops. Although the percentage of dry matter varies considerably with each description of root, according to the conditions of growth, the average amount of dry matter may be taken as, approximately, 8 per cent. in white Turnips, 9 per cent. in yellow Turnips, 11 per cent. in Swedes, and 12.5 per cent. in Mangels. Of the dry matter of white and yellow Turnips nearly or more than half may be sugar: of that of Swedes more than half, and of that of Mangels nearly, or as much as two-thirds may be sugar.

In cereal grains the proportion of albuminoid matter to non-nitrogenous food materials about as 1 to 6. In roots the albuminoid ratio varies very greatly; but it is probably seldom more than 1 to 12, and frequently as low as 1 to 20, or more. The ratio will probably, as a rule, be lower in Swedes than in common Turnips, and lower still in Mangels. *W.*

ORCHID NOTES AND GLEANINGS.

PONTHIEVA GRANDIFLORA, *H. N. Ridl.* in *Gard. Chron.*, March 3, 1888, p. 264.

It is very satisfactory to learn what are the colours of the *Ponthieva* (*Disepale*) *andicola*, *Rchb. f.*, described as long ago as 1876 in Professor Garcke's *Linnaea*, xli., p. 52, No. 161. I am sure to be right when combining the two names, as the greater part of the description and the original fully agree, and as two of Dr. Spruce's specimens are before me, I feel greatly surprised at the words "*lamina longiformis*," "*Forma*" means the circumference of a body, and "*longus*" one of the dimensions. Those words cannot be combined, and the expression reminds me of a *Sesia*, a butterfly, which was called "*rubriformis*." (Another lepidopterologist wished to improve the name, and named the wasp-like creature in compliment to its discover, "*Schmidtiformis*," although Mr. Schmidt was quite a normal gentleman.) I have described the lip at the place quoted, "*labello longius unguiculato extenso, triangulo sagittato*."

There is a group of four species, which are like old *Ponthieva maculata* of Dr. Lindley, but which have the lateral sepals more or less connate: *sylicola*, *andicola*, *cornuta*, *inaudita*, all described by me in the journal cited as early as 1876. My *Ponthieva andicola* was most probably discovered by our excellent friend the late Professor Jameson, who sent it (long before he was my correspondent) to Sir William Hooker. It was also collected by the late Dr. Seemann in Ecuador, being his No. 897. Then Dr. Spruce gathered it at Llalla, in the Quitinian Andes. I have not the least hesitation in publishing the locality, as the plant will never be searched for by the amateur *à la mode*, though it might be very welcome to collectors

who have a heart for lovely small things, and to botanic gardens. I do not believe, however, that it could be brought over to Europe when packed, or, if you like better, not packed, in the usual manner. I remember a collector who danced a polka mazurka over his Cattleyas to press them down so as to have more space, &c. A good traveller, having a heart for plants, might bring it himself.

I have two specimens of Dr. Spruce's, one of which is two-leaved, one one-leaved. Some very curious specimens from Mr. (now Consul) F. C. Lehmann are smaller, and may come from a very high altitude. They have rather small leaves, and one is four-leaved, and has two peduncles, which would be quite extraordinary. It appears that, alas! the under parts of the specimens are affected by mould, and scarcely permit of softening. Yet I looked very carefully to the status, and believe I am right. *H. G. Rchb. f.*

LELIA ALBIDA VAR. SULPHUREA

Is a lovely chaste variety; like the species, it is a compact evergreen plant; the pseudobulbs are oval, sulcate, about 3 inches high, each bearing a pair of lanceolate-acute leaves; the spike is produced from the top of the bulb after growth is completed; the sepals and petals are sulphur-yellow, whilst the top is crested with orange, the anterior lobes being tipped with a dull rosy-purple colour. Independent of their beautiful colour, these flowers are deliciously fragrant, which considerably enhances their value, as everyone admires sweet-scented flowers. It blooms in our stoves during the months of November and December, and remains in beauty for several weeks.

The species here portrayed was grown by Mr. Maulden, the gardener in charge of Mr. Walley's collection. It was placed in a basket and suspended near the roof-glass, that it might receive the full benefit of the sun and light, whilst the potting material was simply rough fibrous peat. All Mexican Orchids require a great amount of sun under cultivation; a slight shade is, however, beneficial during the hottest part of the day, as it prevents the leaves from becoming scorched by the glass. In their native country these plants grow at from 1000 to 6000 feet elevation, exposed to the full sun and rain, where it is very hot during the day, and the nights very cool. While they are growing a liberal supply of water is absolutely necessary for their roots, and a slight syringing daily. "*Orchid Album*," February.

CATTLEYA BICOLOR

Is a very distinct and desirable species; it also has the additional recommendation of blooming in the autumn months, when flowers are usually scarce, and single flowers, when mounted, are very much in request for buttonhole decoration and similar purposes. . . . The material which Mr. Simkins, who has charge of Mr. Measures' collection, uses for this species is rough fibrous peat. The pots, however, are thoroughly drained by being filled three parts full of potsherds, over which is placed a thick layer of sphagnum moss. The plant should be elevated upon a cone-like mound well above the rim of the pot, to afford a greater surface for the roots, and in order that the water may pass away rapidly from the young shoots. The intermediate or Cattleya-house suits this plant well; it should have good exposure to light, but must be slightly shaded from the hottest sun. It does not appear to like being disturbed when thoroughly established, neither does it like being cut for propagating purposes. "*Orchid Album*," February.

MESOSPINDIUM VULCANICUM.

The locality in which this plant grows wild naturally points to its requiring cool treatment under cultivation, which renders it more valuable to those having but limited means, and at the same time being of dwarf habit it occupies but little space. We find it one of the earliest plants to grow, and that it thrives well associated with *Odontoglossums*, either in pots or hanging baskets; these must be thoroughly drained. The soil we use is a mixture of rough fibrous peat and live sphagnum moss, but the plant

should not be overburdened with soil, although it requires to be made firm. When growing this plant enjoys a liberal supply of water, and after growth is completed it must by no means be allowed to suffer from drought, but should be kept sufficiently moist to maintain the bulbs in a plump and healthy condition. The growing season commences just after the flowers have faded, and this is the best time to report if necessary; but should the soil about its roots still remain in good condition, it will not be wise to disturb it. This species enjoys light, and delights in a free circulation of air if well charged with moisture; yet, like the *Odontoglossums*, it requires to be shaded during the hottest part of the day. Plants subjected to the above treatment will be found to grow vigorously—the exposure to the light will ripen the bulbs, and thus cause them to produce flower-spikes more freely; and these when expanded are so exceedingly beautiful, that they will be found to repay one for every care and attention which may have been bestowed upon them.

When desirable to increase the number of plants of this species, propagation may be effected by division just at the time the new growth appears—not less than two old bulbs being left at the back of the leading shoot. These divided species should be placed in small pots, using the same compost as that previously recommended; then put them in a shady part of the house until they begin to grow and new roots are formed, after which they may be treated as established plants. *Mesospindiums* are not very subject to the attacks of insects, but should they become infested these pests will soon injure the young growths if not speedily destroyed. "*Orchid Album*," February.

ANGRÆCUM SANDERIANUM.

Amongst recently introduced Orchids this species certainly occupies a foremost place. It has been introduced from the Comoro Islands through the agency of Mr. F. Sander, at whose establishment at St. Albans it has lately been flowering in large quantities. In shape the leaves resemble those of *Phalænopsis violacea*, having also a similar light green colour. Reichenbach, in his description of the species in the *Gardeners' Chronicle* (p. 168), speaks of the largest leaf under his notice as being 4 inches long by 1½ to 1¾ inch wide; a plant in flower now at Kew has, however, leaves about twice as large.

The Kew plant carries three spikes, each bearing from twelve to fifteen flowers, which have the distinctive arrangement characteristic of *Angræcums* and measure 2 inches across the sepals; the spur is 3 inches long, and, like the rest of the flower, is pure white. Treatment in all respects similar to that usually given to *Phalænopsis* suits this Orchid perfectly, and it is one which all-growers who are in a position to meet its requirements certainly ought to possess. *W. B.*

UNUSUAL GROWTH OF CALANTHE VEITCHII.

In the autumn mention was made in a contemporary of a curious growth of *Calanthe Veitchii*, which had occurred in the collection at Gunnersbury Park, and in others, including ours, the unusual occurrence consisting in the formation of the flower-spikes. In our plants the bulbs formed were larger than we usually have them, the largest being 15 inches in length—a result due to the tropical nature of the late summer, or to a more than ordinary liberal treatment afforded the plants, but probably each cause assisted in the increase of size. The flower-spikes came up of great strength, and in their early stage of growth led us to suspect they would turn out to be either sterile monostrophies or pseudobulbs; their bracts were unusually numerous and large, some of them equalling in size an ordinary leaf, while several inches at the base of the spikes were enlarged and fleshy—so much so, that it was anticipated some of them would break into growth. I have waited for this result—its further development—with much interest, and in two instances this has actually taken place. After the flowers faded the

spikes were cut back so far as the top of the swollen or fleshy portion; this in one case is 5 inches in length and about $1\frac{1}{2}$ inch in diameter, being in shape and appearance like a true pseudobulb. The pseudobulbs from which these unnatural growths issued are each forming two growths independent of those upon the flower-spikes. *T. C.*

CALANTHES.

Being desirous of increasing the number of our plants of *C. Veitchii*, we break the bulbs asunder at the point where they are sometimes contracted—a practice some may be inclined to condemn, yet it is a means to an end, and does not appear in any way to impair the vitality of the remaining portion of the bulbs, as they make growths equal in strength, and flower as freely as do other bulbs which are not so treated. Pieces of the pseudobulb if detached soon after the flowering season, and laid upon a shelf in a stove will in time produce buds and roots, and should these be potted in the usual manner, and properly attended to afterwards, will blossom the first season. *Thomas Coomber.*

A PROLIFIC ODONTOGLOSSUM.

At Messrs. Thomson & Son's nurseries, Clonfert, N.B., there is to be seen a plant of *Odontoglossum Pescatorei* with nine growths issuing from a pseudobulb—not small crippled growths, but healthy and well developed. It is fortunate for the owner that this plant is one of the finest varieties known, Mr. Thomson having in view the subdivision of the plant, and with that object he has carefully removed the flower-spikes, so that a more rapid development of growth may be induced; and there is no doubt that the extraordinary number of "breaks" are in a measure due to the cutting off of the blossoms as soon as they had pushed clear of the leaf-sheaths. It would be interesting to know if anyone else has ever seen so many growths from a single pseudobulb. *J. G.*

CHRISTMAS ROSE CULTURE.

There is probably no hardy perennial in cultivation which so well repays liberal culture, and, at the same time, no plants so soon resent all attempts to grow them in shallow or poor soils; upon this point there hardly seem two opinions. Those who carefully prepare a spot for their reception certainly deserve success; and as regards the plants afterwards, I would say leave them undisturbed for years—so long as they continue in full vigour, and neither flower nor foliage appear in any way to have exhausted the material about their roots. Such things as these—the best floral ornaments any garden can contain in mid-winter—no amateur, or professional grower, will care to disturb.

I most fully agree with Mr. Brockbank (p. 199), as to the depth of soil and well prepared bed, and can imagine what a sight the plants would be, from some couple of dozen or more clumps I had under my care some years ago, and which were treated somewhat similarly. The grandeur of these plants—all the major form of niger, each about $2\frac{1}{2}$ feet across, with numbers of white blossoms—still remains as fresh as ever in my memory. Two of these monsters spread their leaves out upon the turf in such a dense mass as quite to kill the grass; and from this a false step was decided on.

My employer and myself were agreed that no harm could befall these plants if they were carefully lifted with a huge ball of earth, and planted immediately; but we were wrong. Having decided that these clumps should occupy a bed about 12 feet from their original position, a huge hole was got out in readiness, fully 3 feet deep and about $2\frac{1}{2}$ feet across. The old soil was replaced by roughly chopped peat, excellent yellow loam from Binstead Downs, decayed manure, leaf-soil, and an abundance of sharp grit; and, having put some into the hole, we started to lift the first plant, which was no small matter. By digging deeply round it on three sides, and clearing out the soil, we were

enabled to get behind it and lever it on its side, and thus remove it. To all appearance the operation could not have been done better, and this fine clump was safely deposited in its new home, and the second clump likewise. The operation was performed in early autumn. In the result, notwithstanding that every attention was given it, with occasional sprinklings overhead, and a thorough watering at planting time, this specimen, for which such careful preparation was made, soon lost every leaf, and not a flower attempted to issue from the numerous crowns—it bore evidences of a rapid decline, one plant in particular being affected; the other did not lose so much foliage, but was considerably weakened; so much so, that after a season both were taken up and divided, only to find a great portion of the roots had made little or no attempt to start afresh.

What might have been done to have prevented this loss we discovered when the mischief was done, as by increasing the size of the bed, the plants would have been saved; I am also of opinion that had we carefully divided the large plants our loss would have ended in the flowers of that season alone, and we should have been the gainers in plants eventually.

Mr. Brockbank appears to have had a similar experience with his Devonshire clump, which, however, suffered in a less degree. Both cases, however, point to the one conclusion, that it is a mistake to transplant these large clumps intact. The matter is clearer when we consider that from the crown, or starting point, of the new leaf made in early spring, fresh roots are emitted in the early autumn; these are the large fleshy roots, which I regard as of the greatest importance, and which should always be preserved. The "rootlets" to which Mr. Brockbank refers as being formed after flowering in February, I take to be the fibres from the main roots, the fibres continuing to be formed for some time; and from the fact of these large fleshy roots being made in the autumn, I have urged that plantings should be made before these are emitted. In this way both these and the fibres formed in spring would be preserved intact, much to the benefit of the plant. Does Mr. Brockbank's experience in any way agree with mine as to the time these roots are formed?

There is a wide difference between transplanting and dividing home-grown plants in one's own garden and obtain them from a nurseryman, or relying upon the imported roots. In the first place all may be done in a few hours, and very little injury sustained. The best way to send them from a nursery is to shake off the soil, tie the roots in a piece of old sacking, then dip the roots, sacking and all, into the water-tank, and allow them to drain before packing; in this way the roots arrive plump and fresh.

Another question worthy of consideration in planting *Hellebores* is in regard to season. With such a home as they would find at Brockhurst in store for them, I should imagine they would do well planted at almost any time. But with the dry spring and summer of the past three years, February or March planted specimens have not time to take hold of the soil; and in cases like my own, with a deep gravelly subsoil, and the soil dust-dry for months, they stand but a poor chance indeed; yet this appears to affect the Christmas Roses in a much greater degree than the Lenten Roses, many varieties of which I planted early last spring, which soon recovered, and have made fine plants. There are several points connected with imported *Hellebores* which tell heavily against their recovery. They are these:—Consignments come to hand with roots only 2 inches long, or less; the leaves, stalk and all, cut off shortly likewise; frequently the roots are very much blackened in transit, in which case they invariably perish; these roots are also cut off, judging by the time we receive them, at the moment the new main roots are issuing from the crown. I have noticed this particularly and frequently. Thus the plant, shorn of leafage and roots, can hardly be expected to exist; an improved system of packing appears necessary, and I consider the foliage should always remain intact.

Sometimes they are packed in sawdust—a system strongly to be condemned, for sawdust appears to hasten decay as soon as it comes in contact with the soil. Could I have my choice as to the date of receiving imported *Hellebores*, I should unhesitatingly say the first week in September, packed in their own foliage and a little green moss, and shipped by the quickest possible route. I received a batch about this time—*i.e.*, September—last year, which were in good condition, though small; the losses I do not estimate at more than 1 per cent., for all have flowered and pushed forth those main roots the appearance of which I always hail with delight, particularly in the case of foreign plants.

It is not for the nurseryman to be able to form beds 3 feet deep of soil with sandstone blocks, but all amateurs who covet success with these plants cannot do better than closely follow the system adopted by Mr. Brockbank, and which he has so clearly set forth, remembering not the trifling cost at the start, but rather looking forward to the results of well considered work.

I should have said that in dividing old plants, no matter how large they are, I never use a knife, nor do I wash them out, but I shake the soil well away from them, and divide with two small hand-forks placed back to back, piercing the woody rootstock with one tine of each fork, and then pressing in an outward direction round the plant asunder in a remarkably easy manner, which may be repeated till the plants are of the required size. I have adopted this plan for some years for these and other things—*Funkias*, for example—with the same results. *E. Jenkins.*

PLANT DISEASES.

SMUT ON CORN.

At a recent meeting of the Klub der Landwirthe at Berlin, Professor Brefeld, of Münster, spoke on the fungi which cause the blackening of our corn and other graminaceous plants. The plants attacked by this disease are easy to recognise by the black powder (smut), which is to be found in some organs of the affected plant; such as the leaves, stamens, and the pistil. This powder consists of propagating cells, spores, which endure the rough vicissitudes of the winter season, and consequently are named resting spores. The disease is transferred by them the next spring to other plants. That this is the case was shown a long time since by various authorities, who had observed the method of germination of the spores, and the entrance of the germinating tubes (the mycelium) into the plants. It is the especial merit of Professor Brefeld to have proved by long years of observation and by tedious studies, that there exist interruptions in the life-history of these fungi, formerly quite unknown. He was enabled to obtain this knowledge by cultivating the fungi in nutritive solutions. The germination of the spores in water has already been observed, when they formed after a short time "sporidia," which grow out again as short tubes. Brefeld showed that the growth of the fungi is quite different if, instead of water, they are grown in an artificial nutritive solution. In this case the tubes form sporidia in unlimited number, forming the so-called barn (yeast, Hefe). After carrying out these experiments Brefeld cultivated the spores on natural nutritive substrata, as dry manure, and observed precisely the same growth as in the artificial nutritive solutions. The result of these experiments is, that the blight-forming fungi may grow elsewhere than on the host plants. Now it is interesting to see that these fungi cannot attain that state of growth which ends with the formation of resting spores beyond the plant. So it was essential to inquire if from the sporidia in the barn state formed outside the plant, the blight may be formed within the plant.

For this purpose Brefeld infected plants of Oats (*Avena*), Maize (*Zea*), and Millet (*Panicum*) in the

different states of growth by means of a spray apparatus with the sporidia (barm state). The result was, that of the plants of the Oats in the first germinating state 16 per cent. were affected, whilst in the next growing state only 1—2 per cent., and later on no plants at all became infected. The highest percentage of plants infected with the sporidia (barm state), when the seeds germinated in a mixture of soil and manure, was 44 per cent. This result shows that the disease is carried by the manure applied to the fields. On the other hand, these experiments show that the plants can be infected by fungi only when the latter are in the earliest stages of growth, especially in the first germinating state; that they are harmless in the later states of growth. Even if the sporidia are placed on the young apex of the older plant no infection will follow. They grow out and enter the plant, but they cannot grow further, as they cannot reach the growing point where the panicle is formed, and it is only in the panicle of these plants that the fungus forms its resting spores. But when the sporidia come in the young plants somewhat over the hypocotyle; donous node in the interior of the plants, they grow together with the axis. The plant grows as a perfectly sound one; there is nothing to indicate that it is attacked by the fungus until after four months the blight appears in the panicle. Similar results were found by Brefeld in Millet. But in the case of the Maize he found that all young parts of these plants during the whole period of growth can be infested by the disease, and that a short time after infection these parts appear blighted; but the fungus does not grow into the interior tissues of the plant, so that these remain quite healthy.

The blight of Barley (Hornden) was formerly supposed to be identical with that of Oats, but Brefeld found that the Barley cannot be infested by the sporidia from the Oat, and that the blight of the former has species quite distinct from those of the Oat. The investigations on this matter are not yet concluded.

To these interesting communications Professor Frank (Berlin) remarked that if the young plants of Oat and Millet are infested by the resting spores of the manure, it would be quite useless to soak the corn in blue vitriol or sulphuric acid (H_2SO_4), by which the resting spores of the disease are killed. But he thinks that the results of his investigations prove that the risk is not so large as might be inferred from those made by Brefeld, as he found, that by different causes, such, for instance, as Bacteria, want of sugar and other carbo-hydrates—the growth of the fungus on natural substrata is rendered difficult. Professor Brefeld controverted these objections, but declared that the soaking of the corn in blue vitriol was an excellent preventive against infection, the more so as some of the blue vitriol of the soaked grains is dispersed by the act of germinating to those places where the fungus makes an entrance into the young plant; and also that blue vitriol is one of the most destructive poisons to spores of fungi. In conclusion Professor Brefeld remarked, that the spores of blight fungi remain alive for ten years, whilst in the barm-state of the fungus, the sporidia, disappear after four weeks. *Dammer.*

FOREIGN PRODUCTS.

MEXICAN FIBRE.

In the December number of the *Kew Bulletin* it is shown that the botanical source of the Mexican fibre or Istle, now so much used for brush-making, is *Agave heteracantha*. Now that its botanical origin is cleared up some few notes on the history of its introduction into this country and the development of its uses may be interesting. As with the introduction of Piassaba and Kiltoo, so with that of Mexican fibre, we are indebted to Mr. Arthur Robottom, whose attention seems to have been first drawn to it so long back as the period of the Russian War, when the Istle or Mexican fibre was proposed as a substitute for Russian Hemp. A small trial shipment was sent to England from Tampico. It was soon found to be too stiff as a substitute either for Hemp, Jute, or Macilla, but it was thought it might prove useful for brush-making

in place of bristles. About the same time it appeared as a new introduction in New York. A demand, however, having sprung up for it amongst the brushmakers here, orders were at once dispatched to New York to buy up all that was on sale in that market. Soon after this, however, it was announced that 20 tons had been shipped from New York to the Continent, and this was traced by Mr. Robottom to Hamburg, where it had been offered to the rope-makers, but not being found suitable, the whole was purchased and sent on to London. Mr. Robottom says:—"The first arrival sold at £28 per ton, it then rose to £85 per ton, and then from this price it came down to £18 per ton, and afterwards, at the time of the insurrection in Mexico, it again rose to £140 per ton. The trade increased very rapidly, and as few people knew anything of its origin, I made up my mind to go out to Mexico and see for myself how it was collected and brought down to the seaboard. I arrived off the small port of Tampico in one of the West Indian steamers, and engaged a boat to take me up the river to the town, which is about 8 miles from the anchorage grounds. On my arrival in the town I found no one who could or would give me any information of the kind of plant that produced the fibre, or how the fibre was obtained from the plant, but noticing that large numbers of mules were coming into the town with Istle, I at once determined to take a journey inland, to find out the source of supply." Arriving at the *Plana de Armarve*, which is a small Mexican town in the centre of the Istle-producing country, Mr. Robottom thus describes his experiences:—"We put up at the house of the head-man of the country, who kept an *almacen* to supply the people with various articles, and he also employed above 370 peons gathering the Istle. Next day we arranged for a ride to see the men collect the Istle, and I must admit that I was never more astonished than at the great simplicity of the method for preparing the fibre. The plant is a species of the *Aloe* tribe, but quite different from the *Agave americana* or *Pulque* plant, but somewhat resembles the *Yucca*. It is about 2 or 3 feet high, and out of the centre of the plant grows a flower from 6 to 7 feet in height. The natives cut the flower-spike out, peel it, and use the stalk for a vegetable. The following is the simple mode of collecting the fibre:—The natives provide a stick about the size of a broom-handle, and place a leather thong at the end, something like the thong of a hunting-whip. The men place the thong or loop down the leaf of the plant, twist it round, and pull it out of the plant. The leaves have a row of thorns down each side, which are very sharp; the leaf is then passed over to another man, who is seated near a small tree; he places the leaf on a long board, and then pulls it with his left hand underneath a loose rough knife, the end of which is fixed in the root of the small tree before mentioned. After pulling the leaf through in this way several times the pulpy or fleshy part is separated from the fibres, and a small handful of the fibre is then obtained. This is put in the sun to dry, which takes only about fifteen minutes; every two men collect from 20 to 40 lb. of fibre per day. It is then carried to the master who has engaged these persons, packed in bundles of about 140 lb.; two bundles are put across each mule and despatched to Tampico—about fourteen days' journey. . . . After the arrival of the Istle in Tampico it is sold and packed in pressed bales of about 400 lb., shipped to England and New York, and again sold to the brushmakers and fibre-dressers. It is used either mixed or alone in nearly every kind of brush, but its principal use is for making scrubbing and nail-brushes, whitewash-brushes, deck-scrubs, &c. The soap-brush used in Turkish baths in this country is made of this fibre, known by the name of "Liffe." Mexican fibre is quite unsuited for sweeping-brooms, and should never be used for such a purpose. At one time Mexican fibre was largely used by crinoline makers as imitation horse-hair, and when first introduced into this country it was used for mixing with horse-hair for stuffing mattresses, chairs, &c. A large trade exists in the manufacture of brushes

from this fibre in Germany, France, Holland, Denmark, and North America; while the principal labour employed in England in connection with the industry is in drawing and combing the fibre and arranging it in suitable lengths for the brushmakers. The bulk of this work is carried on in London, Birmingham, Manchester, and Sheffield, where it is prepared for the English market, as well as for exportation to the Continent, Australia, and other parts of the world. *John R. Jackson, Museums, Kew.*

COLONIAL NOTES.

CEYLON.

DR. TRIMEN has rendered good service by the publication of a classified list of the plants, both native and exotic, growing in the Royal Botanic Gardens, *Péradeniya*, Ceylon, the two categories of plants being carefully distinguished. The catalogue is arranged after the sequence adopted by Bentham and Hooker. Very few synonyms are added, but the Sinhalese and other vernacular names are appended. An alphabetical index of genera is also supplied. No numerical lists are given, but the catalogue comprises no fewer than 120 pages, with, at a rough computation, twenty species in each at least, so that not far short of 3000 species must be comprised in the garden record.

BOTANIC GARDENS, KING WILLIAM'S TOWN.

The financial position of these gardens has greatly improved, owing to the increased amount received from the sale of trees, plants, seeds, &c., a source of revenue which, however desirable as a temporary expedient, is not one likely to contribute to the permanent utility of the gardens and the development of the botanical resources of the country. The services of Mr. Leighton, the Curator, are handsomely acknowledged. The first spring show of the colony was held in the gardens in October.

CULTURAL MEMORANDA.

CLIANTHUS DAMPIERI.

THIS Australian *Pes* is a capital plant wherewith to cover a trellis or wall in a greenhouse, the scarlet and black flowers being very effectively contrasted with its Fern-like foliage of a pale green colour. The seeds will germinate quicker if they are soaked for a few hours in warm water before being sown. Many fail to grow this plant through sowing several seeds in one pot, and afterwards potting the seedlings singly, and subjecting them to frequent shifts from the small 60's into the flowering pot when grown as a pot plant coiled round a trellis, as by so doing the roots get broken, consequently the plants seldom come away kindly afterwards. Therefore, the seeds should be sown singly in small pots in light sandy soil, and as soon as the little plants have made 2 or 3 inches of growth they should be shifted into 7½ inch pots, while thoroughly moist at the roots, taking care not to injure the latter in any way in the process of potting. Use a compost of four parts fibry loam and one of leaf-mould and pulverised horse-droppings, with a good dash of drift sand added. Then put the plants in a close pit near the glass for a few weeks until the roots have taken to the fresh soil, and be very careful in giving water at the roots until the latter have pushed well into the soil, then using ordinary care in its application. From this size pots the plants should be either planted out on a raised border, having good drainage, in the greenhouse or conservatory, or transferred to their flowering pots. In either case the plants must be kept well syringed overhead during the summer months, otherwise they will become infested with red-spider.

POINSETTIA FULCHERRIMA.

Plants of this decorative subject, which have been at rest the past two months, should now be cut back

a little, the surface of the soil in which they are growing loosened prior to giving sufficient tepid-water at the roots to moisten the ball of earth, and then be placed in heat, syringing them overhead morning and afternoon to induce the plants to push into growth, which, thus treated, they will do in due time. The young growths, when between 2 and 3 inches long, should be taken off with a heel of the old wood and inserted singly in properly crocked small pots filled with fine sandy loam three parts, and one of leaf-mould, having a surfacing of silver-sand, which in the process of putting in the cuttings will fall to the base of the latter. The pots should then be plunged to the rim in a brisk bottom-heat, the cuttings damped overhead through a fine rose to settle the soil about the cuttings, and be shaded from sunshine until rooted, which, if kept close, they will be within three weeks afterwards. Before the roots become matted in the pots shifting into 4½-inch pots should take place, putting them in heat near to the glass, and keeping the plants close for a few days until the root-growth recommences, when more liberal ventilation should be adopted. In due time all the strong plants should be shifted into 6-inch pots, their final shift for the season, but keeping the weakest plants in the 48's; and these, as well as the larger plants, will prove of much value for furnishing purposes next winter. During the season of growth, and after the roots have filled the pots, a pinch of Beeson's, Clay's, or Standen's manure strewn over the soil two or three times a week before giving water at the roots will give added vigour to growth. During the summer months the plants may be grown in a cold pit having a southern aspect, damping them overhead at shutting-up time early in the afternoon until they have grown to the desired size, when they should be plentifully ventilated by degrees, so that the wood may become thoroughly ripened before placing the plants in a warm house at the end of September. If a few of the best of the old plants are shaken out after the cuttings have been taken off and repotted, and grown on in heat for a few weeks, and subsequently in cold pits, they will form good subjects from which to cut. *H. W. Ward.*

FORESTRY.

TREES FOR CHALKY SOILS.

HARDWOODS.—Amongst these the Beech occupies the front rank as a tree that is peculiarly well suited for planting in chalky districts, for it will grow and produce a large quantity of timber where but a few inches of loam overlie the chalk, a fact that is strikingly exemplified in the park at Holwood, where numerous trees, containing fully 200 feet of wood, and with stems girthing from 8 feet to over 20 feet, may be seen. It is a strange fact, but nevertheless a true one, that in order to find out where the chalk beds run, one has only to be guided by the line traced out by the largest and most luxuriant-growing Beeches. As to the advisability of planting the Beech on pure chalk rock, or where no surface soil is present, we could not think of such, at least, if the greatest production of timber was a matter of first importance. The Beech will no doubt grow well enough on almost pure chalk; but where we have noticed it doing best—attaining to the largest size, and producing the cleanest wood—is where a quantity of loam, say from 1 foot to 3 feet in depth, overlies the chalk, or is incorporated with it.

In several instances that have come under our own notice lately, but particularly in the stubbing out of old field boundaries, this was the only hard-wood tree that could be said to have attained to anything like a respectable size of the many kinds either natural or that had been planted; but then it is likewise well to add that in some parts the chalk cropped through the surface, while no part had a greater depth of loam or clay overlying the chalk than 3 or 4 inches. Whether or not the timber of the Beech grown on chalk is of better quality than that produced on other soils we are not at present in a position to state, but we would fancy that it is, and information on this point would be of some

value from those who have had the chance of observing.

The Norway Maple (*Acer platanoides*) actually revels in a chalky soil, as do also *A. colchicum rubrum*, both of which are handsome, hardy, large growing trees, and particularly well suited for extensive planting as forest trees under certain conditions of soil in this country. The Maples, it must be borne in mind, are not placed second on our list of chalk-loving trees as being preferable to any others for planting on such soil, for there are no doubt equally valuable subjects treated of further on. Every one who has seen a well developed specimen of the Norway Maple must admit that, in beauty of foliage at least, it has few rivals amongst our commonly cultivated forest trees; and the same may be said of the red-twigged form, *A. colchicum rubrum*.

The White Poplar (*Populus alba*) is an excellent tree for planting in chalky districts, indeed it is somewhat surprising to see to what an immense size it attains in some of the Kentish estates and on almost pure chalk. But it is by no means a fastidious tree, for it will grow well almost anywhere, be the soil rich or poor, damp or dry. To-day we measured one of several specimens that caught our eye in a woodland here, and where the soil is a poor chalky loam resting on rough gravel. It was fully 76 feet in height, girthed at 3 feet and 5 feet, 8 feet 10 inches, and 8 feet 9 inches, and contained 97 cubic feet of wood. Where but little soil covers the chalk the white Poplar does not, however, attain to so large dimensions as where there is a depth of 2 feet or so; but for all this it will grow to a fair size even on the parched chalk rocks, and where hardly a particle of soil is to be seen. Other Poplars that do almost equally well on the chalk formation are *P. monilifera* and *P. canadensis*, both excellent hardy and free-growing trees.

Elms, particularly the *Huntingdon* and the *American*, have few equals amongst chalk-loving trees, for both grow rapidly and attain to a large size where but a small quantity of loam is present in the chalk. The *Scotch Elm* needs no coddling to make it start away in chalky districts, and we were not a little surprised some days ago to notice it growing freely on the side of a chalk pit, and where only about 7 inches of gravelly loam occupied the surface. One of its companions here was as healthy and bright looking a specimen of the *Yew* as we have ever beheld, and sorry were we to have omitted making mention of this tree when treating of "Conifers for Chalky Soils."

The Lime should find a prominent place amongst the trees used for planting where chalk abounds in the soil, for in such it grows very freely, and attains to a large size. In planting the Lime in such it is well to mix up with the chalk a small quantity of loam, this inducing a free start to growth, after which it matters little whether the roots come in contact with pure chalk or not.

Fulse Acacia (*Robinia Pseudacacia*).—In this will be found an excellent tree for planting in chalk soils, and the size to which it attains in such is greater than on almost any other, even the finest and richest of loam—that is, in this country. On the Holwood estate are numerous specimens of large size, one in particular being 14 feet 10 inches in girth of stem at a yard from the ground, and containing 110 feet of wood. As an ornamental tree the Fulse Acacia is certainly well worthy of attention; indeed few prettier sights in the floral line have we seen than a 60-feet high tree covered with its bright rosy flowers; but we are now referring to the form *Decaisneana*, and which is perhaps the best of the "101" forms into which the Acacia has been divided.

The Alder and Birch thrive with remarkable vigour on chalky soils, indeed it is not too much to say that amongst hard woods they have few equals for planting in such soils. It may seem strange, but it is nevertheless true, that most trees which in a state of Nature grow in damp, nay, even marshy soils, are well suited for planting where chalk and lime else is the main component part of the soil, and this is explained as follows:—Chalk, although sufficiently porous to allow water to percolate through it, has, like all other calcareous matter, a strong attraction for water, and thus acts like a sponge in holding it in considerable quantity and for a very long time; and thus it is a rare occurrence for the herbage of the chalk downs to be burned up even during excessively hot and dry summers. The Alder is very largely grown in the southern English counties for Hop-poles, but particularly in Kent, and we have more than once been surprised at its luxuriant growth on the warm chalk drifts, *A. D. Webster.*

PLANTS AND THEIR CULTURE.

SOLANUM CAPSICASTRUM.—These may be cut down as they become shabby, putting in the best of the tops as cuttings, which soon form roots and which will, with ordinary care, make handsome little plants by the autumn. The old plants, if cut back very hard, and stood in a moist pit, will break freely from the old wood, when they should be taken out of their pots, and repotted in those of a smaller size, to be potted later in the season, or if in warm parts of the country, planted out on a warm border in good loam, a soil which suits them best.

Roses.—The rest of the Roses in pots should now be started into growth. If hybrid perpetuals were potted up in the autumn, it is a good time to start them, when a nice crop of flowers may reasonably be looked for. Should the stock of plants have run short, plants of the following sorts, if procured at once, would come in at a good time of the season:—*Adam*, *Isabella Sprunt*, *Madame Falcot*, *Safrano*, *Souvenir de la Malmaison*, *Niphetos*, and *Mrs. Bosanquet*, the buds of which are much appreciated. The two great pests in Rose growing are greenfly and mildew, neither of which will occasion much trouble if measures be taken in time. The first is easily disposed of by the application of some liquid insecticide, which is much more effectual if the plants have been slightly fumigated the night previous to the application. If the operation has been thoroughly done, the plants will be completely cleansed for some time longer. As to mildew "prevention is better than cure," therefore make sure that there are no spores of the fungus about the plants when they are brought into the house, and as a precaution remove the surface soil from the pots, and wash the plants well, re-surfacing with fresh soil. A stagnant atmosphere is a prolific source of mildew, especially if the temperature be kept at about 55°, those being conditions favourable to the development of the fungus. Maintain therefore a buoyant air in the house, and should mildew appear apply flowers of sulphur, or any of the solutions of sulphur now manufactured for the purpose. All plants showing flower should be assisted by liquid manure—nitrate of potash (saltpetre) is a fine stimulant for Roses—about half an ounce to 1½ gal. of water will be strong enough, and should the weather be fine periodical syringings are beneficial, but be sure that the foliage gets dry before nightfall.

Cool Pits.—Plants of Sweet Scabious (*Scabiosa atropurpurea*) and *Schizanthus pinnatus*, which have been wintering in these pits, should now be seen to, going through them, cleaning the surface of the soil in the pots, and removing any withered or decayed leaves. Should it be desirable to bring on some of them on a little faster, these may be put into a warm greenhouse; but anything approaching to forcing must be avoided, or it will spoil them. If the supply is likely to run short of the demand, a pinch of seeds of *Schizanthus*, sown at the present time, would come in usefully towards the end of April or beginning of May. The elegantly cut foliage, and curiously marked and finely cut flowers of these plants, render them always objects of admiration. They are of easy culture, and any fairly rich, light soil will suit them. In all stages of their growth they must be placed well up to the light, and plenty of ventilation supplied to prevent weak growth. The varieties best to grow besides *pinnatus* and its varieties are *S. Grahami* and *S. G. retusus*: these are dwarfier and darker in color.

Hard-wooded Plants.—Correas and Croweas now starting into growth and requiring to be repotted should receive attention. The soil best suited for them is fibrous peat—not the spongy brown sort—with a good sprinkling of coarse silver-sand added to it, to keep the mass porous. If peat of the kind indicated be not at hand, the compost would be improved by the addition of some light friable loam. The pots ought to be provided with ample drainage, and the new soil around the old ball made quite as firm as the latter, which should be fairly moist at the time of potting, or it will be almost impossible to thoroughly moisten it afterwards. Let good space be left for watering, but be careful not to bury up the collar of the plant; and if it is loose, insert a short stout stick to keep it firmly in position. This, with occasional pinchings, should be the only support required to keep the plants in good shape. After potting stand the plants on a moist surface in an airy greenhouse, but avoiding draughty corners.

Aphelexis, *Dracophyllum*, and *Phenocomas* require a similar soil and treatment, but the two first-

mentioned, being trailing shrubs, require more attention as to staking to bring them into a good form, but avoid using any more sticks than are needed to give outline to them, and let the outside row lean well outwards, disposing of the others thinly throughout the head of the plant. Any further support that may be needed will consist of looping up the brachæes to each other, which, in most instances, looks much better than numerous sticks. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

ROSES.—The leading buds of these are now pushing into growth so rapidly that any pruning which requires to be done should not be further delayed, *i.e.*, with established plants. No hard-and-fast rule can be laid down as being applicable to all sections, but each plant or variety must be treated on its own merits, and in accordance with its vigour and habit. Speaking generally, however, those of weak or moderate growth should be cut back more closely than those of more robust growth. Standards and dwarfs of H.P.'s may be taken in hand first, cutting out all dead wood, and suckers where they exist, as well as all spindly shoots; those which are left to be thinned out where overcrowded, and the remainder shortened back to three or four eyes each—growths of medium strength and more vigour may be left a little longer. Excessively strong pithy shoots should be cut back to their base, as they invariably do more harm than good when allowed to remain on the plants. Beds of Noisettes, and Tea-scented Roses should have any light protection they may have had removed forthwith, and be pruned towards the end of the month. In doing so, leave two or three eyes more on each shoot than was done with H.P.'s. In cold districts it is still advisable to afford protection for two or three weeks longer, sheltering them from cold winds by means of hurdles made of Spruce or Laurel branches; and in some localities it may be necessary, on account of the weather, to continue the winter protection to a later period. Roses against walls, and notably such strong growers as *Maréchal Niel*, *Devoniensis*, and *Charles Lawson*, ought not to be spurred back too closely, and if quantity rather than quality of bloom be wanted, the most vigorous shoots of last year, if well ripened, should be simply shortened back a little, leaving them quite two-thirds their length. Any planting that has to be done should be completed with speed, deferring the pruning of the plants till later.

GLADIOLUS.—The ground for these plants, when grown in beds, should have been prepared in November by manuring and trenching; and when it is in a sufficiently dry state the general stock may be planted out at a distance of 1 foot apart and 4 inches deep, surrounding each corn with a little sharp sand. In mixed herbaceous borders it is always best before planting the Gladiolus to take out two or three spadefuls of earth and replace it with sound loam and rotten cow-dung or leaf-mould, the position of the roots to be indicated with a label or a stick. Those that were set in pots a few weeks since should be planted out before getting potbound.

Miscellaneous.—In some districts unpropitious weather will doubtless have delayed one or two operations touched upon in previous Calendars; in such cases bring up arrears of work as soon as practicable. Under favourable conditions the transplanting of autumn-sown *Antirrhinums* and *Sweet Williams* from seed-beds to where they are intended to flower should now be done. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

PINES.—Fruits developed during the winter will now be colouring. It will be advisable where there are a few only to remove any of them which are in this stage to a drier atmosphere. The Queens, which were recommended for special treatment at the beginning of the year, should now be making rapid progress, and it will be necessary to remove all galls *i.e.*, (suckers) from around the crown and base of the fruit as soon as possible; reduce also the number of suckers on each plant to one or two of

the best. The best method of dealing with needless suckers is to twist them out, for, if they are cut off, they are apt to grow again. See that the plants do not want for water at the root, and at the same time guard against a too wet state of the soil. Instead of periodical indiscriminate waterings, let each plant be examined, and sufficient weak manure-water afforded to moisten the whole ball. The late cold, boisterous weather will have rendered the maintenance of the necessary temperature impossible without excessive firing, but for the month of April let 75° for mild, and 70° for cold, nights, be the maximum; guard against having too strong a heat in the pipes when there is a prospect of a sunny day, otherwise the pinery will be robbed of its moisture; and, on the other hand, the weather during April is generally so uncertain, that it is not safe to let the heat wholly down during the early part of the day; it is therefore necessary to exercise much discrimination in the matter.

The fires may be started in good time during the afternoon to prevent a too rapid subsidence of the temperature due to sun-heat below 95° at shutting-up time. During bright weather the plants may be slightly dewed over at shutting-up time every other day. This should not be done so heavily as to cause water to lodge amongst the leaves in greater quantity than the sun and heat of the house will evaporate during the day. A watchful eye must be kept on the state of the bottom-heat, to prevent the temperature exceeding 95°, especially where it has been necessary to renew the materials of the beds to any extent, and when greater heat threatens let the pots be raised a little to allow of a clear space of an inch all round for the escape of heat.

Succession Pines.—Succession Pines will now be making free growth, and may be shut up with a temperature of 85° to 90°, well damping floors, walls, &c., but it is better not to syringe the plants freely as yet, but if the weather be very bright a slight dewing over with a fine rose pot, or syringe twice a week will be ample. Let the temperature gradually decline to 65° for cold and 70° for mild nights at 10 p.m. During fine weather ventilate freely, and, where the glass is of inferior quality, or the squares are of large dimensions, it will be necessary to employ some light movable shading during the brightest part of the day, to prevent the foliage browning, and the leaves having holes burnt in them by the lenses found in the glass. The shading must not be of such close texture as to exclude the sun's rays, or the plants will become drawn; netting with 3-16 inch mesh will be found suitable for the purpose. Let careful attention be given to the watering of successions, the plants not being pot-bound, affording too much water will result in yellow, unhealthy foliage of poor substance. Continue to put in suckers, and pot on any such which are well rooted before they become cramped in the pot.

Vines.—The fruit on plants in pots will now be colouring rapidly, and more air should be admitted, and a cooler, drier temperature maintained, but all draughts must be avoided, or this would result in injury to the foliage. The use of manure-water must be discontinued, and only sufficient rain-water given to maintain the Vines in health. Permanent Vines are liable to attacks of red-spider at the periods of colouring and stoning; in the former case the pipes may be painted with flowers of sulphur, and be made sufficiently warm to disperse the fumes; in the latter case the situation is more critical, as it is not safe to apply sulphur fumes without risk of injuring the tender skin of the fruit. Spider generally appears at the warmest end or the front of the house, but if it be taken in time there is no difficulty in preventing its affecting much of the foliage; hand-sponging with soft-water and a little soft-soap is the safest and most effectual mode of getting rid of the pest. Muscats coming into bloom should receive a temperature of 75° at night and 85° by day, the atmosphere to be kept dryish, admitting abundance of air on all favourable occasions, but guarding against cold draughts of air. If the stems of the Vines are tapped daily it will disperse the pollen, or a Pampas-grass plume may be drawn over such free setters as Hamburgs when in bloom and then shaken about in the house. After the bunches are set give the Vines a syringing once, and gradually allow the temperature to subside to 65° for cold and 70° for mild nights. As soon as the fruits are set give every attention to watering the borders, not only inside but outside as well, as the covering which was placed over the outside borders about the end of the year, will have prevented any large quantity of moisture from entering the soil, and during the summer of last year there was not too much water at

hand to bestow on outside borders. Attend to the thinning of succession Vines in their earliest stages. This requires great care and discernment. The berries should have sufficient room to swell without pressing against each other, and on the other hand they must not be so over-thinned that the bunch when laid on a dish will lose its compact shape. A calculation should be made during the thinning as to the probable diameter of the berries when fully matured; I find that with such large-berried varieties as *Gros Colmar* the berries are quite close enough at 1 to 1½ inch, Hamburgs at ¾ inch, while small sized Grapes like *Sweetwaters* may stand at ½ inch apart. See to the timely disbudbing of late Vines, and when the shoots have attained 1 inch in length keep the night temperature at 55° with fire-heat. Rub off all the superfluous buds from young Vines as fast as they break, but on the stem below the wires retain some shoots at distances of a foot apart up the stem, to be pinched back to two leaves, and by this means to secure the due enlargement of the stem, about this part. *W. M. Bailie, Luton Hoo.*

THE KITCHEN GARDEN.

In warm positions Potato planting may now be commenced in suitable weather, if the soil be sufficiently workable. Early varieties, including the *Ashleaf* section, are much benefited if the ground can be afforded a good dressing of decayed leaf-mould, and generally are benefited by a lighter and richer soil than is needed for the later varieties. In gardens that are naturally cold and much exposed it is best to plant the late varieties first, these being much longer in starting into growth than earlier, and not to plant the bulk of the latter before the middle of the month of April, and which are then ready for use almost as soon as if they were planted a fortnight earlier, as well as being much safer. The late varieties are usually grown outside the kitchen garden, and are, generally speaking, the best when planted on land that has not been manured recently; the finest crops are grown on broken up grass-land or woodland, provided the soil be not of a very heavy nature. In order to have them of good table quality the land should be well drained; a sloping piece of ground inclining to be sandy in its nature will generally grow the best Potatoes, and is much to be preferred to flat land or heavy soils. If manure be considered necessary preference should be given to manures rich in potash instead of to farm-yard dung, which induces too strong growth and large tubers. The quality of the different varieties varies very much according to soil and situation. Here on a shallow limestone soil which is poor and rather heavy we find *Magnum Bonum* uniformly of good quality, and it crops well; whilst 6 miles off, on soil overlying the red sandstone formation it proves almost a failure. *Snowdrop* is another variety which does well here for mid-season use, but it is not so good on the red sandstone; and similar instances of partial failure often occur—but generally speaking the mid-season varieties can be rather more depended upon in unfavourable localities than the kinds which are latest. If any Potatoes are grown specially for exhibition purposes the best piece of ground should be reserved for them, working it well with the fork in dry weather until thoroughly pulverised, and if inclined to be adhesive a large quantity of charred refuse should be forked in. Draw the drills with the hoe, and do not cut down with a spade, cover the sets with 2 inches of compost, consisting of two parts sand, one part charred refuse, half part old lime-rubbish broken very small, the whole to be well mixed and sifted before using. *W. H. Divers, Ketton Hall, Stamford.*

PLANT PORTRAITS.

BEGONIA CLEMENTINE, *Illustration Horticoles*, March, 1888.—See *Gardeners' Chronicle*, March 3, 1888, p. 265.

GLADIOLUS OBERPRÄSIDENT VON SEYDERWITZ, *Gartenflora*, March.—A semi-double flesh-coloured flower.

ODONTOGLOSSUM POLYXANTHUM, *Illustration Horticoles*, March, 1888. See *Gardeners' Chronicle*, June, 1883, p. 760.

PASSIFLORA WATSONIANA, *Garden*, March 3, 1888.—This is the plant described and figured in the *Gardeners' Chronicle*, November 20, 1886, pp. 648, 649.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

WEDNESDAY, APRIL 4—Royal Caledonian (two days).

MEETING.

THURSDAY, APRIL 5—Linnean.

SALES.

WEDNESDAY, APRIL 4 { Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.
Lilium auratum, Roses, and other Plants, at Protheroe & Morris' Rooms.

THURSDAY, APRIL 5 { Imported Orchids, from Mr. F. Sander, at Stevens' Rooms.
10,000 Lilium auratum, &c., from Japan, at Stevens' Rooms.

FRIDAY, APRIL 6 { Imported, Established, and Flowering Orchids, at Protheroe & Morris' Rooms.

SATURDAY, APRIL 7 { Lilies, Roses, and other Plants, at Protheroe & Morris' Rooms.

The Royal Horticultural Society.

THE twenty-seventh of March in this present year of grace will form a memorable date in the history of the Royal Horticultural Society. Freed from the trammels of South Kensington, it has made a new start, under promising auspices. By dint of much quiet labour, the chattels of the Society, including the books of the Lindley Library, were transferred to their new abode at Victoria House, 111, Victoria Street, Westminster, where, in a few days, it may be hoped, everything will be in position, and that the Society will be in possession of a library and reading-room such as it has not had since the old Regent Street days. Our present concern, however, is with the first of the fortnightly meetings held in the fine Drill Hall of the London Scottish Volunteers—a spacious building in James Street, close to the new offices, and which proved better adapted for the purpose than we had dared to hope. The exhibition was extensive and very interesting, largely attended by the fraternity, and at least better attended by the public than the Kensington meetings have been of late.

All three committees set to work as usual as if nothing had happened, and all three had plenty of occupation. An account of their labours is given in another column. At the conclusion of their work Sir TREVOR LAWRENCE, the President, addressed the members of the committees and the exhibitors in terms of welcome, hopefulness, and congratulation. He thanked, and most justly so, the exhibitors, the Press, and those who are toiling so hard to reinstate the Society.

He briefly alluded to the reasons for leaving South Kensington, calling attention to the fact that the conservatory there, in which so many meetings have been held, is soon to be pulled down. He alluded to the economic interests of horticulture, and to the desirability that horticulture and forestry should not, as heretofore, find no recognition in the councils of the Government, but find a place in the new Agricultural

their labours on the part of the Council of the Society.

It is worth notice, perhaps, that the first Certificate awarded under the new régime was one to Spathoglottis Kimballiana, and one richly merited, for it is a distinct and striking Orchid. As linking present and past, it is also noteworthy that recollections of the famous but ill-fated DOUGLAS, who did so much as a collector to



FIG. 58.—KEY PLAN TO PLATE OF NARCISSUS. (SEE SUPPLEMENTARY SHEET.)

- | | | |
|--------------------------|-----------------------------------|--|
| 1, J. B. M. Camm | 11, Vacant | 21, bicolor (Haworth) |
| 2, Harrison Weir | 12, Netherlander | 22, Duchess of Edinburgh |
| 3, Murrell Dobell | 13, Jan de Graaff | 23, Charles Dickens |
| 4, Empress | 14, Seedling from Mr. Archer Hind | 24, variformis (Maw's N. nobilis, not Redoute's) |
| 5, Geo. Barr | 15, Michael Foster | 25, Joseph |
| 6, Thos. Spanswick | 16, rugilobus | 26, species from Maritime Alps |
| 7, James Walser | 17, princeps | 27, Edith Barber |
| 8, Horsfieldii triflorus | 18, Prince George | 28, Dean Herbert. |
| 9, Horsfieldii | 19, grandis | |
| 10, Horsfieldii biflorus | 20, Alfred Parsons | |

tural Department. This little address of the President is a good omen, and was appreciated by the listeners, who have not been accustomed hitherto to much recognition of

confer honour on the Society and on himself, were evoked by the exhibit of the little plant that bears his name.

As to the exhibition itself, we have said that it



A GROUP OF NAMED DAFODILS. (SEE KEY IN TEXT.)

was large, varied, and interesting. We shall not venture to impute blame for the crowded and ineffective arrangement of the exhibits, because, under the circumstances, it is much to the credit of the officials that so much was done with so little friction in a limited time. But now that a new start has been made, we may at least express a hope that those who have the arrangement of these exhibits will in future get out of the old grooves, and make some attempt to arrange the plants more effectively and artistically, so far as time will permit, to take care that undue crowding shall not be permitted, and specially that in accepting and arranging the plants some reference shall be made to the intrinsic importance and interest of the exhibits. A more generally interesting group of plants than that sent from the Royal Gardens, Kew, we have never seen than was exhibited on this occasion, but they were cruelly jammed up at one end of a long table, the other portion of which was occupied by rows and rows of formal Hyacinths, excellent of their kind, but which were decidedly out of place, and occupied room which should much more appropriately have been given to the miscellaneous plants from Kew and elsewhere.

One main object of the Society is to instruct the public, and therefore every effort should be made to display suitably plants of interest for their beauty, their utility, or botanical interest. The public is not specially instructed by lines and lines of Hyacinths and Cyclamens, which can be seen by the dozen or by the hundred in any florist's establishment. We are saying nothing in derogation of such plants—we are merely pleading that for this class of plants the Society has long done its work, and that in future the exhibits shall be treated according to their respective merits. It would be easy to see fifty or a hundred collections of well-grown Hyacinths and Cyclamens about London, but where, except at the Drill Hall on that particular day, would it be possible to see such collections of interesting plants as were contributed by several exhibitors and amateurs? A list of the plants exhibited from Kew is given in another column, but we may here specify some of the more remarkable, such as the new *Agave Baxteri*, originally from the Oxford Botanic Garden, and described in our present issue by Mr. BAKER. The collection of Aroids was most interesting, including, as it did, numerous *Arisemas*, with their elegant foliage and quaint spathes; and the fragrant *Philodendron Simsii*. The very extraordinary and by no means unprepossessing *Strelitzia Nicolai* has been already mentioned in our columns; in it the usual orange colour of the flower segments is replaced by dull white. The magnificent head of *Brownea* proved a fit rival of the Sikkim *Rhododendrons*, of which so many trusses were also exhibited: a branch of Coffee, thickly laden with berries, should have had attractions for the public. *Acacias* are always beautiful, and one in particular, *A. cultriformis*, with its blue scimitar-shaped false leaves, was very remarkable. The rarely seen *Grevia Sutherlandi* is a plant for a botanist rather than a florist, and the same may be said of the very curious uncanny-looking *Aristolochia Wendlandi* from Hong-Kong. *Arancaria Cunninghamii* was shown with two or three cones, which we overheard one lady describe to her neighbour as a kind of Thistle—a proof that the educational work of the Society is needed. *Hemantus bicolor*—shown by Mr. BULL—was remarkable for the fact that its flower segments were nearly white, forming a contrast to the bright red stamens. Messrs. PAUL & SON'S Rose *Gloire des Polyantha* was received by acclama-

tion by the committee, as well it might be, for to the full truss of a *Polyantha Rose* it added the coloration of the old China Rose. For an account of the exhibits made by Messrs. W. PAUL & SONS, JOHN LAING & SONS, WARE, and others, we must refer to another column, merely stating here that their exhibits were worthy of their fame, and that their staunch loyalty, as that of all the exhibitors, to the Society, is an omen of great promise, and should be gratefully recognised by the authorities.

During the course of the day about twenty-five new Fellows were elected, and more than ninety others were nominated as guinea Fellows, whose election must be postponed till the passing of the new byelaws. Altogether, it must be admitted that the prospects are now hopeful. A continuance of the zealous labour and carefully planned reform of every department now in progress, and the judicious extension of the Society's work in hitherto neglected fields, must surely raise the old Society again to its former position.

GROUP OF NARCISSUS (see Supplementary Sheet).—Now that the season of Daffodils is at its height, we have deemed it appropriate to publish a group of these charming plants, as acceptable to the millionaire as to the million. The group was arranged and sketched by Miss BARR, and many of the varieties were exhibited in Messrs. BARR's collection on Tuesday last at the Royal Horticultural Society. The numbered key plan (see p. 400) will enable the reader to ascertain the names of the varieties, while for their characteristics we cannot do better than refer to the descriptive catalogues published by Messrs. BARR. The displays of these flowers made by this firm, as also by Messrs. WARE, WALKER, HARTLAND, COLLINS BROTHERS, and GABRIEL, have done much to enhance the interest in these beautiful flowers.

ROYAL HORTICULTURAL SOCIETY.—At a general meeting of the Society held on Tuesday March 27, Dr. MASTENS, F.R.S., in the chair, the following candidates were duly elected Fellows:—W. H. Beaton, Mrs. A. Bevington, F. C. Capel, J. B. Concanon, Richard Cooke, E. H. Devitt, Chas. Dinham, J. Stewart Dismorr, W. R. Foster, W. B. Hartland, Matthew Hodgson, Wm. Houghton, Thos. Jones, Wm. Langley, Gustav le Doux, Capt. Maxwell, W. H. Munro, Miss Pearce, J. Cater Price, Reginald Ryley, P. C. M. Veitch, Chas. T. Wintle, Hy. Yool. About ninety names of proposed guinea Fellows were also read, subject to future confirmation, according to the revised bye-laws.

THE ENTERTAINMENT TO THE EMPLOYEES OF THE ROYAL HORTICULTURAL SOCIETY.—The committee who have this matter in hand have arranged that the *employés* shall be entertained at supper at the Bolton Hotel, Bolton Gardens, High Road, Chiswick, on Friday evening, April 6, at 7 P.M. Mr. HARRY J. VERRIN has kindly consented to take the chair. Visitors will be gladly welcomed. Supper tickets, 5s. each. The hotel is 5 minutes' walk from Turnham Green Station. Those intending to be present should give their names to Mr. R. DEAN, Ranelagh Road, Ealing, the day previous.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—In a communication received from Mr. E. R. CUTLER we learn that the late Lord Northwick has by his will left a legacy of £100, free of duty, to this Institution; also that the Right Hon. JOSEPH CHAMBERLAIN, M.P., has appointed Wednesday, July 4, next, for the Anniversary Dinner of the Institution, upon which occasion he will take the chair.

INTERNATIONAL HORTICULTURAL MEETING OF 1888.—The *Chambre Syndicale des Horticulteurs Belges* has organised in Ghent an International

meeting of horticulturists from April 14 to 22, the date of which coincides with the Quinquennial Exhibition instituted by the Royal Agricultural and Botanical Society. The object of this meeting, as well as that of 1883, is to offer to the horticulturists of all nations a valuable opportunity of mutually discussing a few of the intricate questions connected with the development of their industry, and the extension of their commercial relations. These questions are to be of a purely commercial and industrial character, which is the only restriction placed upon the speakers, who in the statement of their theories and the expression of their wishes will enjoy the greatest freedom. One main point is described as the business of the day, that bearing upon the state the horticultural trade is placed in by the *Phylloxera* Convention; two others are submitted for discussion—the necessity of free exchange in horticultural transactions, and the formation of an International Federation of Horticulturists. Count de KENCHOVE, of Denterghem, Member of the Chamber of Representatives, President of the *Fédération des Sociétés Horticoles* of Belgium, and of the *Société Royale d'Agriculture et de Botanique* of Ghent, will be the Chairman of the meeting. It is desirable that each horticultural Society should be represented at the Congress by one or two of their members. M. AVO. VAN GEERT is the Chairman of the *Chambre Syndicale*, and MM. OCT. BRUNEEL and JULES BURVENICH, Secretaries.

THE GARDENERS' ORPHAN FUND.—A meeting of the Executive Committee took place at the Calendonian Hotel, Adelphi Terrace, W.C., on the 23rd inst., Mr. GEORGE DEAL in the chair. The minutes of the last meeting having been read, it was unanimously resolved that the moneys invested on behalf of the Fund in Government Stock be converted according to the requirements of the recent Act of Parliament. The Hon. Secretary announced that the sum of £545 2s. 5d. was standing to the credit of the Fund at the bankers, and it was resolved that the proposal to invest a further sum of £500 be deferred until the next meeting of the committee. Mr. BARRON also reported that since the last meeting of that body the names of seventy-four new donors and subscribers had been received, the donations amounting to £29 1s. 6d., and the subscriptions to £19 5s. That the total amount promised as donations is £1150, of which £968 6s. has been received; and subscriptions £353 3s., of which £224 4s. had been paid. It was resolved:—That the annual general meeting of the subscribers to the Fund take place at 2 P.M. on the day of election—July 13; also that any voting paper duly filled up but unsigned by the voter, may be signed by a Life Subscriber or member of the committee. Some samples of money-boxes for subscriptions to the Fund were submitted, and a gross in two patterns ordered. Applications for money-boxes and subscription cards were received from Messrs. SUTTON & SONS and others. The sub-committee appointed to consider the proposal to hold a popular dinner reported that the same could take place at the Cannon Street Hotel, on the day of election, the tickets to be 5s. each, the dinner to be at 5 P.M. The report was adopted. Some correspondence with Sir JULIAN GOLDSMID, Bart, M.P., the President of the Fund, was read, and it is hoped that he will take the chair at the dinner. Sub-committees were appointed to carry out the arrangements of the election and dinner.

THE GHENT EXHIBITION.—Mr. H. PEARSON, Beeston, Nottinghamshire, who has been in communication with the manager of the London, Chatham and Dover Railway Company respecting the above, and has proposed to him the issuing of cheap circular tickets to enable horticulturists who wish to visit the bulb grounds of Holland after the exhibition—states that this railway company hopes to be able to issue through tickets at a good reduction, and of which fuller particulars will be given at a later date.

ROYAL INSTITUTION.—The following are the lecture arrangements after Easter:—Dr. Charles Waldstein, three lectures on "John Ruskin;" Mr. Walter Gardiner, three lectures on "The Plant in the War of Nature;" Mr. Sidney Colvin, three lectures on "Conventions and Conventionality in Art;" Professor Dewar, six lectures on "The Chemical Arts;" Professor T. G. Bonney, three lectures on "The Growth and Sculpture of the Alps;" Mr. Carl Armbruster, seven lectures on "The Later Works of Richard Wagner (with Vocal and Instrumental Illustrations);" Professor C. E. Turner, three lectures on "Count Tolstoi as Novelist and Thinker." The following are the probable arrangements for the Friday evening meetings after Easter:—Professor Flower, "The Pygmy Races of Men;" the Right Hon. Sir William R. Grove, "Antagonism;" Mr. James Wimshurst, "Electrical Influence Machines;" Professor J. K. Laughton, "The Invincible Armada: a Tercentenary Retrospect;" Mr. W. H. Barlow, "Building the New Tay Bridge;" Mr. Francis Galton, "Personal Identification and Description;" Professor J. A. Ewing, "Earthquakes and How to Measure them;" and a Discourse by Professor Dewar.

IRISH EXHIBITION.—With a view of bringing before the notice of the public the arts, manufactures, and industries of Ireland, with a hope of developing the same, it has been arranged to hold an exhibition at Olympia, Kensington, during this summer, from June to October. Agriculture receives due attention in the schedule, which is very comprehensive. Lord ARTHUR HILL, M.P., is the Hon. Secretary, and the offices are at Connaught Mansions, Victoria Street, S.W.

POSTAL ANNOYANCES.—Some of our trade correspondents are justly complaining that while circulars, sent as open letters, from abroad arrive here at the lowest rate of postage, our own firms are not allowed similar allowances, but that their circulars, though sent in opened envelopes, are charged at the letter rate of postage. The ways of the Post Office, as we know to our cost, are often as vexatious as they are erratic.

SHOW OF SPRING FLOWERS.—Among the exhibitions of the present season that of Mr. B. S. WILLIAMS, of the Paradise Nurseries, Holloway, may be mentioned. Some 600 Hyacinths, including many of the newest and best kinds, are now in bloom, as well as Cliveas, Amaryllis, and other spring flowers.

BEGONIA LUBBERSI.—We have received from Mr. PYRAENT a plant of this species, the distinctness of which from *B. argyrostigma* has already been pointed out. It has in any case a very beautiful foliage; the petiole leaves are lanceolate, sharply pointed at both ends, the upper surface with a disc of dark green velvet, over which are scattered silvery spots, while the lower surface is of pale olive-green colour, with the nerves marked out in crimson. Comparison with *B. argyrostigma* leaves no doubt whatever as to the distinctness of the two plants and the superiority of the new comer.

"DER OBSTBAU."—The first number for this year of this useful little periodical of the Wurtemberg Fruit Association, devoted to pomology and fruit culture, is before us. The contents consist, amongst other matter, of methods of preparing the ground for and the planting of fruit trees. In the remarks on the income from orchards where each tree stands on 12 square metres of ground, the trees begin to bear after ten years, and each tree producing 3s. worth of fruit, the total value of which from a hectare of land carrying 830 trees would be 2790 mk. = £139 1s.—a sum which cannot be obtained with any other crop. Some interesting experiments in fruit culture at considerable elevations (710 metres) are detailed, from which we glean that the Norman cider Apple (Bitter Sweet), Gold Reinette of Blenheim, Parker's Green Pippin, White Astrakan,

and Emperor Alexander grew to a large size, some of the varieties having fine colour.

KILIMA NJARO PLANTS.—Among the plants collected by Mr. JOHNSTON on this tropical African mountain, and described by Professor OLIVIER in a recently issued part of the *Transactions of the Linnean Society*, is a gigantic *Senecio*. This tree-like *Gronseel* is described as a tree 20–30 feet high, with elliptic leaves 12–15 inches long, and with heads of yellow flowers in panicles 1½ foot long. The trunks are erect, unbranched, and leafless to nearly the top, where the inflorescence springs from a terminal tuft of leaves, so that the plant, judging from the figure, has a weird uncanny look.

THE CHRYSANTHEMUM ANNUAL (71, Fleet Street, E.C.)—Growers of Chrysanthemums, and especially those whose tastes lend them to compete at exhibitions, will find in this compilation by Mr. LEWIS CASTLE (a competent observer), much useful information on this and cognate matters. The book is furnished with a portrait of Mr. EDWARD SANDERSON and Mr. WILLIAM HOLMES, respectively President and Honorary Secretary of the National Chrysanthemum Society.

MR. JAS. MILLS.—From the notice in our Gardening Appointments in last week's issue it will be observed by our readers that a change is about to be made in gardeners at Rendlesham Hall, Woodbridge, Suffolk, Mr. MILLS retiring, Mr. H. ROGERS, of Bygrove House, Clapham Park, filling the vacant situation. *Appropos* of the late gardener, a correspondent, evidently well acquainted with him, writes:—"Mr. MILLS, has been Head Gardener to Lord RENDLESHAM for a period of about seventeen years, and during that time several Orchids flowered under his care for the first time in this country. He has received several certificates and medals for various subjects; and as a cultivator and an exhibitor of fruit and other horticultural productions he has proved himself to be thoroughly master of his profession. He will leave Rendlesham on April 6, with the intention of commencing business on his own account. Mr. ROGERS was formerly for upwards of five years foreman in the gardens he will now take under his own charge."

MONTPELLIER BOTANIC GARDEN.—We have received the catalogue of seeds collected in this garden in 1887. It is an extensive list, arranged according to the natural orders, but the most noteworthy feature about it is the appeal to the directors of botanic gardens to be more careful as to the nomenclature of the plants they cultivate and distribute. Professor PLANCHON has sounded this note before, and we hope he will continue to do so till the evil is remedied. The Professor suggests the following means:—1. To exclude from the catalogues all the commoner plants which are not likely to be in demand. 2. To endeavour to include in the catalogue plants special to the particular region, and which, therefore, are likely to be well known to those who collect the seed. 3. To exclude from the catalogue, so far as possible, all plants the nomenclature of which has not been verified. 4. To exclude from the beds in the garden all species which have not been identified by previous cultivation in a special trial ground. 5. To endeavour in each garden to collect species of one genus, genera of one family, and so on, so as to afford opportunities of studying them monographically, and to notify in the catalogue that these groups have been specially studied. The catalogue of the Montpellier garden, drawn up on these principles, contains specially Mediterranean and Cevennes plants, the determination of which the Professor is responsible for, as well as for the *Ampelideæ* and the *Nymphæacææ*.

THE BEAN AND PEA BEETLE.—The Royal Agricultural Society has deemed it necessary to issue a special notice to agriculturists and gardeners warning them that seed Beans and Peas are this season infested in a most unusual degree by beetles (*Bruchi*), and pointing out the probable consequences of sow-

ing such infested seeds. It is said to be difficult to find (at least, in the south-eastern counties) samples of Beans—Ticks, Mazagans, and Broad Beans—they are free from black specks and holes, showing that they have been attacked by these beetles. Some samples have from 40 to 50 per cent. affected; others from 15 to 20 per cent. In one case of small Mazagans from East Kent there was a very small proportion free from spots and holes. It is thought that in all probability the warmth and dryness of the late summer were favourable to the development of these insects. Peas are not found to be so badly infested as Beans; they are, however, worse than usual, particularly some kinds extensively grown for podding. As the larvæ, or maggots, of the beetle live on the food stored up in the cotyledons of the Beans and Peas for the support of the future plant, it is clear that after germination, if it is able to germinate, the plant will languish and fail for want of a full supply of nourishment, and will be weakly and comparatively unproductive. Germination cannot take place when a Bean or a Pea has been infested by several beetles, which have made burrows all round the embryo. But it is a curious fact that the larvæ as a rule do not touch the embryo or vital part of the seed, and rarely directly injure it. This is possibly because it is uncongenial to their tastes. Besides the possible failure of germination, and the certain weakness of plants from infested seeds, the insects will be conveyed to the fields and gardens in the seed in largely increased numbers, to injure the next crop. *Prevention.*—Beans and Peas badly infested by these beetles should not be used for seed. As has been shown germination may be altogether arrested, or the plants will be weakly and unfruitful. The insects will be placed in conditions most favourable to their reproduction if they are put in the ground with the seed. It is recommended by the Royal Agricultural Society that the seed be kiln-dried at a temperature of about 120° Fahr., and if the operation be judiciously performed, this is said to destroy the insects without affecting the germination of the Beans and Peas. A better plan, however, and one less likely to injure the seeds, is to make use of paraffin. We lately saw a sample of Aquadocle Broad Beans which contained 45 per cent. of beetle-infested seeds, and a sample of Seville Longpods which contained 20½ per cent. of injured seeds. These were put into common paraffin oil and allowed to remain for a few hours; when taken out every beetle was dead. Paraffin and benzoline oils are also said to make seed Peas less toothsome to birds.

KÖNIGSBERG.—Dr. LUERSSEN has been appointed Professor of Botany in place of the late Professor CASPARY.

PANCRATIUM FRAGRANS.

IN these days, when there is such a demand for fragrant white flowers, it is a matter of surprise that *Pancratium fragrans* is not more commonly grown. Its cut flowers are remarkable, and as decorative plants when in flower they have few equals, surpassing *Eucharis amazonica* and *E. candida* in beautiful effects. There is no difficulty in regard to their culture to hinder their more general cultivation they being amongst the easiest of plants to grow when given a suitable temperature and abundant syringing, and under this treatment they yield several crops of their charming blossoms during the months of winter. Grown as an ordinary stove plant its usual time of blossoming is in the months of May or June; but it is as a winter blooming subject I wish to recommend the plant. With a stock of fifty plants or so there is no difficulty in having *Pancratiums* in flower from August to March, the same bulbs flowering three or four times during that period of time.

March is the best month to pot or repot the bulbs, and a compost consisting of one part good turfy loam and one of peat, with a few dry horse-droppings and silver-sand, will meet their requirements. One large bulb will be quite enough for a 7-inch pot, and three ordinary bulbs may be placed in a 9 or 10-inch. The pots must be carefully and fully drained, the drainage being covered with a little sphagnum or other moss, to prevent the smaller portions of the compost getting into the drainage. It is as well to state that large specimens are very effective as

decorative objects, but are not so suitable for winter-blooming as small ones. In repotting, remove all the crocks and as much of the old soil from the roots as possible without injuring them, and if the soil be in a sour state it should be washed off entirely by working the ball about in a tub of tepid water. When this is necessary the roots should be dusted over with dry sand previous to being re-potted. Remove all the offsets from the bulbs as the work proceeds, and pot them up for stock, putting four or five in a 6-inch pot. As the plants are potted remove them to a house having a temperature of 65° to 75° at night, with a day temperature of 10° to 15° higher. Give no water until the young leaves have made some amount of growth, but syringe twice a day, morning and afternoon, with water warmed to 85°; and on sunny days the house should be kept moist by damping down, some light shading being used to break the power of the sun's rays through the summer season. When the pots are filled with roots a thorough soaking of weak manure-water should be applied once a week. As a general rule it may be said that the plants are better when kept on the side of dryness, and it is rarely, with the syringings they receive, that water is needed more than once in a week, and they should always be allowed to become perfectly dry at the roots before any water is given. Under this treatment our plants flower satisfactorily all through the winter months. There are other species of *Pancratium* that are well worth growing, but I have found fragrans to be the best for all purposes. When the flowers are to be packed for travelling the anthers should be removed, else the pollen will seriously disfigure them. *Pancratiums* are subject to attacks from thrips, but a little double-refined petroleum will speedily rid the plant of this pest. *W. M. Baillie, Luton Hoo.*

HOME CORRESPONDENCE.

STRELITZIA NICOLAI.—*Apropos* of the note on this in last week's *Gardeners' Chronicle*, I may say that in the large glasshouse of the Botanic Garden here a *Strelitzia* flowers every year which just now has a stipe 9 inches long. The spathe is blackish-green, with a red border. The exterior segments of the perianth are white, lightly suffused with red at the base. The interior petals are halbert-like in shape, and are blue, with long and pointed lobes. Is it a variety of *S. Nicolai*? It may be a form which unites *S. augusta* and *S. Nicolai*. *J. A. Henriques, Coimbra, Portugal.*

DAMAGED TREES FROM NURSERIES.—I should like to know if other gardeners experience the same disappointment as myself with young fruit trees obtained from nurseries. I have received from a well-known firm a Nectarine tree with nine leading branches well distributed and apparently healthy; but on closer examination I found all, with one exception, have a large brown spot at that point where, no doubt, they were fastened to the wire in training; and unless this case should prove exceptional, each branch so affected will die back to that point, and consequently the tree will lose nearly one season's growth. Should not the attention of nurserymen be drawn to this matter, in order that they may endeavour to find a preventative, or adopt a substitute for wire? *Tom Stone, The Downs, St. Neots.*

CYMBIDIUM ELEGANS.—Perhaps the note on this plant at p. 331 may have been rather empirical, and from what Mr. J. O'Brien says at p. 372 there is no doubt that the plant in question is, as at first stated, 'but a variety of the well known *C. eburneum*,' and not the *C. elegans* as described by him. With much of what this orchidic authority says I usually agree, but the statement that none of the *Cymbidiums* are safe in the *Odontoglossum*-house is, I venture to think, rather too positive. Mr. O'Brien says it depends on how warm this house is kept. I admit, a good deal depends on that, but as much will depend on the amount of light, water, and air afforded the plants. In a house here containing a mixed collection of plants, and in which the temperature during winter is allowed to range from 40° to 55°, the variations being dependent on that outside, are *Cymbi-*

dium giganteum, Mastersii, sinense, eburneum, and Hookerianum; the last has grown within the last three years from a tiny little plant to a good sized specimen, while all the others have considerably improved in the same time. I do not deny that it is probable the well-known stimulus of additional heat might have induced a more rapid growth; yet Mr. O'Brien may be assured that the plants are quite safe in the temperatures named. In the same house are grown *Odontoglossum crispum*, *O. grande*, *O. maculatum*, *O. bictonense*, and *O. vexillarium*, without the spot on the foliage some growers are troubled with. Besides these there are *Trichopilia*, *Oncidiums*, *Bletias*, *Masdevallias*, *Maxillarias*, and *Arpophyllums*, which flower annually; also *Cœlias*, *Angræcums*, *Dendrobiums*, and many others, all of which get along quite sociably together. In summer fire-heat is discontinued, abundance of air, copious syringings, and as much light as possible are given, merely breaking the sun's rays by thin shading. Under this régime the plants build up a structure and acquire a constitution capable of withstanding great variations in temperature; moreover, insect pests are almost unknown. *F. Ross, Pendell Court.*

THE RECONSTRUCTION OF THE ROYAL HORTICULTURAL SOCIETY.—The Society seems now on the highway to popularity and usefulness, provided it goes far enough. The guinea Fellowships, conferring all the status and power of four and two-guinea ones, a bold step in the right direction, and I trust Mr. Wilson will get his 500 new Fellows at a guinea. But why not go further and fare better? There is no difference in principle between the admission of half-guinea Fellows and guinea ones. Only yesterday two-guinea subscribers were the lowest standard of safety or gauge of wisdom for the management of the affairs of the Society; now the franchise is lowered to a guinea, and from henceforth the guinea Fellow is to be reckoned as discreet and wise as the two or the four-guinea ones. In these days of popular education and household suffrage, when the bounds of freedom are daily growing wider, where can be the difficulty and danger of lowering the terms of full fellowship for *bonâ fide* gardeners to half a guinea? While not a few of us, for our love of horticulture, might be willing to subscribe a guinea, for the purpose of founding and supporting a truly national horticultural society, yet I contend that half a guinea is a liberal price for all that practical gardeners really want—admission to all the premises and shows of the Society, a copy of its publications, and a full unfettered voice and vote in the management of its affairs. More than that, the half-guinea fellow really pays more in proportion to what he would receive than the four-guinea subscriber with all his personal and relative advantages. Were there any necessary connection between wealth and wisdom it is obvious the Society would never have been in its present condition. The present Council and committee have acknowledged this to the extent that guinea Fellows may be sufficiently discreet and wise to save the Society, provided they are sufficiently numerous—say 500 or 1000 of them. This, which is a step in the right direction in one sense, only makes bad worse in another. For the mere fact of suggesting gardener Associates without votes is virtually an official proclamation by the Society that practical gardeners are unworthy of its confidence. And yet the first Royal Charter so entirely trusted practical gardeners, without any money qualification or subscription whatever, as to place them on its first Council; and not a few will be greatly surprised to learn that there is not a word or clause in the Charter to prevent gardeners being made Fellows at half-guinea subscriptions, or without money or price. That the Council have such power under the existing Charter is proved by their lowering the franchise of Fellows from two guineas to one; and they have equal power, neither more nor less, to lower it to 10s. 6d. if they choose. Such being the case, I trust that not a single gardener will enrol himself as an emasculated gagged Fellow or Associate, but will demand the vital rights of horticultural citizenship for his money—free admission, free speech, and a free and full vote. It rather surprised me that such a good friend of the craft as Mr. Wilson makes no appeal to gardeners to assist him in forming part of his 500 new Fellows at a guinea each. He appeals to the owners of gardens, possibly surmising that the guinea is too high for gardeners, or—which is less likely—that the latter will be content to become emasculated Associates—dear and nasty—at half-a-guinea each; for this

precious half-guinea toy also admits to all the exhibitions and meetings of the Society, where the Associates may sit with gagged mouth and voiceless hand, to hear, see, and endure the wisdom or folly of his betters—that is, his "richers." And then these Associates are such vile and dangerous fellows of the baser sort, that of course they must be verified as *bonâ fide*, &c., and must be recommended for election by two Fellows. How much longer will the Royal Horticultural Society go on and on heaping insult to injury upon practical gardeners? It is little wonder that Mr. Wilson, who has known its old ways to ruin so well, did not appeal so as to swell his list of 500 guinea Fellows. *D. T. Fish, March 20.*

EUCHARIS AMAZONICA.—According to my experience here, strong loamy soil is best adapted to grow these plants. Our potting soil is strongly intermixed with clay, and we mix very little leaf-mould amongst it and no peat, but some decayed manure, some half-crushed bones, and sharp silver-sand, and the plants invariably do well. We are never visited by either mites or disease. We give them when flowering plenty of manure-water. I find that some of my neighbours are losing their plants fast, which I attribute to their starving methods and drying them off; both practices I strongly condemn. I am of opinion that as long as they are kept in robust health mites will not attack them, although the lot Mr. Keetley alludes to have mites, and are growing vigorously all the same, which I can hardly understand. *A. Macdonald, Royal Asylum, Cheadle.*

RHODODENDRONS AND PEAT.—There is a prevalent idea, even among some gardeners, that a peaty soil is indispensable for *Rhododendrons*, and often great expense is incurred in bringing peat from a distance in order to make a *Rhododendron* bed. The digging out of the solid natural soil and replacing it with peat not unfrequently leads to a greater evil—one that is seldom foreseen. The new peat acts as a drain for the surface-water percolating the solid ground surrounding it, and the spongy peat holds the water precisely as a sponge does, consequently the bed becomes waterlogged, and the failure of the *Rhododendrons* is the natural sequence. If peat beds are made in heavy soil drains either of stone or pipes must be laid at the bottom, so as to conduct away quickly all superfluous moisture. A case came under my notice recently, where *Rhododendrons*, which, when planted were the best obtainable—the peat also as good as it could be got—after two years turned as yellow in the leaf and as sickly-looking as if they had been planted in pure chalk. The peat in this bed I found quite in the condition I have described, sour and waterlogged. It is pretty generally known that *Rhododendrons* and most other shrubs of the Heath tribe abhor chalk, or any kind of calcareous soil. If planted in it they soon languish and in time die outright. On the other hand, it is a moot point whether or not the *Rhododendron* actually likes peat above all other soils. I have given some attention to the point during the past two or three years, and the result of my observations is that the very finest specimens—finest in growth, foliage, and flower—have been those growing in a fibry loam, with an admixture of a little peat and sand sufficient to make the whole porous, yet not too light. We know how grand the *Rhododendrons* and other so-called American plants thrive at Knapp Hill, Bagshot, and throughout the Bagshot sand district, and we also know that in nurseries situate in districts where there is no peat for miles around there are as fine *Rhododendrons* as any grown on peat. The Handsworth and Berkhamstead nurseries may be cited as instances of this. But the question of peat *versus* loam for these glorious shrubs is of not so much importance to nurserymen as to owners of private gardens, who, as a rule, if not pitched upon a peaty soil, bewail the absence of *Rhododendrons* in their gardens. There must be hundreds, and probably thousands of gardens the soil of which is not peaty or sandy, but with an absence of chalk, where *Rhododendrons* would grow to perfection, but from which they are now absent because their owners think it useless to plant them. On the other hand, their culture has been abandoned after the expense of making peat-beds, the failure of which arises from defective draining. One of the chief American nurserymen—I think it is Mr. S. Parsons, of Long Island—asserts that peat is positively injurious to *Rhododendrons* in his nursery, and has not used any for these shrubs for many

years. So long as there is no chalk in the soil, and it is not pure sand or the stiffest of clay, no one need despair of growing the finest varieties more or less successfully. Bad soils, whether excessively light or heavy, can always be ameliorated to some extent in country gardens where fibrous turf—even that from the roadsides—can be got readily for mixing with the soils. Some sorts of *Rhododendrons* thrive better than others in a loamy soil, and this is very noticeable in a nursery when the sorts are grown side by side. Perhaps some competent grower could give a list of the best of those that thrive best in a moderately stiff loam. *W. G.*

MASDEVALLIA CULEX (p. 361).—My first acquaintance with this name was made on seeing among some plants from the Rev. Mr. Norman's collection to be sold at Stevens' several lots of "*Masdevallia culex*—provisionally named." I purchased one, which, on flowering, appeared to be *Pleurothallis macrolepharis*. More recently, I noticed in the report of one of the few meetings of the Royal Horticultural Society of late years, which I have missed, that Sir Trevor Lawrence had sent a plant of it; and when next I saw his Orchid grower, Mr. Bickerstaffe, I remarked to him that it was most probably *P. macrolepharis* but he informed me that Professor Reichenbach had seen the plant in the Burford collection, and had pronounced it to be *P. Barberiana*. Afterwards, when speaking with the late Mr. John Day on the subject, he said that the plant known in gardens as *Masdevallia culex* was *Pleurothallis Barberiana*. At the meeting of the Scientific Committee referred to, I stated the facts as I now put them, but only *P. Barberiana* being mentioned in the report, seemed to show that those views were taken to be substantiated. I had noticed the difference of leaf mentioned by Mr. R. A. Rolfe among the plants on the occasion of the sale, and I therefore think that his suggestion of both species of *Pleurothallis* being in collections under the name of *Masdevallia culex* the correct one. Those who have the plants in question in flower should send specimens to Mr. Rolfe if they find any difficulty in determining the species by the aid of his note at p. 361. A strong lens is a great assistance in examining the flowers, for really many of the minute flowered Orchids, which are generally said to resemble each other very closely, are found not to be in the least alike when enlarged even a few diameters. *James O'Brien*.

A CURE FOR MILDEW.—Mildew on plants is one of those visitations that often perplex a gardener, and give him a good deal of trouble. From time to time certain preparations have been announced as cures for mildew; but in the case of most, if not all of them, objections have been taken to their use on the ground that they leave a sediment behind them which disfigures leaves and fruit both. The following gives an old but excellent remedy, which, while efficacious, does not leave behind, after being applied, any objectionable deposit. It is prepared in this way:—To every gallon of water add 3 lb. of unslaked lime and 4 lb. of sulphur, boil the whole for 40 minutes, keeping it well stirred. When ready allow it to settle, and draw off the clear liquor and bottle it for use. When employed a quantity equal to a large wineglassful or half pint should be placed in a 3-gal. can of water, and the parts affected washed or syringed with it. The preparation will keep for any length of time: one gardener who uses it states that as long as five years ago he boiled 8 gals. in a copper and bottled it off, and he has some of it yet, and finds it to be as efficacious as when first made. He also finds it to be of advantage to paint the hot-water pipes with the solution. *R. D.* [Do not use it on Vines with Grapes on them or other fruit trees in bearing unless it be washed off perfectly 10 minutes afterwards. The globule of the mixture which would hang from the bottom of the berry or fruit would destroy the skin at that point and prevent further development. *En.*]

ANEMONE ST. BRIGID.—I should like to draw the attention of those who have not grown this beautiful flowering plant, to the readiness with which it may be raised. I was much interested in reading in a daily paper how the Princess of Wales a few years ago, when visiting Ireland, was presented with a bouquet entirely made up of these Irish Anemones. I procured a packet of seed from Mr. Ware, of Tottenham, and sowed the seed in a pan, about the middle of February, placing it in brisk heat, where the seeds soon germinated. When large enough to handle the young plants were pricked out into boxes

and again placed in heat. The growth made was very slow, and very little foliage appeared, but after transplanting them to the open in May I was surprised at the size of the main roots. In their new quarters they soon got established, and came into bloom in the month of August, their flowering lasting until cut down by frost late in the autumn. As a cut flower for boxes we find them very useful, lasting a long time. *Johnston, Hints Hall, Tamworth.*

DRYING OFF ALLAMANDAS.—With reference to your editorial query (p. 310) respecting my treatment of Allamandas, I should like to say that we give our plant very little water after the month of October; but then I should state that we have not the entire control of the roots of the plant in question, for they have pierced through a 9-inch brick wall, and are under the flat stone floor of the stove. By withholding water as stated, there is no difficulty in getting the plant to rest, and by pruning time the wood is as hard as that of a well-ripened Black Hamburgh Grape Vine. *T. Newton, Campsall.*

—I quite endorse what "Mayflower" says—that Allamandas should not be dried off; in fact, I consider such a practice to be injurious to any stove plants although it is often done. I have two very large plants of *A. Hendersoni* here which flower nearly all the year round. Towards November I give over watering quite so freely, and only do it sparingly until the end of December, when I cut them down and start them afresh, giving plenty of liquid manure until they begin to bloom. *A. Macdonald.*

—*Apropos* of this subject I may say that I very much prefer the drying-off method, as it allows more light to shine into our stoves during the winter time, when such plants are fastened under the roof. Cut back plants may be shaken out and the hall made smaller, thereby affording more space for fresh compost, which adds considerably to their future vigour. I have a very old plant here which, with others, is treated in this way, and which, for profusion of bloom, colour in the flowers, and the large space it occupies, can scarcely be surpassed. How often do we see plants at exhibitions 4 to 5 feet high with not more than a dozen blooms in all. Were they dried off during winter, shaken out when rotted, and the shoots carefully thinned out, a marvellous difference in their appearance would be presented. *Johnston Hints Hall, Tamworth.*

—I am surprised that your correspondent, Mr. Thomas Newton, has not seen Allamandas flower freely when treated as evergreens. Now, I have a plant so treated, and I doubt whether anyone has seen one with more flowers than it has carried. Mr. Newton says he has gathered one hundred at a time off the plant at his place, but I have known 400 to be gathered at one time, and a single panicle to produce twenty-eight blooms in succession; by the year's end thousands have been gathered altogether. To dry off Allamandas seems to me to be a hard trial for the plant, because water must be totally withheld. I do not dispute the fact that your correspondent's plant does well, but I can assure him it would do better if just enough water were to be given it so as to cause its leaves to remain, thoroughly thinning out the shoots in January or February, while in the summer months the shoots should not be allowed to get too much crowded. *Mayflower.*

BRUGMANSIA (DATURA) LUTEA.—What is this plant, and why is it so rare, compared with *B. suaveolens* and *sanguinea*? I never remember to have seen it in bloom but twice, and at places so widely apart as Hatfield House and Chatsworth. I obtained cuttings of it from Mr. Bennett, rooted and planted it out in a cool-house with the two species already mentioned, and it perished apparently from the cold. From this failure I have considered it more tender than the other greenhouse Brugmansias. The flowers are, as far as I recollect, funnel-shaped, after the style of those of *B. suaveolens*, and fragrant, though not to the same extent. I have also a dim recollection of having seen a semi-double or hose-in-hose Brugmansia like *B. Knightii*. Is there a shrubby species of that character, and is it also fragrant? The Brugmansia lutea does not find a place in the *Dictionary of Gardening* now issuing from the press, nor do I remember seeing it at Kew. If equally hardy it certainly seems to deserve a place beside the two species named in my first sentence. The *B. suaveolens* would look yet more pure if flanked on either side with *B. lutea* and *sanguinea*, and perhaps no finer plants could be named for the furnishing a lofty house with abundance of flowers. Unfortunately, the blooms have no com-

mercial value—for, if I mistake not, the blooms of lutea are almost as perishable as those of *suaevolens*, while those of *B. sanguinea* are more of tubes than trumpets, and are destitute of fragrance. *D. T. F.*

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, MARCH 27.—The new location of the Society in London for the exhibitions and fortnightly meetings—the Scottish Drill Hall, James Street, Westminster—was very well filled by the exhibits of nurserymen, amateurs, and gardeners; indeed, the amount of tabling supplied was inadequate, and much of what was exhibited was crowded together in a manner that did not permit of its being properly inspected. As there is ample space within the building, this is doubtless a matter which will receive attention on the occasion of the next meeting, a fortnight hence.

Exhibitors of Orchids and other tender subjects must have felt some concern about their plants, the temperature of the hall being at a low point the whole of the day.

The Royal Gardens, Kew, made the premier exhibit as regards the rarity and variety of the plants shown, and afforded a useful object-lesson to all the craft, more especially to those who are inclined from one reason or another to keep in certain well-known ruts. Amongst the nurserymen, Messrs. Veitch & Sons, B. S. Williams, Laing & Sons, Lane & Son, Barr & Son, C. Turner, Collins Brothers & Gabriel, Paul & Son, and Cheal & Son made the largest displays.

Scientific Committee.

The meeting was held on this occasion in the Committee-room of the Drill Hall—a room not very convenient of access and suffering from the very great objection that the Library is in another building. When the large room at 111, Victoria Street is completed doubtless the meetings will be held therein. The difficulty then will consist in the necessity of removing the plants from the Drill Hall for the purpose of examination, and, moreover, at a time when it is particularly desirable to link together, rather than to dissociate the several committees. It is unfortunate that they should have to meet in separate buildings, but when there is a choice of evils the least must be the one selected. On the present occasion the committee was represented by Sir Joseph D. Hooker, K.C.S.I., Chairman; Messrs. R. McLachlan, F.R.S., James O'Brien, Professor Church, Mr. F. Pascoe, Dr. Lowe, Mr. Albert Michael, G. F. Wilson, F.R.S., H. N. Ridley, British Museum; Professor Scott, School of Science; Professor Boulger, Dr. Masters, F.R.S., and Rev. George Henslow, Secretary.

THE BLUE DAISY.—Dr. Masters reported that the plant exhibited from Tangier at a previous meeting by Dr. Lowe was *Bellis annua*. Sir Joseph Hooker mentioned that it was common in the neighbourhood of Tangier, and that it was different from the plant found on the Atlas Mountain (*Bellis coerulescens*).

DISPERSAL OF THE SEED IN PINUS INSIGNIS.—Dr. Masters, alluding to the great differences that exist in the species of *Pinus*, as to the time at which the constituent scales of the cone separate in order to liberate the seed, showed a series of cones of *Pinus insignis*, the oldest of which bore the date 1864. In this all the scales were widely separate. The most recent cones dated from 1877, and in them the scales were not at all separated. Between these two extremes, cones were shown exhibiting almost every intermediate stage of separation. It is to be remarked that the separation begins generally just above the centre of the pendulous cone on the side furthest away from the branch, at the place where the obliquity of the cone, due to the free exposure to light and air, and the absence of obstacles afforded by the branch was greatest, and that it follows a spiral course towards the base of the cone. The scales separate in successive spiral coils, till, at length, all except a few at the base and apex respectively, and which are probably sterile, are separated one from the other.

SEMI-DOUBLE AND OTHER ORCHIDS.—Dr. Masters referred to various specimens submitted to him for examination. Among them were the following:—*Semi-double Flowers of Calogyne flaccida.*—These were obtained from M. Sallier, through the courtesy of M. Schneider. The conditions varied slightly in

different flowers, but the most noteworthy case was one in which there were three sepals, three equal petals resembling the sepals in form, a column, and two lips; these latter organs, therefore, representing two stamens of the outer whorl. According to the generally accepted Darwinian notation the arrangement of parts might be thus expressed:—

S S S
P P P
A1 A2 A3

A2 and A3 being represented by the supernumerary lips.

Cattleya Trianae.—Three flowers were brought to the committee at a former meeting by Mr. O'Brien.

In (1) the two lateral sepals were present, and also two petals, one median, occupying the place of the absent sepal, and one opposite to it, forming the lip. The arrangement may be illustrated thus—

P
S S
L

This flower, then, afforded an illustration of a tendency towards a dimorous and decussate arrangement of the parts of the flower, such as is frequently seen in malformed Orchids.

In (2) the dorsal or median sepal was also wanting, its place being occupied, as in No. 1, by a petal, so that of the two lateral petals one was dislocated from a lateral to a median position, while the other was adherent to the column. The other parts were normal. It would appear that in this case as if, for some reason or other, the median sepal was not developed; 2, that the axis of the flower underwent a twist of 45°, so as to displace the petal and transpose it into the position of the sepal; 3, at the same time that this unusual growth was taking place on one side of the flower development was partially arrested on the other (the concavity of the helix), so that the petal remained in union with the column.

P
P Col.
L S
S S

The third flower was normal in all respects, except that the median sepal had the appearance of a lateral petal. The case was one, therefore, of petalody of the sepal.

(4) A fourth flower of the same species, forwarded by Mr. Marcus H. Voss, was remarkable for the absence of one of the side sepals without other change. Here, again, was another illustration of the tendency to a dimorous condition, there being two sepals (in this case placed obliquely), but one of them forming a pair with the lip, and two lateral petals.

S
P Col.
L P
S S

Phaius grandifolius, *Peloria*.—Sir Trevor Lawrence obligingly sent a flower of this species with two sepals placed right and left, and two median petals, each lip-like in character, and provided with a spur. The column was straight, the anther imperfect and incumbent.

P
S Col.
P S

This flower then again illustrated the dimorous condition as to number of parts and the peloric condition as to the form of the petals.

Odontoglossum crispum, *Synanthus*, &c.—Mr. B. S. Williams forwarded a raceme of this plant which showed a tendency to branch or become paniculate. The branch, however, instead of becoming detached remained in union with the main axis producing somewhat of a fasciated condition. As a result of this union it happened that sometimes the flowers were scattered, while in other cases a node of the main axis was placed side by side with the branch, so that two flowers belonging to different axes were brought into contact, and not only this, but in some cases there was actual synanthus or union of two flowers. In one of these flowers there were four sepals in decussate pairs, four petals also in decussate pairs, and two lips placed opposite to two columns.

There were thus twelve parts present instead of fourteen, two sepals being missing, presumably one of the lateral sepals of each of the two flowers being suppressed at the point of contact. In many cases of synanthus the suppression of parts takes place to a much greater extent, but then it is relatively uncommon to see synanthus between two flowers belonging to different branch systems.

MALFORMED FUCHSIA.—Baron von Mueller kindly sent a flower, in which the ovarian cavity is absent, the flower-stalk ending in a club-shaped expansion, from which are given off two stalked leaves, while the scars between their bases indicate the existence of others which have fallen off. The sepals are represented by two coloured segments, both stalked. One of the sepals is three-lobed, the central lobe oblong lanceolate and coloured like the sepals (pinkish-white), the lateral lobes shorter, broader, and coloured like the petals (purple). The second sepal is divided above the middle into two oblong petaloid lobes. Then follow three obovate stalked petals. The stamens are absent, but there is a shallow disc surrounding the base of the ovary. This latter organ is superior, one-celled, with three

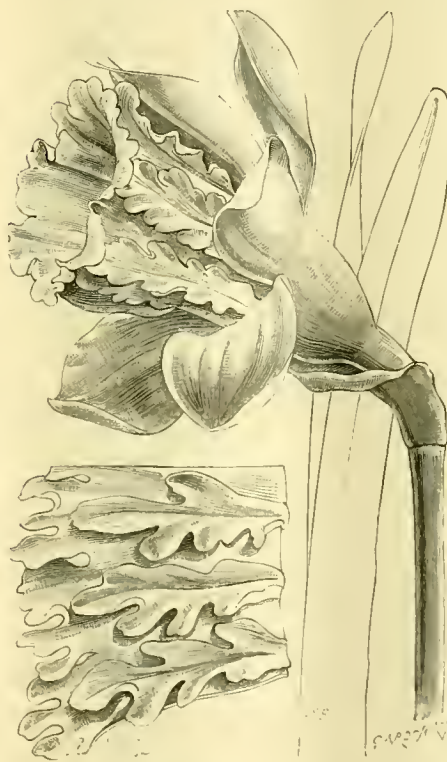


FIG. 59.—FRILLED DAFFODIL.

parietal placentas, and surmounted by three styles, coherent all the way up, with the exception of the distorted stigmas.

Proliferation, &c., in a Fuchsia.—To Mr. Douglas I am indebted for the extraordinary flower shown in Mr. W. G. Smith's drawing (exhibited). In this case the ovary was present, but there was no flower-tube above it. In place of that the ovary was surmounted by a tuft of sepals, petals, and stamens, forming an entangled mass, some of the parts being leafy, others petaloid, others atamenoid, with others presenting various intermediate characteristics. The flower had partly fallen to pieces before I examined it, but I could make out as I suppose the presence of four leafy sepals, as many leafy petals, and then a number of parts whose exact relative position I was unable to make out, and which presented the intermediate characters before mentioned. Within these sprang a second flower with a curved calyx-tube giving off four sepals and as many petals. The stamens were increased in number, some nearly perfect, others represented by long filaments terminating in spoon-shaped petaline laminae. The ovary of this flower was superior, but very imperfect, and surmounted by a style divided into two stigmatic lobes. A section across the ovary of the flower

showed a double series of vascular bundles, the outer belonging to the flower-stalk, the inner to the carpels embedded in its substance. It would seem, then, that the complicated arrangements of this flower may be referred to dialysis, metamorphy, and displacement of various organs associated with median floral proliferation, or the production of a secondary flower from the centre of the first in the position occupied by the style in a normal flower.

ANTHURIUM CHAMBERLAINI.—Dr. Masters exhibited a drawing of a magnificent new Anthurium, which had appeared accidentally with an importation of *Cattleya Gaskelliana*, in the garden of the Right Hon. J. Chamberlain. The heart-shaped leaves are of gigantic size, and the large boat-shaped spathe is of the richest crimson colour. Mr. Cooper (gr. to Mr. Chamberlain) speaks in high terms of this plant as a decorative plant. A full technical description, together with an illustration will shortly be published in these columns.

EUCALYPTUS UNIGNERA.—Dr. Masters showed specimens of this Tasmanian species in flower and fruit. It had been received from Whittinghame Gardens, Prestonkirk, near Edinburgh, and not far from the sea. The tree was perfectly hardy. An illustration will shortly be given in these columns.

DAFFODIL WITH CRESTED CORONA.—Rev. E. C. Gabbett sent through Dr. Masters two flowers of a curious Daffodil from plants growing on his lawn in Co. Limerick. The "frill," or outgrowth is produced from the outer surface of the corona, which has thus a very peculiar appearance, see fig. 59. Mr. Gabbett reports that six blooms were so affected, and that in former years, when the weather was more propitious, the frilling was more pronounced. Mr. Gabbett had observed this peculiarity for four or five years.

FRINGED CYCLAMEN.—Mr. O'Brien showed a flower of this variety in which the petals produced a crest-like outgrowth from the upper surface of the petals, as figured in our columns, vol. xxiii., p. 536. But in this instance there was the additional peculiarity that the petals were not reflexed as usual, but formed a bell-shaped corolla. Dr. Masters adverted to the anatomical peculiarities of these flowers, which were referred to Dr. Scott for further examination as to their structural details.

DOUGLASSIA LEVIGATA.—Mr. G. F. Wilson alluded to this plant as having been shown before the Floral Committee as a charming dwarf alpine plant exhibited from the Royal Gardens, Kew, and proposed that it should receive a Botanical Certificate, which was agreed to. It is a low growing plant with tufted leaves and lilac flowers, like those of an *Androsace*, but larger and with the tube of the corolla longer than the calyx, and with only two seeds to the capsule. The species are natives of North-Western America, the first known species having been collected by Douglas not far from the sources of the Colombia River, and named in his honour by Dr. Lindley.

HYBRID PHALANOPSIS.—Mr. Ridley reported on the *Phalanopsis* shown at the last meeting as a cross between *P. amabilis* and *P. rosea*, but stated that he was unable to detect any trace of *P. rosea* in it. Mr. O'Brien remarked that the influence of the cross was sometimes observable in the vegetation of the plant, even when it was not conspicuous in the flower.

ACACIA ARMATA.—Mr. Pascoe reported upon some leaves of *Acacia armata* sent by a correspondent of the *Gardeners' Chronicle*, and from the surface of which a brownish outgrowth proceeded. This was ascertained not to be of fungus origin, and it was considered probable that it might be the work of a *Coccus*. Mr. O'Brien alluded to the formation of similar excrescences as a consequence of insect or aphid punctures.

EUCHRESTA HORSFIELDII.—Mr. T. Christy sent some seeds of this plant, not unlike roasted coffee. The natives of Java use them as a tonic and to arrest the spitting of blood. The shrub is the only known species, and grows in the mountain districts of Java and Formosa. Dr. Horsfield says the natives use the seeds as an antidote to any poison, and Leschenault says the powdered fruits mixed with food prevents diseases. Mixed with Lemon juice they are also applied externally to wounds.

COLA CHOCOLATE.—Mr. Christy sent samples of chocolate made from the seeds of *Cola acuminata* and which he had ascertained to be useful in certain forms of indigestion.

BAMBOO CASE.—Rev. G. Henslow exhibited a box which had contained seeds sent from Japan. Professor Church stated that the form of some of the Italian drug-pots of the fifteenth and sixteenth

centuries appeared to have been modelled from these Bamboo vases.

Araucaria imbricata timber.—Mr. Ford, gr., Leonardlee, exhibited slabs of wood cut from a tree of this species, and which at 6 feet from the ground girthed 26 inches, the tree being 35 feet in height. The wood was yellow, soft, evenly grained, and, judging by the distance between the rings, quickly grown.

Plants Exhibited.—From Mr. Ware came specimens of the elegant *Leucoum trichophyllum*. Sir Trevor Lawrence sent *Masdevallia Carderi*, a species remarkable for its deep and broad cup-like flower-tube. To this, as also to *Trichoglottis fasciata*, and the *Douglasia* before-mentioned, Botanical Certificates were awarded.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Dr. M. T. Masters, Messrs. J. O'Brien, E. Hill, A. F. Lendy, H. M. Pollett, J. Dominy, H. Ballantine, C. Pilcher, G. Paul, R. Dean, T. Baines, W. Holmes, W. Wildsmith, G. Suffield, W. H. Loder, W. Bates, H. Herbst, J. Fraser, J. Laing, W. Goldring, W. Wilks, Shirley Hibberd, B. Wynne, and J. Walker.

Orchids.—Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (gr. Mr. Bickerstaffe), contributed an interesting and varied lot of Orchids, embracing both showy species and those whose chief merit lay in their singularity. *Dendrobium crassinode* superbum was a grand plant, the flowers being larger and more highly coloured than in the type. He also had *Spathoglottis Kimballiana*, rich yellow, like a fine yellow *Phalenopsis*: the lip was spotted with purple; *Odontoglossum Andersonianum* (a very fine variety), *Masdevallia Harryana acanthæfolia*, *Angraecum Leonis*, *Masdevallia Carderi*—one of those which appear to produce its flowers from the rootstock—the flower itself is pale yellowish-brown; also a large well-flowered piece of *Cymbidium eburneum*, creating a grand effect; *Cypripedium Mearesianum*, *Dendrobium Cambridgeanum*, *Odontoglossum Cervantesi* roseum, *Angraecum Ellisii*, pure white, with eighteen flowers on the spike; *Epidendrum glumaceum*, a strange looking species; *Masdevallia Lindeni superba*, large rich flowers; and *Trichoglottis fasciata*, &c., were shown. *Anthurium*.—*A. carneum* is a good brightly coloured species, with a large spathe; *A. roseum* is of too livid a hue; while *A. Rothschildianum* is attractive on account of its white mottling.

Mr. Ballantyne, gr. to Baron Schroder, The Dell, Egham, showed two choice Orchids, viz. *Dendrobium splendidissimum grandiflorum*, showing the deep colouring of the lip very well as the sides do not close over—sepals and petals white half way up, the rest rose; the other was *Phalenopsis John Seden*, the new hybrid recently fully described and illustrated in our columns.

A pale form of *Cattleya Loddigesi*, Donx's variety, and a cut spike of *Dendrobium speciosum*, came from the garden of Gustav Donx, Esq., East Moulsey. Several *Cypripediums* raised by N. E. Cookson, Esq., Oakwood, Wylam-on-Tyne, were exhibited by F. Sander & Co., nurseries, St. Albans. These consisted of the following:—*C. plunierum*, from venustum × villosum, and *C. lineolare* ×. Both have been described in former numbers, (see pp. 40, 447, vol. i., 1887.) Mr. Sander showed also *Masdevallia Sanderiana*, a flower externally and internally of a dull crimson. The tails are variously twisted, 3 inches in length, and of a yellow tint.

A pure white form of *Cælogyne cristata* came from H. M. Pollett, Esq. Fernside, Bickley (gr., Mr. Parkes). The flowers are as large as the type, of the purest white, and number five on a flowerstalk. A Cultural Commendation was made.

A noble example of *Lycaste Skinneri* was sent by W. C. Pickersgill, Esq., Blendon Hall, Bexley (gr., Mr. Moore). It was a light form, every flower perfect, and of a large size, the whole plant measuring nearly 2 feet across.

A group of Orchids in variety were sent by A. H. Smee, Esq., The Grange, Hackwood. (gr., Mr. Cummins). These consisted of *Cattleya Trianae* var. *Emile*, with pale coloured sepals and petals, and dark purple lip; another *C. Trianae*, bearing one spike of bloom, had been grown out-of-doors last season to test the possibility of that method of culture. All that can be said about it is, that the plant lived and bore a flower, but that the method will not produce fine growth or flowers. Other Orchids were *Phaius Wallichiana*, with four flower-spikes; *Dendrobium macrophyllum giganteum*, a rosy-purple coloured bloom, having in the throat a dark purple

patch; *Oncidium sarcodes*, *Zygopetalum sarcodes*, *Masdevallia Shuttleworthii*, some *Odontoglossums*, &c. A Bronze Medal was awarded.

MISCELLANEOUS.

Messrs. J. Laing & Sons, Forest Hill, and Mr. B. S. Williams, of the Paradise Nurseries, Upper Holloway, each received a Silver Banksian Medal for a group of miscellaneous plants. Messrs. Laing's was a tasteful arrangement of *Crotons*, *Palms*, *Pandanus Veitchii*, and *Dracena Lindeni*, with *Azaleas*, *Erica ventricosa*, sprays of *Acacia Drummondii*, and various Orchids, including a number of varieties of *Odontoglossum crispum*; there were also *Cattleya Lawrenceana* and *Dendrobium Brymerianum*. Mr. Williams' group contained *Amaryllis* of much beauty in *Empress of India*, *General Roberts*, *John Heale*, and others; *Cliveas*, for which the Holloway Nursery is famous, contributed a few fine-flowered examples; *Toxicophlea spectabilis* was shown as a plant of 2½ feet high, and full of its corymbs of white flowers. Of *Cypripediums* we remarked *Boxallii*, *vernixium*, and *villosum*; *Dendrobium Wardianum*, several *Odontoglossum crispum*, and *Dendrochilum glumaceum*; these completed the principal flowering plants. Amongst the foliage plants used as a background was the graceful *Cycas undulata*.

A whole sheaf of white Lilac in excellent flower came from Mr. Drost, nurseryman, Richmond.

Mr. C. Turner, Royal Nurseries, Slough, showed a choice stand of new Tree Carnations, which, for size of bloom and pleasing tints, would be hard to beat. A large number of *Cyclamen giganteum* in four or five colours came from the same nursery, the white, and white and purple strains being in every way very good. A Silver Banksian Medal was awarded for the *Cyclamen* group.

Probably the most remarkable feature in the show was the splendid collection from the Royal Gardens, Kew; strange and out-of-the-way plants, but without most interesting and instructive, such as are not often seen at flower shows, were here. The following is a complete list of the constituents of the group, some of which are elsewhere alluded to (p. 401):—

Plants.	Sempervivum urbicum
Agave Baxteri, Baker, sp. n.	Asarum Thunbergii
Amorpha phallus variabilis	
Artemisia curvatum	Flowers, &c.
„ helleborifolium	Sarcia indica (Jonesia asoca)
„ galeatum	Brownea coccinea
„ praeox	„ grandiceps
„ speciosum	Coffea arabica in berry
„ Leseheanaulii	Anthurium digitatum
Begonia x	Musa coccinea
„ heraclefolia var. longipila	Philodendron Simsii
„ incarnata purpurea	„ sagittifolium
Tillandsia corallina	„ erubescens
Karats Schermetieffii	Spathiphyllum longirostre
Eugenia myrsiphylla	Acacia pubescens
Phyllanthus mimosoides	„ cultiformis
Atomium vittatum	„ falcata
Calanthe striata	„ praevisima
Sarcocaulis usneoides	„ verticillata
Maxillaria porphyrolele	Strelitzia Nicolai
Masdevallia Shuttleworthii	Drimys Winteri
Ardisia polycéphala	Rhododendron nilagiricum
Cælogyne cristata Lemouiana	„ barbatum
Haworthias, 19 sp.	„ Hookeri
Pentstemon rugosum	„ Thomsoni
Cytisus filipes	„ argenteum
Cereus tuberosus	„ arboreum
„ Echmea glomerata	Azalea linearifolia
Hemitelia Smithii	Araucaria Cunninghamii
Synthyris reniformis	„ (cone)
Helleborus antiquorum	Gasteria
„ guttatus	Dyckia frigida
„ colchicus	Greyia Sutherlandii
„ var.	Aristolochia Westlandii
„ orientalis	Rhaphis humilis
Douglasia levigata	Melanthus major
Begonia Arthur Mallet	Calamus trinervis
	„ leptospadix
	Richea pandanifolia

The exhibit of Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., attracted much attention from the visitors. Hyacinths constituted the chief item of the collection, nearly 200 spikes being shown in excellent condition, more sturdy and more dwarf than usual. Some of the most noteworthy of those staged were:—*La Joyeuse*, single, pink; *Kohi noor*, single, deep blue; *King of the Blues*, ditto; *Charles Dickens*, single, purplish-blue, with white centre; *Garrick*, double, cobalt-blue; and *Criterion*, *Vuurbaak*, *Masterpiece*, *Etna*, *Donna Maria*, &c. (Silver-gilt Banksian Medal.) They also showed two large baskets of *Lachenalia tricolor*, *Rhododendron Early Gem*, of dwarf habit, and bearing many lilac-pink flowers. *Lilium Thompsonianum*, *Trillium discolor* var. *atrata*, *Boronia heterophylla*, a charming plant, as much for its scent as for its pleasing rose flowers; a variegated form of *Rosa microphylla*, with very pretty foliage, useful for decorative purposes.

Messrs. Wm. Paul & Son, Waltham Cross, N., sent twelve boxes of cut blooms of *Camellias*, representing the most popular varieties; *Alba plena* and *Princess Charlotte* were good whites; *Romaniensis*; flesh; *Bonomiana*, white flaked red; *Mathotiana*, large and rich red; *Imbricata*, good shaped petals, red. (Silver Banksian Medal.) For a similar but smaller exhibit of unnamed sorts, Mr. S. Ford, Leonardlee, Horsham, received a Bronze Medal.

An excellent variety of white-flowered *Lilac Marie Lemoine* was shown by Messrs. Paul & Son, Old Nurseries, Cheshunt. Two new varieties were shown, but this was the more compact spike, although *alba grandiflora*, the other one, was equally pure in its white. A number of seedlings, named and unnamed, and of gigantic proportions, came from these nurseries, but few were of pleasing tints. Mrs. Gaskell and Charles Kingley, both crims, were the best.

Mr. W. Bull, New Plant Nursery, King's Road, Chelsea, exhibited the very handsome *Hamanthus bicolor*, which should have had a Certificate, but some doubts were expressed as to its persistence. The flower-head is 6 inches in diameter, and is composed of light rose-coloured flowers, with anthers tipped with gold. It is a worthy companion to the vivid *H. coccineus* and *H. Kalbreyeri*.

Daffodils, &c.—*Daffodils*, &c., in pots and cut, were shown largely. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, received the award of a Silver Banksian Medal for a good collection tastefully arranged with *Palms*, &c. *Narcissus bicolor Horsfieldii*, *N. poeticus ornatus*, *N. Golden Spur*, and *N. odoratus rugilobus* were prominent. He also showed several species of *Primula*, such as *P. spectabilis*, rosy-lilac with white eye; *P. marginata*, *P. floribunda* with *Anemones*, and a few hardy Orchids.

Messrs. Collins Bros. & Gabriel, Waterloo Road, S., contributed bunches of *Daffodil* blooms, the varieties being *Pallidus præcox* and *Tenby*, good blooms which would have looked better if a little foliage of some sort had been arranged with them. It was stated that the blooms were from the open ground—this probably means in the open ground with the protection of lights or handglasses. A Bronze Medal was awarded here, and also to Messrs. Barr & Sons, Covent Garden, who had a nice lot of *Daffodil* blooms, *Mary Anderson*, *Incomparabilis Cynosure*, *maximus*, *odoratus*, *Campanelli*, and *grandis*, and the *Polyanthus* sorts, *Grand Monarque* and *Grand Soleil d'Or*, were all good.

Messrs. R. J. Pearson & Sons, Chilwell, Notts, sent a few *Amaryllis* and *Dendrobium crassinode* var. *alba*, pure white, except the throat, which was yellow as usual.

Roses.—*Roses* were very good from Messrs. Paul & Son, Cheshunt, who showed extensively, and received a Silver Banksian Medal. The group included *Beauty of Waltham*, *Lady Mary Fitzwilliam Luciole*, a new sort, yellow, suffused with flesh; *Mignonette*, *Honore Defresne*, *Celestine Pourreaux*, *Duke of Teck*, *Alba rosea*, *Madame Victor Verrier*, Mrs. J. Laing, *Madame Lambard*, *Ulrich Brunner*, *Dr. Andry*, *Comtesse Camando*, a deep crimson coloured flower, incurved, and of medium size; *Gloire de Polyantha* is a *Polyantha* Rose, but with a brighter tint of rose, and a flower perhaps also a trifle larger than the type.

Mr. H. Bennett, Shepperton, Middlesex, contributed some good examples of his *Roses*.—*W. F. Bennett*, *Princess Beatrice*, *Lady Mary Fitzwilliam*, and *Polyantha Golden Fairy*—all good formed full flowers.

A Silver Banksian Medal was awarded to Messrs. H. Lane & Son, Great Berkhamstead, for a group of *Roses* and *Deutzia gracilis* in pots, all being heavily flowered plants; the *Roses* included *Glory of Waltham*, *Princess Mary of Cambridge*, *Duke of Albany*, *General Jacqueminot*, which were very good examples of their kind, especially when the size of the pots (9-inch) was considered.

FIRST-CLASS CERTIFICATES.

To Sir T. Lawrence, Bart., M.P., for *Dendrobium crassinode superbum*.

To Messrs. Paul & Son, for *Lilac Marie Lemoine*.

To Baron Schroder, for *Phalenopsis John Seden*.

To Messrs. Paul & Son, for *Rose Gloire de Polyantha*.

To Sir T. Lawrence, Bart., M.P., for *Spathoglottis Kimballiana*. (The first Certificate granted after leaving South Kensington.)

Fruit Committee.

Present: H. Veitch, Esq., in the chair; Dr. Hogg, J. Lee, P. Crowley, G. T. Miles, W. Marshall, J. Saltmarsh, J. Woodbridge, H. Weir, C. Howe, C.

Ross, W. Warren, T. B. Haywood, G. W. Cummins, J. Cheal, R. D. Blackmore, W. Denning, J. Burnett, J. Smith, J. Wright, J. Roberts, J. Willard, G. Norman, and Sydney Ford.

Messrs. J. Veitch & Sons showed a collection of about forty dishes of Apples which had been well kept. Dumelow's Seedling, Alfriston, Rymer, Northern Greening, Sandringham, Baumann's Red Requette, Prince Albert, Wagner, and Hanwell Souring were excellent specimens. A somewhat similar exhibit of about seventy dishes was made by Messrs. Cheal & Son, Crawley. Hambledon Deux Ans, Tower of Glamis, King of the Pippins, Wellington, Blenheim Orange, Annie Elizabeth, and Golden Noble were creditable examples in this collection. In both cases the fruits were clean, plump, and in very good condition.

Mr. M. Dunn, Dalkeith Gardens, also sent a few Apples from the north country.

Mr. W. Roupell, Harvey Lodge, Roupell Park, S.E., showed excellent fruits of the following Apples:—Wellington, London, and Lane's Prince Albert.

A new Apple, named Newton Wonder, came from Messrs. J. R. Pearson. It is a pretty fruit, conical, yellow, with red cheek, and about 3 inches high.

John Apple was sent from the Society's Gardens, at Chiswick. This is a splendid little Apple, which, even at this date, is as good as when first gathered, having still its brisk flavour and solid flesh.

Two bunches of Lady Downe's Seedling Grape were exhibited by Mr. G. Norman, Hatfield House Gardens, Hatfield. They were first-class fruits, plump, good colour, and still bore the bloom unhurt.

Samples of Hungarian Grapes were shown from Herr Anton Horvath, Fünfkirchen, Hungary. They were Chasselas Violet, Royal Muscadine, and Muscat of Hungary, which, although of but poor appearance, had very fine flavour. Mr. Blair, gr., Trentham, sent a bunch of black Hamburg grapes, cut on January 18 last.

CRYSTAL PALACE.

MARCH 24.—The spring flower show held on this date was a fair display, but the competition in many classes was very slack. Bulbous plants were good, and of these Messrs. H. Williams & Sons, Fortis Green, Finchley, N., contributed the best collections of Hyacinths, Tulips, and Lily of the Valley, in the open classes, showing vigorous specimens, especially of Lily of the Valley. Mr. H. R. Wright, Lee, Kent, was also a successful exhibitor in the same classes, leading for twenty-four Narcissi in pots.

Mr. Penfold, gr. to Rev. Canon Bridges, Beddington, Surrey; and Mr. C. J. Salter, gr. to C. J. Southgate, Esq., Streatham, carried off the honours in the amateurs' division for all but Lily of the Valley, where Mr. W. Kemp, gr. to H. Barry, Esq., Winchmore Hill, N., was 1st. He also sent a capitally flowered collection of *Primula sinensis* vars.

Mr. D. Phillips, Langley Broom, Slough, showed creditable examples of Cinerarias, staging plants of good form, and well flowered, the corresponding place in the open class being taken by fine plants from Mr. J. May, Gordon Nursery, Twickenham, followed closely by Mr. J. Odell, of Twickenham, who also contributed a collection of 100 pots, showing good culture, the flowers being very bright in colour, and of fine substance. Mr. Hibbert, Kingston-on-Thames, staged a similar group.

But few *Amaryllis* were shown, Messrs. Paul & Son, The Old Nurseries, Cheshunt, however, having some capital plants with good broad segments, and of rich colour: Dr. Masters was specially attractive. Mr. Salter also took a prize for these plants, having fair samples.

Greenhouse Azaleas from Mr. R. Wells, Longton Nursery, Sydenham, S.E., were very good, although small; President Garfield, E. H. Brandt, Bijon de Paris, Souvenir de A. Veitch, and Madame Vander-cruysen, were the best varieties.

For a collection of stove and greenhouse plants in 100 square feet, Messrs. J. Laing & Sons, Forest Hill, S.E., received the premier award for a very neat and light arrangement of plants, Mr. James, Castle Nursery, West Norwood, was a good 2nd, showing Orchids well.

Among miscellaneous exhibits were collections of Narcissi, &c., from Mr. T. S. Ware, Tottenham; and from Messrs. Barr & Son, Covent Garden. Narcissus Johnstoni and N. incomparabilis Cynosure were specially noticeable in Messrs. Barr's collection, and N. poeticus ornatus in Mr. Ware's. A few alpine were sent by Mr. Ware, and an interesting collec-

tion from Messrs. Paul & Son, comprising Saxifragas and Anemones, &c. These last-named exhibitors also contributing a capital group of Roses, in which were Souvenir d'un Ami, Victor Verdier, The Puritan, and Lady Alice, and also Polyanth Roses. Messrs. W. Paul & Son, Waltham Cross, N., showed twelve boxes of Camellia blooms, a very fair selection being given. Alba plena, Imbricata, Princess Charlotte, and C. M. Hovey were fine varieties.

A large collection of bulbous plants was sent by Mr. B. S. Williams, Upper Holloway, N., comprising most of the popular varieties. Azalea Deutsche Perle from this exhibitor was a well flowered plant; there were also hybrids between the A. amena and A. indica section—very pretty.

Begonias were sent from Messrs. H. Cannell & Sons, Swanley, Kent—Carrière is a good white; and Messrs. Cannell contributed also trusses of Pelargoniums, which were remarkably fine.

From Messrs. H. Williams & Sons there came a group of flowering plants, of which Azaleas, Cinerarias, Primulas, and bulbs were the chief; the whole effect was very vivid—almost too much so.

A Cineraria of a magenta hue, with the rays quilled for half their length, and expanded at the apex, was sent by Messrs. J. Carter & Co., High Holborn, W.C., as Emperor Frederick: appears to be the same as was certificated at the Royal Horticultural Society on April 12 last year as Alexander Warwick.

PRESTON AND FULWOOD.

MARCH 21 AND 22.—The spring show of this Society was held on the above dates, and in every respect was a success. Flowering plants were more numerous than usual, and were well banked up with plants having fine and ornamental foliage. The bulbs, as a whole, were good; many of the Hyacinths were of excellent quality, although a few, especially in the doubles, were a little lengthened in the spike. J. B. Dixon, Esq., Ashton (gr., Mr. Sharples), staged a large lot of bulbs, carrying off 1st in almost every class. Amongst his single Hyacinths we noticed good spikes of Queen of the Blues, Lord Derby, Obelisk, Linnaeus, Marchioness of Lorne, La Neige, Garibaldi, Sir H. Bartley, Sultan, and Black Prince. Some fine spikes were also observable among the doubles, including Van Hooboken, Noble par Merite, Regina Victoria, La Tour d'Auvergne, Prince of Waterloo, Comtesse de St. Prieste, Grand Conquerante, and Goethe. Tulips, Narcissus, Lily of the Valley, were shown by the same exhibitor, and of excellent quality.

In the class for twelve single Hyacinths Mr. R. Smith, Longridge, beat Mr. Dixon—the only one in some sixteen classes where the latter failed to secure premier honours.

Mr. E. Payne and Mr. H. Winwood competed in the nurserymen's class, the former taking 1st prize in both classes of twenty-four singles and twenty-four doubles.

The nurserymen's groups of miscellaneous plants were a pleasant feature, Mr. E. Payne, Mr. W. Troughton, and Mr. H. Winwood, staging good groups; that of Mr. Payne was of a very distinct and pleasing character. The awards were made in the order in which they appear. J. B. Dixon, Esq., the Misses Ffarrington (gr., R. Frisby), Mrs. Birchall (gr., J. Clarke) showed good groups of flowering and foliage plants. In the latter collection was a fine form of *Clivia miniata*. Mr. Dixon staged three grand *Dentzia gracilis*, full of bloom, measuring 15 feet in circumference. Some well-bloomed standard Azaleas were shown, also standard and dwarf Roses in pots capitally flowered. The Cyclamens shown by Mr. H. Wilding and Mr. J. Atherton were full of large flowers. *Spiraeas* and *Dielytras* were also in fine condition. There were numerous Ferns staged, among which were good pieces of *Microlepia hirta cristata*, *Adiantum cardiophyllum* and *A. Williamsii*. Primulas and Cinerarias had travelled badly, and were scarcely up to the mark. Among the latter were some having very large blooms of good colour and substance. Table plants were a nice feature. The Orchids were small and few, among them being *Cypripedium villosum*, *Odontoglossum Pescatorei maculatum*, *D. noble*, *Wardianum*, *Calogyne cristata*, and *Cattleya Trianae*. Mrs. Birchall, C. Parker, and T. R. Taylor were successful in these classes. Mr. C. Parker was 1st with bouquets, and vase and baskets of flowers. A fine group of flowering and foliage plants was staged by Mr. G. Rowbotham, Curator of the Preston Park; large *Prunus sinensis* fl.-pl., *Dentzias*, *Ficus elastica*, *Rhododendrons*, *Cinerarias*, and bulbs. Messrs. Dickson, Brown & Tait, Man-

chester, exhibited fifty pots of Hyacinths splendidly grown and flowered in 5-inch pots; the colour of the flowers and the dense manner in which the blooms appeared on the spikes were much commented on.

TREES AND SHRUBS.

ORNAMENTAL OAKS.

THE employment of late years of coniferous trees has caused planters to overlook the merits of many beautiful deciduous subjects. Some of the American Oaks are unusually large trees, and so distinct in leaf and general appearance that it may be of use for me to specify a few of the more suitable species for landscape embellishment.

Quercus coccinea.—Perhaps, with the exception of the Turkey and evergreen Oaks, this beautiful tree is more plentiful in Great Britain than any other. The leaves are large, often nearly a foot in length, deeply lobed, and during the autumn months they turn to a bright scarlet, and at which time the tree becomes highly ornamental, if found in conjunction with a clump of Austrian Pines. It delights in a cool, rich loam, and where sunshine is freely admitted. There is a form of the scarlet Oak named *macrophylla*, which is of very free growth, and quite distinct from the typical plant.

Q. Daimio, in point of beauty and singularity of form, is well worthy the attention of planters, but it is yet scarce, and rarely seen outside the bounds of botanic gardens or nurseries. The leaves of this Japanese Oak are of enormous size, those on the English-grown specimen being 15 inches in length by 9 inches in width. The colour of the leaf during autumn is very conspicuous and highly ornamental, it being of an amber colour suffused with red, while the foot-stalk and midrib are traversed by purplish veins. The young leaves are somewhat downy, but this gradually disappears with age, until they become quite smooth, although the foot-stalks and young twigs are always more or less pubescent. In this country—even in the cold parts of Scotland—it is perfectly hardy. It usually grows with great luxuriance when planted in rich well-drained soils.

Q. pannonica or *conferta*.—When well grown it is a tree of great beauty, of quick growth, and furnished with large and handsome foliage. In the stage of decay this is of a pleasant yellowish-brown colour, and as they remain hanging for a long time, the tree during the autumn months is one of great beauty. It may be relied upon as being perfectly hardy; indeed some of the largest and finest trees in the country are to be seen in the environs of Edinburgh. It would seem to thrive in a damp situation, at least the Irish specimen to which we have alluded is growing in rather dampish loam. It will grow in a soil almost boggy.

Q. Mirbecki is another little known but pretty Oak, and one that is of value for its autumn effects. It is a native of Algeria, but has been found perfectly well suited for the climate of Southern England at least; but whether it will withstand the rigours of a Scottish winter we know not. Perhaps as it is a tree of unusual beauty, some correspondent of the *Gardeners' Chronicle* would tell us how it succeeds in the northern Scottish counties. The leaves are large and of great substance, fully 9 inches long, and deeply and sharply lobed.

The *Marsh Oak* (*Q. palustris*) is in this country represented by some very fine specimens, and is a tree of very rapid growth, and of the easiest culture. As its name denotes, it delights to grow where moisture is abundant, and for this reason the banks of streams or lakes constitute a suitable position for it. In America it is usually found in the wild state, in best form, in such situations as we describe, some of the largest trees being found on the banks of Lake Erie and the Detroit River. By the name of Pin Oak the tree in question is sometimes known, and appropriately, too, for when leafless, the numerous smooth, slender shoots, give it the appearance of being provided with pins. The leaves, which in fully devel-

loped specimens are about 7 inches long, and deeply sinuated, turn in autumn of a bright and pleasant yellowish-red.

Quercus acuta, or *Q. marginata*, is an evergreen species, and when seen in good form it is certainly highly ornamental; indeed, quite as much so as any of its Japanese brethren. The leathery dark green leaves are of unusual substance, and remain in a good state of preservation for several weeks after being removed from the tree. Being perfectly hardy it may well find a place amongst the more ornamental of its race. There are several well marked forms of this Oak, one of the best, in our opinion, being that named *robusta*, the fully developed foliage of which is not unfrequently 8 inches in length by fully 3 inches in width, and puts one in mind of that of *Magnolia grandiflora*.

Q. serrata might readily—so far, at least, as shape of foliage is concerned—be mistaken for the Spanish Chestnut. The leaves are fully 6 inches long by an inch wide, and deeply dentated, and when young are often covered with a silky down. From its distinct appearance and ornamental qualities, this Japanese Oak is well worthy of extended culture; and as it attains to a large size, producing excellent timber, and is perfectly hardy, it may be relied upon as in every way suitable for planting in our parks and grounds.

The Evergreen Oak (*Q. ilex*) must on no account be omitted from our list of ornamental Oaks; indeed, it is not only one of the handsomest, but perhaps the hardiest and most accommodating that has yet been introduced to this country. There is a form—and a fairly constant one, too—of the Evergreen Oak that, in our opinion, is even better suited for ornamental purposes than the parent, and from which it differs chiefly in the more compact and graceful outline, smaller and much narrower leaves, and brighter colour. It is known under the name of *Q. ilex Fordi*. A. D. Webster.

GARRYA ELLIPTICA.

There seems to be a prevalent idea that this handsome evergreen shrub, which at this season is always a good deal talked about, is tender, and that it requires wall protection, and not infrequently writers who should know better describe it as a tender shrub. It is of course well known to many that it may be grown in the shrubbery like the common *Arbutus*; and what I wish to point out is its beauty of growth when planted in good loamy soil, and allowed plenty of room to develop itself. In a dry, light soil it has the best chance of withstanding a very severe winter. It is not suggested that it does not make a beautiful wall covering—there could be scarcely anything better: but I should like to see it planted more plentifully in the open. The female variety, whose catkins have no great beauty, appears to be becoming much commoner than formerly, though I would always prefer the male or pollen-bearer, as the catkins are longer and more elegant. I should like to ascertain how far north it is safe to plant the *Garrya* as a standard, especially in inland districts. W. G.

LAW NOTES.

ACTION FOR DAMAGES BY A FARMER.

BURNILL v. JENNISON.—This action was brought by a farmer residing at Whinhill, near Driffield, to recover £30 damages of defendant, a seed merchant, at Frodingham, caused by a quantity of Bangholme Purple-top Swede Turnip seed producing about three-fourths of a crop other than Turnips. The entire crop was useless, and entailed a loss of £8 to £10 per acre, besides causing a deterioration of the land during the next three or four years. Some of the growths from the seed were produced in court, and whilst they had the pungency of a Swede-Turnip they had no bulb, but an enormous number of threads or roots, one witness describing them as strongly resembling a Gooseberry bush, another as an Ash tree! Mr. Brigham's defence was that not only was

the land on which the seeds had been sown unsuitable, but they had been sown late, and that the exceptionally severe drought of last year had caused the seed to "sport," or in other words to go back to the original plant from which the Turnip is developed. In support of this theory he called a number of witnesses who had purchased seed of the same kind from defendant, and who had not a single complaint to lay against it. Mr. Syme, manager for Messrs. Peter Lawson & Son, of Edinburgh, growers of the seed, deposed that of this particular lot they sold last season 1026 bushels, and received no complaints. He considered the plants produced were either a "sport" or had been hybridised, but they were not Rape plants. There was a trace of the Swede in them. In England last season was one of the worst known for Turnips; in Scotland it was not so bad. Mr. Reed, who said he farmed 1000 acres, stated that land such as Mr. Burnill's was liable to grow the sort of plant produced, the land containing a good deal of antediluvian deposit. Other witnesses deposed to land in the parish of Frodingham—"carr" land—producing such plants as those exhibited in court.

His Honour gave judgment for defendant, and with costs, observing that the plaintiff had enormous difficulties against him, and he had entirely failed to prove that defendant had sold him something different to what he had bargained for. *East Riding Chronicle and Driffield Express*, March 24.

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

ANTHEURIUM: *Westfield*. Destroy that part of the plant which is affected.

APPLES AND PEARS: *B. H.* The fruits have lost their characteristics, and cannot now be identified.

AZALEAS: *E. P.* Most of the varieties of Indian Azaleas grow freely when properly treated. *Azalea indica purpurea*, a fine old plant with large light purple flowers, is one of the strongest growers, and is therefore much employed as a stock. Make your own selection.

CHRYSANTHEMUMS: *A. E. S.* These plants must have the flower-stems cut down, whether in pots or out-of-doors. To get plants of 18 inches in height you might employ the method of summer layering in the open ground, for either bushes or standards, choosing shoots of rather less than that height; or you may cut down the stems of plants in pots in the month of June to about 9 inches. But as the varieties, as well as individual plants, show differing degrees of vigour, it will not be possible to maintain the 18 inch standard, consequently many more must be grown than you want, so that a selection may be made when in bloom.

CLEOME CRISTATA PSEUDOBULBS SHRIVELLING: *F. G. F.* If the plant is free from maggot you need not feel alarmed at the pseudobulbs shrivelling. They always do this more or less after flowering, especially the white variety, *C. hololeuca*; but when placed in a temperature of 60°—70° they soon start to grow, and then plump up again.

GAS LIME: *E. P.* This substance is best employed either mixed with manure in heaps that are repeatedly turned over before being spread on the land, or it may be spread alone, and allowed to weather before turning in.

Kew GARDENS: *A. H.* Write to the Curator, who will send you a form of application.

LEAF DISFIGURED: *F. S. M.* See report of Scientific Committee.

LIMEY WATER: *P. & Sons.* Heaths, Rhododendrons,

Azaleas, and peat-loving hard-wood plants generally, suffer from water containing lime, and the leaves of Orchids and evergreens get disfigured by being syringed with it.

MUSTARD AND CRESS DAMPING OFF: *H. F.* Bad ventilation; too much heat and moisture, or want of light.

NAMES OF PLANTS: *L. P.* 4, *Acacia Riceana*; 5, *A. longifolia*; 6, *A. stricta*? 7, *A. sp.*—cannot determine name; 11, *Dorstenia brasiliensis*?—*W. T. P.* *Dendrobium thysiflorum*, *Odontoglossum crispum guttatum*.—*D. M. L.* 1, *Vanda tricolor*; 2, *Dendrobium chrysotoxum*; 3, *D. heterocarpum philippinense*; 4, *D. densiflorum*; 5, *D. Wardianum*.—*F. G.* *Begonia argyrostigma*, certainly different from *B. Lubbersii*, and not so good.—*M. L. D.* 1, *Oncidium sphacelatum*; 2, *Dendrobium draconis*; 3, *Polygala Dalmatiana*.—*A. B.* *Tradescantia repens*.—*W. G.* 1, see next week; 2, *Pelargonium Rolisson's Unique*; 3, *Agapanthus variegatus*; 4, *Calanthe masuca*; 5, *Begonia nitida*.—*J. H. J.* 1, *Begonia nitida rosea*; 2, *B. Ingrami*; 3, *Eupatorium Weinmanniana*; 4, *Salvia gesneriflora*; 5, *Goldfussia isophylla*.—*Sent Without a Name.* *Asplenium cicutarium*.

ODONTOGLOSSUM ROSSI RUBESCENS: *J. C.* Many thanks.

STRAWBERRIES: *J. M.* Too much damaged to identify.

TACSONIA ERIANTHA: *Eriantha*. When this plant is shy to bloom it is usually the result of a deficiency of ventilation, and of keeping the plant growing, instead of causing a cessation of growth by cooler treatment and lessened water supply in autumn and winter.

TREE TOMATO: *T. G. C.* It is not hardy in this country, and is not worth cultivating as a vegetable, as we have so many better things.

CATALOGUES RECEIVED.

THOS. METHVEN & SONS, 15, Princes Street, Edinburgh, N.B.—Clovers, Grasses, &c.

VICARS COLLYER & Co., Central Hall, Silver Street, Leicester—Seeds.

V. LEMOINE, Rue de Montet, Nancy—Stove and Greenhouse Plants.

BLACK & Co., Malton, Yorkshire—Farm Seeds.

RAWLINS BROTHERS, Old Church, Romford, Essex—Dahlias.

H. CANNELL & SONS, Swanley, Kent—Supplementary List of Chrysanthemums.

J. BACKHOUSE & Son, York—Alpine and Herbaceous Plants.

COMMUNICATIONS RECEIVED.—Colonel Jones.—M. H. V.—J. A. (letter will follow).—Rev. E. G.—Dr. B.—G. (next week).—Professor Henriques, Coimbra.—R. S. N.—J. H.—F. B. C.—Ayleis Bilha.—W. J. M.—J. H. G. (next week). See *Plant Life*, Bradbury & Co.—V. de F.—A. G. J.—F. W. B.—G. S.—H. Scobie (your letter has been forwarded as desired).—J. Colbrook.—A. E.—F. M.—J. H.—I. O. Westwood.—A. D.—C. W.—W. B.—Wild Rose.—Scot.—R. A. R.—Theta.—E. S.—H. W. W.—W. Sutherland.—B. A. (must send his full address).—J. W. R. B.—W. H. D.—W. W.—G. C.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, March 28.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

No alteration. Market still very quiet. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 3-sieve	... 3 0-6 0	Pears, per dozen	... 3 0-6 0
Grapes, per lb.	... 3 0-6 0	Pine-apples, Eng., lb.	1 0-2 0
Kent Cobs, 100 lb.	... 40 0-45 0	—St. Michael, each	2 0-5 0
Lemons, per case	... 12 0-21 0	Strawberries, lb.	... 6 0-10 0

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, p. doz. ... 6 0-10	Mushrooms, punnet 1 0-1 6
Asparagus, Fr. bund. 1 0-5 0	Mustard and Cress, punnet ... 0 4- ...
Beans, Kidney, lb. ... 3 0- ...	Onions, per bushel ... 9 0- ...
Beet, red, per dozen 1 0-2 0	Parsley, per bunch ... 0 6- ...
Brus, Sprouts, lb. ... 0 6- ...	Potatoes, per cwt. 4 0-5 0
Carrots, per bunch ... 0 6- ...	kidney, per cwt. 4 0-5 0
Canliffowers, each ... 0 3- ...	Rhubarb, per bundle 0 4- ...
Celery, per bundle ... 1 6-2 6	Seakale, punnet ... 1 6-2 0
Cucumbers, each ... 0 9-1 6	Shallots, per lb. ... 0 6- ...
Endive, per dozen ... 2 0- ...	Spinach, per bushel ... 4 6- ...
Green Mint, bunch ... 1 0- ...	Sprue, per bundle ... 1 0- ...
Herbs, per bunch ... 0 4- ...	Tomatos, per lb. ... 2 6- ...
Leeks, per bunch ... 0 6- ...	Turnips, per bunch ... 0 6- ...
Lettuce, per dozen ... 1 6- ...	

POTATOS.—Markets about the same as last week. Hebrons finished.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-13 0	Evergreens, in var., per dozen ... 6 0-24 0
Azaleas, per dozen ... 24 0-35 0	Ferns, in var., doz. 4 0-15 0
Bouvardias, per dozen 9 0-12 0	Ficus elastica, each ... 1 6-7 0
Cinerarias, dozen ... 6 0-12 0	Flange plants, vari
Cyclamens, per dozen 12 0-24 0	ous, each ... 2 0-10 0
Cyperus, per dozen ... 4 0-12 0	Genistas, dozen ... 8 0-12 0
Daffodils, dozen ... 9 0-12 0	Hyacinths, doz. ... 6 0-9 0
Deutzias, per dozen ... 9 0-12 0	Lily of the Valley, 12 pots ... 15 0-18 0
Dracena terminalis, per dozen ... 30 0-40 0	Marguerites, doz. ... 9 0-12 0
—viridis, per doz. 9 0-12 0	Myrtles, per dozen ... 6 0-12 0
Dieffenbachia, dozen ... 12 0-15 0	Palms, in var., each 2 6-21 0
Epiphyllums, doz. ... 12 0-24 0	Pelargoniums, doz. 13 0-24 0
Ericas, various, per dozen ... 9 0-18 0	Primula sinensis, per dozen ... 4 0-6 0
—ventricosa, doz. 13 0-30 0	Solanums, per dozen 9 0-12 0
Eucynimus, in var., per dozen ... 6 0-18 0	Spinneys, dozen ... 9 0-15 0
	Tulips (pots of), doz. 6 0-8 0

OUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Acacia, or Mimosa, per bunch ... 0 9-1 6	Marguerites, 12 bun. 3 0-6 0
Azaleas, French, 12 bunches ... 2 0-4 0	Mignone, 12 bun. 3 0-6 0
—fulgens, 12 bun. 3 0-6 0	Narcissus, paperwhite, Fr., 12 bunches ... 2 0-4 0
Arum Lilies, 12 blms. 4 0-6 0	—Varions, 12 bun. 1 6-4 0
Azaleas, 12 sprays ... 0 6-1 0	Pelargoniums, 12 spr. 1 0-1 6
Bouvardias, per bun. 0 6-1 0	—scarlet, 12 spr. ... 0 6-9 0
Camellias, 12 blms. ... 1 0-3 0	Primroses, 12 bun. ... 1 0-2 0
Carnations, 12 blms. 1 6-3 0	Primulas, double, 12 sprays ... 1 0-1 6
Cinerarias, 12 bun. ... 6 0-12 0	—single, 12 bun. ... 4 0-6 0
Cyclamens, 12 blms. 0 4-6 0	Roses, Tea, per doz. 3 0-8 0
Daffodils, double, 12 bunches ... 4 0-6 0	—coloured, dozen. 2 0-4 0
—single, 12 bun. ... 4 0-12 0	—red, per dozen ... 4 0-9 0
Deutzias, 12 bunches 4 0-6 0	Safrano, dozen ... 1 6-3 0
Dieffenbachia, per dozen 4 0-6 0	Snowdrops, 12 bun. 1 0-4 0
Gardenias, 12 blooms 6 0-12 0	Tuberose, 12 blms. ... 1 6-2 0
Heliotropes, 12 spr. 0 6-1 0	Tulips, 12 blooms ... 0 6-1 0
Hyacinths, Roman, 12 sprays ... 0 6-1 0	Violets, 12 bunches ... 1 0-1 6
Lilium longiflorum, 12 blooms ... 6 0-9 0	—French, bunch ... 1 6-2 0
Lily of Valley, 12 spr. 0 6-1 0	—Fr. Parme, bun. 3 6-4 6

* Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: March 26.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report more business now doing. In accordance with the prevailing fashion, buyers appear desirous of postponing their purchases as long as possible. However, with a spell of favourable weather, the sowing season must be quickly upon us, and the comparatively small stocks on hand would quickly melt away. As regards values there is no change to be noted. Quotations remain very moderate all along the line. Spring Tares find buyers on former terms. Perennial and Italian Rye-grasses move off at last week's rates. There is still a scarcity of Hemp seed. For Canary seed the sale is slow. Blue Peas are neglected. In Liosseed the tendency is upwards. Rape seed is also firmer.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended March 24:—Wheat, 30s. 6d.; Barley, 29s. 6d.; Oats, 15s. 5d. For the corresponding week in 1887:—Wheat, 33s. 2d.; Barley, 23s. 2d.; Oats, 16s. 4d.

POTATOS.

BOROUGH AND SPITALFIELDS: March 27.—A fair demand. Prices generally firm. Quotations:—Regenta, 50s. to 100s.; Magnum Bonums, 50s. to 105s.; Champions, 50s. to 70s.; Dutch Rocks, 55s. to 60s. per ton.

Imports.—The imports into London last week consisted of 188 bags from Boulogne, 574 from Bremen, 100 from Harlingen, 6 from Rotterdam, 600 bags 10 cases from Hamburg, 100 casks from Malta, 6 baskets 44 packages from Dunkirk, 82 packages 47 barrels from Teneriffe, 6 barrels from New York.

CARNATIONS AND PICOTEEES. (PLANT AT ONCE.)

I have pleasure in drawing the attention of the Trade and Retail Buyers to my very extensive stock of Carnations and Picotees, which is probably the largest collection in the Trade. The plants this season are strong and healthy, and intending buyers would do well to procure and plant at once, that they may get well established before the warm weather comes.

The Collection consists of the following sections:—
SHOW VARIETIES.

A very complete collection, including all the finest of the Florists' sorts, especially those which are of good constitution.

BORDER VARIETIES (to name).

These have for many years been a great specialty with me. An enormous quantity of them are sold annually. They are all good free vigorous sorts, and such as produce plenty of flower, and are, in consequence, specially suited for the Trade who want quantities of Carnations for cutting.

SELFS AND CLOVES.

A very fine collection, including many varieties of recent introduction. These are specially adapted for border planting; they are mostly all good free flowering, distinct, and bright-coloured sorts. Many of them are strongly Clove-scented.

YELLOW GROUNDS.

A unique collection, which has been materially extended during the last two seasons, and there are now included amongst them many sorts which are as free, both in growth and flower, as the Border varieties, or the Selfs and Cloves, and are, in consequence, well fitted for outdoor planting, and charmingly suited for the purpose of supplying cut flowers.

CATALOGUES, with full descriptions and prices of the varieties which constitute the various collections, may be had, gratuitously and post-free, upon application to

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

CARROT SEED. HARRISON & SONS

ARE PREPARED TO SUPPLY THEIR

SELECTED SCARLET INTERMEDIATE CARROT,

SELECTED ALTRINCHAM CARROT.

These are specially grown from Selected Roots for Market Growers, being remarkable for colour, size, and shape. Carrot Growers will do well to obtain a supply from us.

Price per pound or cwt. on application.

HARRISON & SONS,
SEED GROWERS, LEICESTER.

LILIUM AURATUM. FREESIA REFRACATA ALBA.

We have fine stocks of the above, of our own direct importation, and will quote lowest prices to the Trade upon application.

HURST & SON,
SEED MERCHANTS, 152, HOUNDSDITCH, LONDON, E.

SEEDS, Vegetable, Flower, and Farm,

Carefully Selected,

AND FROM WHICH MAY BE EXPECTED

**THE BEST RESULTS
EVER YET ATTAINED.**

ILLUSTRATED LIST,

Containing Copious, Interesting, and Reliable Information, Free.

RICHARD SMITH & CO.,
Seed Merchants and Nurserymen,
WORCESTER.

DANIELS' ROYAL NORFOLK RUSSET.

SYN.—"The Village Blacksmith."

THE most REMARKABLE POTATO ever raised. The tubers are of medium size, and roughly netted; eyes, few and shallow; flesh, white; fine grained; boils like a ball of flour, and of the finest flavour. It is a great disease resister, and is pre-eminently adapted to moist soils and districts. We have grown it six or seven seasons, and have never known one diseased.

Price, 3s. 6d., 14 lb.; 12s. 6d., 56 lb.; 21s. per cwt. Orders for 1 cwt. and upwards carriage paid.

UNSOLICITED TESTIMONIALS.

IRELAND.—J. JONES, Esq., M.D., Ardee, September 5. "In 1885 I had from you 1 lb. of Royal Norfolk Russet. I planted the produce in 1886, and again this season. On the 3rd inst. I dug from two stalks forty-one tubers about 14 lb. Such as were cooked were excellent, white, floury, and of good flavour."

ENGLAND.—From Mr. T. R. Bailly, Barrington, Cambs. "Your Royal Norfolk Russet greatly exceeded my expectations, turning out remarkably well."

SOUTH AFRICA.—From Mrs. Francis, Pietermaritzburg. "The Potatoes gained first prize as a collection. The Royal Norfolk Russet first as a round variety."

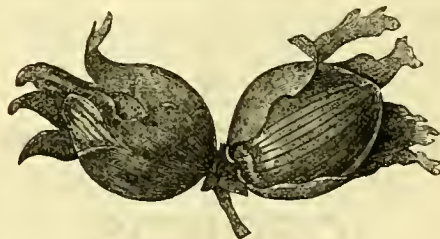
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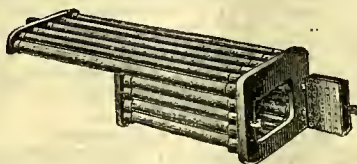
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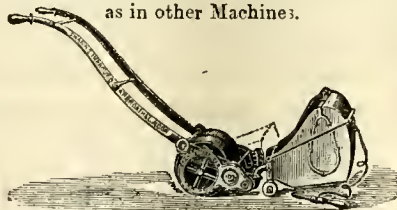
CONSERVATORY BLINDS made to order, of Plain or Striped Material.

NEW CANVAS SHADING.—It is perfectly rot-proof, keeps sound under conditions where other fabrics have shown fungoid growth and incipient decay.

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THE ONLY LAWN MOWER FITTED WITH
DOUBLE EDGED SOLE-PLATE,
Enabling the Cutting Parts to last twice as long
as in other Machines.



THESE MACHINES are strong, substantial, and very easily worked. They make the Lawn like velvet, and are not liable to get out of order.

Prices of Hand Machines, with Grass Boxes, complete.
To cut 10 in. wide... £3 10 0 | To cut 19 in. wide... £8 0 0
" 12 " ... 4 10 0 | " 22 " ... 8 10 0
" 14 " ... 5 10 0 | " 24 " ... 9 0 0
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Small Lawn Mowers, 6 in., 25s.; 7 in., 35s.; 8 in., 45s.
Horse and Pony Machines, with or without Patent Delivery Apparatus.

SHANKS'S NEW LAWN MOWER, 'THE IMPROVED AMERICAN.'

The working parts are greatly reduced in number, and this MACHINE is easier to work than any other in the Market. Every working part is protected. It can be used with or without Grass Box.

PRICES.
10-inch Machine ... £3 0 0 | 14-inch Machine ... £4 15 0
12-inch " ... 4 0 0 | 16-inch " ... 5 10 0
Grass Boxes extra—10 and 12 in. sizes, 7s. 6d.; 14 and 16 in. sizes, 10s.

GARDEN ROLLERS OF ALL SIZES.

ALEX. SHANKS & SON,

Dens Ironworks, Arbroath,
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A large Stock of all sizes of Machines is always kept in London, where Repairs can also be executed by experienced workmen.

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Packages and packing free, and delivered to any London Station.
100 squares of Glass, quality guaranteed.

15 oz. 21 oz.
13½ by 8½ for 10/- for 14/-
12 " 9 " 10/- for 14/-
12 " 10 " 11/- for 15/-
14 " 10 " 13/- for 19/-
14 " 12 " 17/6 for 24/-
12 " 12 " 13/- for 20/-
15 " 12 " 21/- for 31/-
20 " 12 " 24/- for 35/-
or 300 squares 15 ounce, 8 by 6,
or 250 squares 8½ by 6½, or 220
squares, 9½ by 6½, or 170 squares,
9 by 7½, or 150 squares, 10 by 8,
for 10s. Carriage paid for all orders
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Glass cut to any size at the above proportionate prices.
Best LINSEED-OIL PUTTY. PAINTS, ready mixed for use, in tins of 1 lb. to 14 lb., at 5d. per pound. Special quotations given for large quantities.

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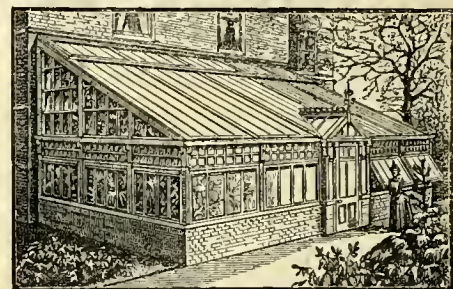
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English Glass, cut to buyer's sizes, at lowest prices, including free delivery in the country in quantities.

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The "Gardener's Friend" HOT-WATER BOILER,

For Greenhouses, Vineries, Conservatories, Forcing Houses, &c.

Advantages

Equally applicable for Domestic or Warehouse Heating. Baths, Lavatories, and Laundries.

Minimum Cost of Setting. Free Access to all Flues.

Certain Continuation of Heating at night.

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A large quantity of all descriptions and sizes in stock, at the lowest possible prices.

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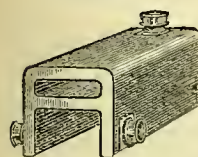
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Boilers of all kinds Made to Order.

TERMINAL END and FLUED SADDLE BOILERS.



3 ft. x 16 x 16... £10 10 0
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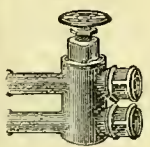
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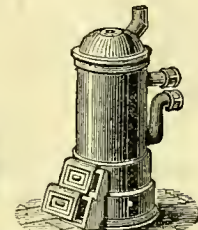


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New Screw-down Elbow Valve.

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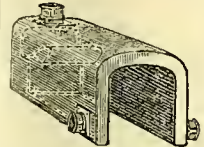
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Fitted with from 1 to 20 Cross Tubes.

Heating Power. Price.
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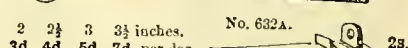
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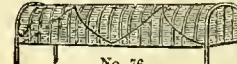


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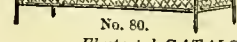
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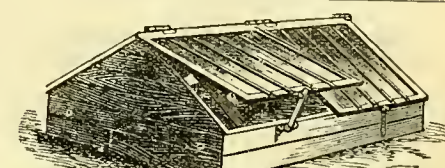


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8 feet long, 4 feet wide, packing cases free £2 15 0
12 feet long, 4 feet wide, " " 4 15 0
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The glass is nailed and puttied in.

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London Agent: **Mr. H. SKELTON, Seedsman, &c.,**
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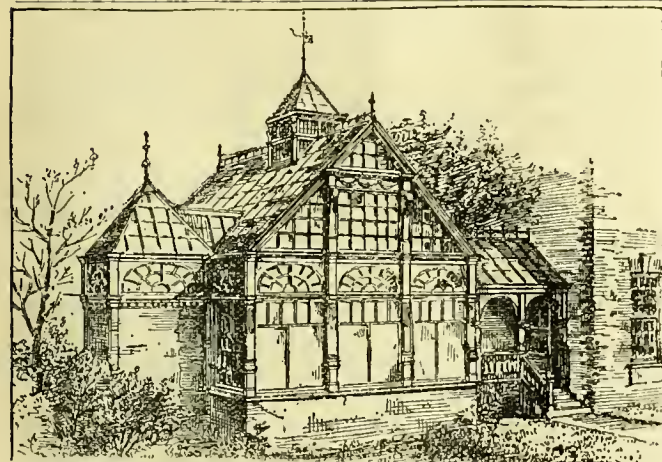
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Embroidered Handkerchiefs, from 1s. each.

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ROBINSON AND CLEAVER'S MATCHLESS SHIRTS.

Best Quality Long Cloth, with 4-fold finest Linen Fronts, 35s. 6d. per half-dozen (to measure or pattern, 2s. extra). Patterns of materials used, also of newest styles in Fancy Cotton, Flannel, Silk, and Silk and Wool Shirtings sent free on application.

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Accidents all the Year Round.

Provide against them by Policy of the
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Annual Income, £248,000.
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Compensation paid for 126,000 Accidents, £2,500,000.
Moderate premiums—Favourable conditions—new concessions.
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GRATEFUL—COMFORTING.
C O C O A
MADE WITH BOILING MILK.

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The best County medium for Advertising Sales of
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THE WORCESTER HERALD, the largest
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counties. Advertisers would do well to forward for reference
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in the columns of the *Worcester Herald*. Specimen copies sent
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Offices, 72, High Street, Worcester.

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THE WORCESTER HERALD is the most
effective organ for giving publicity to announcements of
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LAND AGENTS, ESTATE MANAGERS, and all having Farms
to Let, would do well to Advertise in
THE WORCESTER HERALD, the Largest
and Leading County Paper. Specially adapted for
bringing such notices before Tenant Farmers. Large Circula-
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et ETRANGERE (Belgian and Foreign Horticultural
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Plates and Illustrations. Published since 1865, by F. BUR-
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ment at Ghent. Post-paid, 10s. per annum.
H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

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Any one desirous of Renting a Farm or Residence,
Purchasing an Estate, can have copies of the

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supplied free for six weeks on stating the purpose for
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Herald Office, Birmingham." The *Midland Counties Herald*
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J. METCALFE, Swinton Park, tenders his
thanks to the seventy-three Gardeners who wrote on
behalf of the Journeymen's situation. THE PLACE IS
NOW FILLED.

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THE ADVERTISER (Potato Merchant)
REQUIRES the help of a good shrewd
BUSINESS MAN, with from £2000 to £5000
capital, to extend his present established Potato
Trade. Minimum risk, as trade nearly all
commission. Whole cargoes dealt with. Large
profits. Particulars privately.

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

HEAD GARDENERS seeking Situations can
hear of REMUNERATIVE EMPLOYMENT (temporary
or permanent) in their own neighbourhood. Horticultural.—
Address, TRADE, *Gardeners' Chronicle* Office, 41, Wellington
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To Gardeners.

THE METROPOLITAN BOARD OF WORKS
are about to appoint a RESIDENT PARK-KEEPER and
FOREMAN (combined) for the following places—viz., one for
Southway Park, one for Dulwich Park, and one for Ravens-
court Park, Hammersmith. Full particulars as to the duties and
remuneration can be obtained on application, in writing, to the
Clerk of the Board, at Spring Gardens, S.W., to whom all ap-
plications, together with testimonials, must be sent on or be-
fore April 11, 1888. Applications, which must be in the applicants'
own handwriting, can only be received from persons
over 30 and under 45 years of age.

J. E. WAKEFIELD, Clerk of the Board.

Spring Gardens, March 26, 1888.

Wanted.

MESSRS. JOHN LAING AND SONS
REQUIRE, AT ONCE, a thorough practical, energetic,
sober and trustworthy MAN, to take charge of their Herbaceous
Plant Department. Must be well versed in the Propagation
and Cultivation of Florist's Flowers, Chrysanthemums, &c.—
Apply by letter only, stating experience, wages expected, &c.,
to The Nurseries, Forest Hill, London, S.E.

WANTED, a GARDENER, who can Manage
Cows and Stock, a generally useful man, in a small
place; with a Wife able to do Laundry Work.—Apply, by letter,
giving full particulars, to Captain Hon. A. C. LITTLETON, 55,
Warwick Square, S.W.

WANTED, a SECOND GARDENER (young
man), three kept for In and Outdoor work. Must have
good character.—Address full particulars to H. CHARLTON,
Esq., Tytherington Hall, Macclesfield.

WANTED, a young UNDER GARDENER,
married, without children. House provided. Man
to attend Conservatory, and must be a good Plant Grower,
active and neat in his work. Wages, 10s.; 5s. a week to wife
for partial service during summer months. Apply by letter
or personally to HEAD GARDENER, Rosherville Gardens,
Gravesend.

Can any Gentleman recommend a
COACHMAN-GARDENER, married, with
small or no family? Small Vinery. Pair.—Rev. E.
ELWES, Over Combe, Liss.

WANTED, a Working NURSERY FORE-
MAN and PROPAGATOR (Outside), where a General
Stock is grown. Must be active and intelligent, a good Budder
and Grafter, and understand the Propagation of General Nur-
sery Stock.—Apply in own handwriting, stating wages expected
to GEORGE SMITH, Dell Nursery, Kock Ferry, Birkenhead.

WANTED, several respectable MEN in the
JOBING Department; also a few YOUNG MEN
for the FURNISHING Department.

Apply personally, or by letter to WILLS and SEGAR,
Florists and Gardeners by Royal Warrants to Her Majesty
the Queen and H.R.H. the Prince of Wales, South Kensington,
London, S.W.

WANTED, a TRAVELLER, for the Nursery
and Seed Trade. Must be thoroughly competent, with
a good connection, and be energetic, sober, and trustworthy.—
Apply by letter only, stating experience, wages expected, &c.,
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WANTED, a young LADY FLORIST. Per-
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to W. RICHARDS, as, unless the number of a Postal Order is
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to a particular person, it is impossible to prevent any person
into whose hands it may fall from negotiating it.

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—SCOTCH DOWNIE (of the late firm of Dowrie & Laird),
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RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

FOR SALE, Early SEED POTATOS of the
best kinds:—Breeze's Prolific, Gordon's Pride, Reading
Russet, Fortyfold, Magnum Bonum, Imperators.
For price, &c., apply to J. SMITH AND SON, Sipton, near
Slough.

W. H. LASCELLES AND CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement on page 423.

SALES BY AUCTION.

Wednesday next.—(Sale No. 7659.)

SPECIAL SALE OF ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 11, at half-past 12 o'clock precisely, a grand Collection of ORCHIDS in Flower and Bud comprising two fine pieces of *Lycaste Skinneri*; alba, *Odontoglossum Alexandræ* and *Pescatorei*, splendid forms; *O. Vexillarium*, extra fine plants, one with thirty growths; *O. Mulus var.*, fine *Odontoglossum Hybrids*, some splendid varieties of *Cattleya Mendeli*, &c. *Trianæ*, *Dendrobium splendensissimum grandifolium*, *D. Wardianum*, *D. Devonianum*, *Lælia Harpophylla giganteum*, fine forms of *L. Anceps*, and *L. purpurata*. *Cymbidium eburneum*, *Cypripedium caudatum*, roseum, *Masdevallias*, *Oncidiums*, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7659.)

ODONTOGLOSSUM MULUS IN FLOWER.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, April 11, a strong plant in flower of a fine variety of the rare *ODONTOGLOSSUM MULUS*.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7659.)

ERIDES HOULETTIANUM.

DENDROBIUM BRYMERIANUM, fine specimens.

2500 DENDROBIUMS, in variety.

VANDA DENISONIANA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 11, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a very large quantity of imported ORCHIDS, in the finest possible condition, comprising *Erides Houlettianum*, *Angulosa Clowesi*, *Cymbidium eburnum*; 60 fine strong *Dendrobium Brymerianum*, some of the bulbs 2 feet in length, and one mass with 120 buds; 100 *D. crassinode*, 150 *D. Canbridgeum*, 200 *D. cretaceum*, 1000 *D. Denisoni*, 450 *D. Devonianum*, 400 *D. Falconeri*, 600 *Wardianum* lowi, alba, *O. chryso-tes*, *D. Farneri*; *D. Freemanii*, *D. Parishii*, *D. primum*; *O. odontoglossum Pescatorei*, in especially selected specimens; *Platycodon humilis*, *P. maculata*, *P. Wallichiana*, *Saccolabium*, *Vanda Amesiana*, and *Denisoniana*, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7658.)

500 first-class Standard and Dwarf ROSES to name from well-known English growers, Hardy Ornamental SHRUBS and CONIFERS, FRUIT TREES of sorts, TUBEROUS BEGONIAS, FICUS, PILOTES, PINES, HOLYBUCKS, ASTERS, and other BORDER PLANTS, fine Clumps of SPIRÆA PALMATA, LILiums, GLADIOLI, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT April 11, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7660.)

VALUABLE IMPORTED ORCHIDS.

CATTLEYA AUREA.

SKINNERII variety.

LÆLIA ACUMINATA MAXIMA.

ONCIDIUM UNULATUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 12, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a splendid importation, just arrived, of the handsome and brilliant-flowered *CATTLEYA AUREA*, in grand condition, well furnished with green foliage and sound, unbroken eyes; also a very fine-looking *CATTLEYA* from a new district, probably a variety of *C. Skinneri*; a fine importation of the very scarce and beautiful *LÆLIA ACUMINATA MAXIMA*—the flowers of this Orchid are very large, and of the rich colour; fine pieces of the rare *ONCIDIUM UNULATUM*, breaking freely, together with quantities of *Burmese Dendrobies*, *Oncidium cucullatum*, *Odontoglossum Pescatorei*, *Ada aurantiaca*, *Lælia autumnalis*, *L. albidia*, *Palmatina caudata*, *Arundina bambusaefolia*, *Vanda teres*, *Odontoglossum grande*, *Brassavola glauca*, and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7660.)

10,000 grand Bulbs of *LILIUM AURATUM*, received from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 12.

On view morning of Sale, and Catalogues had.

Collection of Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 18, at half-past 12 o'clock precisely, the COLLECTION of ORCHIDS formed by A. G. Wallis, Esq., of Thornlie, Balham. Amongst other fine things will be found *Cyclogyne Massangeana*, *C. cristata*, *Lemoniana*, *Oncidium Marshallianum*, grand var., *Agrostecum sequipedale*, *Acer crassifolium*, and the usual varieties of *Odontoglossums*, *Dendrobies*, *Oncidiums*, *Cattleyas*, *Vandas*, &c.

On view morning of Sale, and Catalogues had.

A New Species of Lady's Slipper, from New Guinea. *CYPRIPIEDUM ROTHSCCHILDIANUM*. Now in flower at the St. Albans Orchid Establishment, and pronounced by those who have seen it, one of the very finest *Cypripedies* ever introduced.

MR. J. C. STEVENS has been instructed by Mr. F. Sander to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, the entire stock of *CYPRIPIEDUM ROTHSCCHILDIANUM*.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26.

At 38, King Street, Covent Garden, W.C.

Specially rare and fine *ONCIDIUM ONCIDIUM BIFOLIUM MAJUS*.

Only once this so beautiful *Oncidium* has been imported, and the locality in its native country was lost for many years.

We have succeeded in rediscovering this fine Orchid, and **MR. J. C. STEVENS will SELL by AUCTION,** at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, by direction of Mr. F. Sander, a specially grand importation, in unusually fine order, of *ONCIDIUM BIFOLIUM MAJUS*. This handsome Orchid has often been eulogised by the press, and by all to whom it is known. It is, however, so rare, that only one or two old collections of Orchids contain it. The flowers are very elegant, and produced on drooping spikes, large, and sepals and petals are chocolate, marked with yellow, and lip deep golden yellow. It is a plant of most easy culture, and it gives us special pleasure to be enabled to offer such a fine and so rare an Orchid.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26,

At 38, King Street, Covent Garden, W.C.

DENDROBIUM NOBILE, Sander's variety.

This is undoubtedly one of the very finest *Dendrobiums* in existence, and a close rival to *Dendrobium nobile nobilissimum*, which it much resembles. It is as large and finer in form, and has a far finer and larger black centre. See drawing of this wonderful *Dendrobe*.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, the entire stock (excepting bulbs kept for propagating) of *DENDROBIUM NOBILE*, Sander's variety. For beauty and grandeur there are few Orchids in existence to rival this *Dendrobe*.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26,

At 38, King Street, Covent Garden, W.C.

Very rare and fine *ONCIDIUM—ONCIDIUM SPLENDIDUM*.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, a splendid importation of *ONCIDIUM SPLENDIDUM*. For many years past we have tried to discover the habitat of this most important *Oncidium*, and have now succeeded. The flowers are 4 inches long, similar to *Oncidium ligatum*, but more lovely. For full description see Catalogue, which may be had in due time of the Auctioneers.

On view morning of Sale.

The Valuable Collection of Orchids formed by the late John Day, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest. Amongst other varieties will be found a grand collection of the rarest and choicest *CYPRIPEDES*, in the finest health.

The First Portion of this Collection will be SOLD on WEDNESDAY and THURSDAY, May 9 and 10. N.B. For fuller particulars, see *Gardeners' Chronicle*, March 21.

Tuesday Next.

CARNATIONS and PICOTÉES, a first-class collection of the best varieties; 500 Standard and Dwarf ROSES, selected FRUIT TREE, HARDY CONIFERS, RHODODENDRONS, HERBACEOUS PLANTS, CLIMBERS, and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, April 10, at half-past 12 o'clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Tuesday Next.—Without Reserve.

1000 ODOTOGLOSSUM VEXILLARIUM.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to include the above in their SALE of ORCHIDS on TUESDAY NEXT, April 10. This importation is from an entirely new district, and the darkest and largest-flowered varieties ever seen will be found among them. The plants are in splendid order with sound healthy bulbs and foliage, and we are certain that never before have such fine varieties been offered for Sale.

On view morning of Sale, and Catalogues had.

Tuesday Next.

The Broomfield Collection of ORCHIDS. IMPORTANT UNRESERVED SALE of the First Portion of the celebrated COLLECTION of ESTABLISHED ORCHIDS, by order of Robert Warner, Esq., who is giving up their cultivation in consequence of long-continued ill-health.

2000 *ODONTOGLOSSUM ALEXANDRÆ*, not a single plant having yet flowered in this country.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from R. Warner, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, April 10, at half-past 12 o'clock precisely, the First Portion of his well-known COLLECTION of ESTABLISHED ORCHIDS, consisting of about 2000 *Odontoglossum Alexandræ*, entirely unflowered plants. The whole of the plants were collected by Mr. Carder specially for Mr. Warner, and amongst those which have flowered from the same importation numerous well-known varieties have bloomed. The plants have from four to ten bulbs each, and the whole will be sold absolutely without reserve.

On view morning of Sale, and Catalogues had.

Wednesday Next.

10,000 *LILIUM AURATUM*, splendid Bulbs, from Japan.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION on WEDNESDAY NEXT, April 11.

On view morning of Sale, and Catalogues had.

Wednesday Next.

NURSERY STOCK. STOVE and GREENHOUSE PLANTS

from Sample.

IMPORTANT to GENTLEMEN, NURSERYMEN, FLORISTS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 11, at half-past 12 o'clock precisely, the following quantities of NURSERY STOCK, STOVE and GREENHOUSE PLANTS, from Sample:—

2000 Dwarf Roses	500 <i>Areca lutescens</i>
500 <i>Aucuba japonica</i> , 1 to 2½ feet	500 <i>Kentia Belmoreana</i> , in 60 pots
3000 Green Box, 1½ to 2 feet	1000 <i>Rhododendrons</i>
300 English Yews, 3 to 6 feet	1000 Choice <i>Chrysanthemums</i>
Limes, Poplars, and other Standard Trees	500 Tea Roses in pots
1000 Privet, 3 to 15 feet	500 Carnations and Picotees
1000 Perennials, in variety	1000 Ferns, in variety
1000 Double White Primulas	400 <i>Seaforthia elegans</i> in 48 pots, &c.
1000 <i>Ptychosperma Alexandræ</i>	1000 <i>Cocos Weddelliana</i> in 60 pots, &c.

Samples will be on view morning of Sale. Catalogues on application to the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday and Saturday Next.

LILIUM AURATUM, from Japan, a choice assortment of English-grown LILIES, including most of the best varieties in cultivation; *GLADIOLI*, GREENHOUSE PLANTS, in variety; Standard and Dwarf ROSES, HERBACEOUS PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY and SATURDAY NEXT, April 11 and 14, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA SANDERIANA.

500 CATTLEYA MOSSIE.

* ODONTOGLOSSUM LUTEOPURPUREUM SPECTRUM.

ODONTOGLOSSUM ALEXANDRÆ.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 13, at half-past 12 o'clock precisely, a large importation, just arrived in splendid order, of the grand *CATTLEYA SANDERIANA*, with large, broad, distinct-looking leaves, and stout spikes, embracing many compact and fine-looking pieces. Also a quantity of *CATTLEYA MOSSIE*, with fine foliage and numerous unbroken eyes. Splendid pieces, in excellent order, of the beautiful and rare *ODONTOGLOSSUM LUTEOPURPUREUM SPECTRUM*, with fine distinct-looking bulbs; *CYPRIPIEDUM SCHLIMMII*, fine lot; *ODONTOGLOSSUM CORONARIUM*, *EPIDENDRUM*, *NEORALE*, *CATTLEYA LAWRENCEANA*, *ODONTOGLOSSUM TRIUMPHANS*, *CYMBIDIUM LOWII*, together with a very fine importation of *ODONTOGLOSSUM ALEXANDRÆ*, collected in the best locality, whence have come the finest varieties in collections, and many other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Preliminary Notice.—Without Reserve.

The whole of the well-known collection of Specimen Exhibition STOVE and GREENHOUSE PLANTS, PALMS, &c., which have taken so many Prizes at the leading Metropolitan and Provincial Shows, by order of Messrs. T. Jackson & Sons, who have given up exhibiting.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL the above valuable COLLECTION of PLANTS, by AUCTION, on the Premises, The Nurseries, Kingston-on-Thames, on THURSDAY, April 26.

Fuller particulars will appear in future Advertisements.

Friday, April 27.—Established Orchids.

A portion of the well-known collection of ESTABLISHED ORCHIDS, by order of C. Dorman, Esq., of The Firs, Laurie Park, Sydenham, who is making alterations to his Greenhouses, necessitating the disposal of some of the Plants.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from C. Dorman, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, April 27, at half-past 12 o'clock precisely, a portion of his well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following valuable plants:—

<i>Lælia purpurata</i> , magnificent plant, 142 bulbs, 22 leading growths, 12 sheaths	<i>Cymbidium pendulum atropurpureum</i> , very fine plant (rare)
<i>Cattleya exoniensis</i> , good plant	<i>Cymbidium Parishii</i> , good plant
<i>Reineckiana superba</i> , true	<i>Vanda Sanderiana</i> , splendid plant, good variety, 4 leads
<i>Wagnerii</i>	<i>Cypripedium isognie Wallacei</i>
<i>Lælia cuspatha</i>	<i>Dendrobium Leechianum</i>

Dendrobium nobile Cooksoni.

On view morning of Sale, and Catalogues had.

The Breamtham Park Collection of Orchids.

Highly important unreserved sale of the first portion of this celebrated collection of ESTABLISHED ORCHIDS, by order of Robert Smith, Esq., who is giving up their cultivation.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from R. Smith, Esq., to SELL by AUCTION, at their Central Sale Room, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 1 and 2, at half-past 12 o'clock precisely, without Reserve, the first portion of this well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following and other rare species:—

<i>Cattleya Bluntii</i>	<i>Lælia anceps Sanderiana</i>
<i>exoniensis superba</i>	<i>Oncidium oroirothryneum album</i>
<i>Skinneri alba</i>	<i>Odontoglossum Jenningsianum parvifolium</i>
<i>labiata</i> (autumn flowering var.)	<i>Cyclogyne Massangeana</i>
<i>Lycaste Skinneri alba</i>	
<i>Lælia anceps Dawsoni</i>	

No Plants will be sold privately prior to the Sale.

On view morning of Sale. Catalogues of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Orchids in Flower.—Tuesday, April 24.
MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to Receive Notice of Entries as soon as possible.

"Coppins," Iver.

WEDNESDAY and THURSDAY, April 11 and 12, 1888,
 at 12 o'clock.

MR. MASON is instructed by J. E. Taylor, Esq., to SELL by AUCTION, without reserve, on the above date, the whole of his choice Collection of STOVE and GREENHOUSE PLANTS and ORCHIDS, amongst which are a number of fine Cattleya Triana, Dendrobiums, a quantity of young Crotons, and other Foliage Plants, a number of the best varieties of Azaleas and Camellias, also Greenhouse Rhododendrons, and a very good Collection of Ferns; also about a dozen good Garden Frames with Lights, &c.
 On view day previous to Sale, and Catalogues had from Mr. MASON, Auctioneer, Windsor; or Mr. FLETCHER, Gardens, Coppins, Iver, Uxbridge.

Hereford.

TO BE SOLD, a NURSERY and SEED BUSINESS.—The Premises consist of Four large Houses, Pits, and Frames, and Six-roomed House adjoining. A splendid opportunity for two pushing young men. There is a good business now being done, and every prospect of increasing this offers itself to any one knowing the trade.
 For further particulars address J. CONROY, Auctioneer, Broad Street, Hereford.

A Rare Opportunity.

TO BE SOLD, with immediate possession, a good going NURSERY BUSINESS, comprising about 2 Acres of Freehold Land, enclosed by Wooden Fence, with Eleven Large Greenhouses, well stocked, and Heated with Hot Water. Usual Outbuildings. Situate Wellbrook Road, Farborough, Kent.
 Apply to TRUSTEES, 25, Nevill Road, Stoke Newington, N.

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

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

THE ROCKS at BATTERSEA PARK, said to be a true imitation of Nature but allowed to be overgrown, and the other so called good examples at HIGHNAM COURT and BEARWOOD, recorded in this Journal recently, were all executed by **PULHAM AND SON, BROXBORNE.**

D A F F O D I L S.
 Selling Off to Clear Ground.
 N. PALLADUS PRECOX (Spanish and French) 40s. per 1000
 N. CORBULARIA CITRINA ... 25s. per 1000
 N. MOSCHATUS ... 65s. per 1000
 N. JUNCIFOLIUS ... 50s. per 1000
 N. POETICUS ... 20s. per 1000
 N. PSEUDO-NARCISSUS ... 15s. per 1000
 N. PSEUDO-NARCISSUS (Large Forms) ... 20s. per 1000
 N. PAPER WHITE ... 10s. per 1000
 N. MUTICUS ... 30s. per 1000
 All Cultivated Bulbs.

Address, W. D'ARCY G. OSBORNE, F.L.S., and COMPANY, Biarritz, France.

PRIMULA ROSEA.—Spare Stock from Garden of this fine Hardy Himalayan Primrose for Sale per 100. "F." Allington House, Ipswich.

ABIES DOUGLASSII, 10 to 15 inches, 6s. per 100; 15 to 18 inches, 10s. per 100; 1½ to 2 feet, 16s. per 100; 2 to 3 feet, 30s. per 100; 3 to 4 feet, 35s. per 100; 4 to 5 feet, 45s. per 100; 6 feet, 60s. per 100.
GARLES MITCHELL, Nurseryman, Stranraer.

CUTHBERTSON'S PRIZE PANSIES are the most select in Scotland. Only such as are used for competition at our best shows are grown. Twelve named Fancy, 4s. 4d. Show, 3s. Fifty, in 50 varieties, Show and Fancy, 13s. 6d. (extra choice varieties). Price per 100 or 1000 on application. NEW PRIZE VARIETIES of 1887, 12 of the best Show and Fancy, 15s. All Post-free, my selection. Seed from my famous collection, 1s. per packet, three for 2s. 6d. New striped Pansies, very beautiful, large packets, 1s. VIOLA Seed, extra choice, 1s.

Illustrated and Descriptive CATALOGUE of Competition Flowers and Vegetables free.

M. CUTHBERTSON, Florist, Rothesay.

CUCUMBER PLANTS.—Rollinson's Telegraph, strong plants, 6s. per dozen. Terms cash.
JAMES STYCHE, Nurseryman, Hedon, Hull.

Begonias a Specialty.

LAING'S BEGONIA SEED.—Awarded Four Gold Medals. Saved from Prize Plants. Unequalled quality. Choice mixed, Single or Double varieties, 1s. 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; ditto, 3s. Order direct from us, to procure the genuine seed. The best and cheapest combined procurable.
JOHN LAING AND SONS, Seedsmen and Begonia Growers, Forest Hill, S.E.

BEGONIAS.—Splendid tubers, Davis's Gigantea erecta superba, crimson or mixed, for pots or bedding, 4s., 6s., and 6s. per dozen; from 25s. per 100. Superb Seedlings, splendid varieties, 4s. and 5s. per dozen, 25s. and 30s. per 100. Choicest named varieties, Single and Double. See LIST, Free.

OERANUMS, CALCEOLARIAS, and other Bedding Plants, in quantity. Special offer on application.
 B. K. DAVIS, Yeovil Nurseries, Yeovil.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited

are pleased to announce the arrival of another grand lot of

MEXICAN ORCHIDS,

in the best possible condition, including

MANY MAGNIFICENT MASSES

OF

LÆLIA ANCEPS, WHITE,

the same as their last fine importation. The bulbs resemble those of *L. anceps Schroderiana*. The dried flowers sent with the plants are very large, and four and five are produced on each spike. The plants appear to have been very floriferous

The importation also includes a grand lot of

LÆLIA ANCEPS MORADA,

from the same district as the Company's previous importations of this fine variety. Many other grand varieties are included in this large and fine importation.

The Company have also just received the largest and finest importation of

EAST INDIAN ORCHIDS

which they have ever had. Many of them have been collected in a part of Upper Burmah never before reached.
 This grand importation includes a fine lot of

DENDROBIUM BRYMERIANUM

with bulbs upwards of 2 feet long.
 Immense masses of

DENDROBIUM WARDIANUM LOWII,
 DENDROBIUM THYRSIFLORUM,
 DENDROBIUM DALHOUSIEANUM,
 DENDROBIUM DEVONIANUM,
 DENDROBIUM BENSONIÆ MAJUS,
 DENDROBIUM ALBO SANGUINEUM,
 DENDROBIUM CRASSINODE BARBERIANUM
 DENDROBIUM JAMESIANUM,
 and many other Dendrobies. Also

CÆLOGYNE BARBATA,
 CYMBIDIUM LOWIANUM,
 CYPRIPIEDUM BOXALLI,
 CYPRIPIEDUM VILLOSUM,
 TRICHOSMA SUAVIS,
 and many other fine species.

The special feature of this importation is the size and quality of the plants.

The Company will also shortly receive a large and fine importation of

CATTLEYA MENDELII

collected by an experienced man, sent out specially to secure fine specimens and varieties of this GRAND CATTLEYA.

Many other fine importations will shortly follow.

As the Company receive Orchids in such large quantities, they are able to offer them at very reasonable rates.

Full particulars will be sent, post-free, to all who favour the Company with their Names and Addresses.

THE VINEYARD & NURSERIES
GARSTON, near LIVERPOOL.

GARDENERS' ORPHAN FUND.

THE FIRST ELECTION OF SIX CHILDREN to the Benefits of this Fund, consisting of an Allowance of Five Shillings per Week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 13 next, at the Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next.

A. F. BARRON, Hon. Sec.,
 Royal Horticultural Society's Gardens, Chiswick.

Middlesex Hospital, W.

TENDERS are Invited for the Supply of the following SHRUBS:—60 Aucubas, 18 inches high; 60 Euonymus, 18 inches high; 60 Evergreen Privet, 4 to 5 feet high; 150 Deciduous Flowering Shrubs, in variety, 4 feet high To be delivered at the Hospital before April 10.

F. CLARE MELHADO, Secretary-Superintendent.
 March 28, 1888.

SIMPLE INSTRUCTIONS by which anybody anywhere may force and obtain a great quantity (lasting until indoor beds are in full bearing) of most excellent ASPARAGUS at a very trifling expenditure of time or money. Directions sent Free to all applicants.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

JOSIAH H. BATH, 1 and 3, York Street, Borough Market, S.E., offers the following varieties of SEED POTATOS:—

Rivers' Royal Ashleaf	Schoolmaster
Myatt's Prolific Ashleaf	Reading Hero
Old Ashleaf	Snowflake
Moua's Pride	Paterson's Victoria
Beauty of Hebron	Early Don
White Elephant	Early Rose
Magnum Bonum	Regent

And other leading varieties. Prices on application.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.

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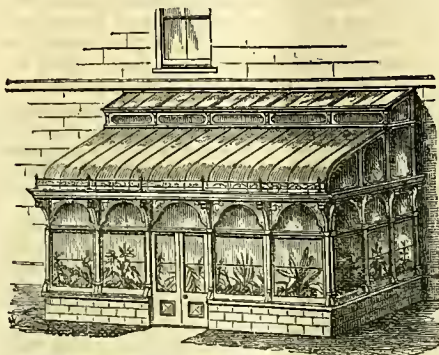
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THE Gardeners' Chronicle.

SATURDAY, APRIL 7, 1888.

ROSE-PRUNING.

ALTHOUGH there are general principles and rules by which the pruning of Roses is regulated, yet there can be no doubt that "circumstances alter cases," and that, consequently, as there are differences in the seasons, so pruning does not always take place at the same time, or in the same manner. We are only just emerging from winter; and, as far as the south-eastern part of Kent is concerned, we have experienced a season such as not even the memory of the oldest inhabitant can recall. I was talking the other day with an old parishioner of eighty-four, and he could not recollect such a one, but he "had heard his father tell" of one he recollected, when heavy snow blocked up all the roads on March 19. This probably is the one to which the poet Cowper alludes in 1788. This is what we can "tell on" now. Snow to the depth of a foot fell on Sunday and Monday, April 1, 2, with a fierce gale from the north-east, driving it before it, so that all our roads were blocked up, in some cases to the depth of 7 or 8 feet; and, in fact, the whole month of March, with the exception of a day or two, has been as bad as could be well looked for—an apt illustration of "the chaotic weather which we call the climate of England." Under these circumstances pruning has been quite out of the question, and in the last week in March mine at any rate are untouched—a fact at which I rejoice.

I looked over some of my bushes yesterday, and was surprised to find that the wood, both of hybrids and Teas, was uninjured. I cut some pieces from the long shoots which will have to be cut away, and which were of necessity more exposed to the influence of the frost, and the pith was in no way discoloured; and, therefore, I conclude, that when the snow does go away and spring commences, I shall find the wood generally has escaped frost. I cannot of course say how it may be in other places, nor do I think, if they have not been hit hard, that one can deduce

much from it, except it may be this—that owing to the bright dry summer of last year the wood was not so sappy, and was thoroughly ripened; for I think we have all experienced that either in situations exposed to damp, or after wet seasons, plants of all kinds are much more susceptible to frost than where the situation and climate are alike dry.

There are two questions, (the two questions, in fact, in relation to pruning), concerning which this season has pronounced very decidedly—late pruning and hard pruning. There can be no question that during the last few years a great change has taken place with regard to the occurrence of late frosts in April and May. Whether the long season of cold weather with snow and frost which we have experienced up to the end of March will save us from those in May, time alone can tell. The consequence of these frosts has been that where the orthodox rule of pruning in the beginning or middle of March has been adhered to, the young shoots (probably 4 or 5 inches in length) have been in many places cut off, and, indeed, a second pruning has become necessary in some cases, while in all, injury to the young shoots has been done. I think Rose growers are unnecessarily anxious about the young spring growth in the unpruned bushes, which they think, if not cut off, must materially weaken the plant. I do not think that it is so, and that in mild weather, when the bushes are perfectly green with the young shoots, they do in any way exhaust themselves. In some early districts, such as Reigate, pruning often takes place in February, and in some seasons the young shoots may be sufficiently matured to meet the spring frost with impunity, while if they have been so pruned this year, I should imagine, if the weather has been at all like what we have experienced, they must have suffered considerably. Pruning may, taking all things into consideration, be deferred to the beginning of April, and, indeed, in this season has hardly in our locality begun before that; the snow is not yet gone, and it will be some days before we can get on the beds. It is very probable that after a prolonged cold time, such as we have experienced, a forcing time may supervene and things will come on rapidly.

The other point of importance connected with pruning is as to whether it should be what is called hard pruning or not. I remember the time when it used to be considered that strong shoots which come up from the base of the dwarf Roses, whether on Manetti or seedling Brier, were "robbers" and had to be treated as such, cut away root and branch, but it was manifest that this was wrong, and now these strong shoots are looked upon as the mainstay of the plant for the next season, and instead of cutting them away, to cut away all the old and weakly ones and rely on these shoots for the year's blooming. These weakly shoots will not produce good flowers, and even although a grower may never intend to exhibit he may as well have the best blooms he can get. In pruning, then, the first thing will be to cut away all these, and also to clear away the centre of the bush, provided that there are sufficient shoots left to make a shapely bush; this being done, the other shoots have to be shortened, and it may be taken as an axiom on this point, that the stronger the grower the less severe may be the pruning—in fact, pruning hard such strong growers as Etienne Levet, Edouard Morren, Paul Néron, and others of a similar character, would have the effect of inducing a maximum amount of growth with a minimum of bloom; on the other hand, delicate growers, of which there ought to be fewer every year in the Rose garden, require very hard pruning; they cannot support a large number of shoots, and hence it is best to cut them to two or three eyes. After such a season as we have just experienced there will be in many places a necessity for hard pruning, owing to the frost, and therefore, wherever the pith is discoloured the plant must be cut back beyond it, whether the plant be a strong or weak grower. Sometimes, too,

even where the pith has escaped, there will sometimes be seen a discoloration of the bark; this indicates that it has suffered there, and all such should be cut away.

It will, perhaps, be found necessary to supply some vacancies in the beds; I have myself a few plants "heeled in" which are to perform this duty, and as after the quantity of snow which we have had the ground is too saturated with moisture for planting, I shall either defer this for a little or else dig out the hole where they are to be planted, and fill it in with dry loam which has been under cover for some time. These plants will be pruned quite hard before they are planted, and the same thing, I think, should be done with all those planted last autumn. They are required to make both roots and wood-growth, and it is far more important that they should have plenty of scope for the former operation, and thus have less to do above ground. A certain amount of root-action goes on during the winter, but it is when spring comes that the effort is made, and should be helped by all the means in our power.

The remarks which I have made as to pruning refer to the hybrid perpetuals. Teas are always pruned later, but I imagine that this year there will be but a small gap between the pruning of the H.P.'s and the Teas. Opinions have differed and will differ as to the best method of pruning them. Some eminent growers, as Mr. Priuice, say that they do not require much pruning; others say prune hard, and I have seen them prosper under both plans. I sometimes alternate the process in some of my beds, pruning hard one year and slightly the next. Noisettes are best left alone, or, if touched, thinned out and the tips of the branches slightly shortened.

One cannot forecast, but much seems to be in favour of a good Rose year; the thoroughly ripened wood of last autumn has stood the winter well, and the length of the cold weather makes me hopeful that we may escape May frost. A drought is threatened: let us hope that it may not come, so that we may reasonably look forward to what we have not had for some years—a thoroughly good Rose season. *Wild Rose.*

INDIAN "CONSERVATORIES."

THE engraving fig. 60, represents a conservatory of a makeshift class which is becoming very common in India. This was originally a Badminton court, with a thatched roof, that a change of fashion had left tenantless and ugly. The thatch was removed and its place occupied by cocoa-nut fibre matting of thin texture. Banks of rich soil were raised and planted with Begonias, Gesnera zebrina, Ferns, and other shade-loving plants. When the photograph was taken the conservatory was richly coloured with numerous flowers of Begonia hydrocotylifolia.

The covering admits abundant light and prevents the rapid changes of temperature induced by radiation to a clear sky at night which is one of the most striking phenomena of the dry climate of India that is, by far the greater part. In Italy a somewhat similar arrangement is made for the shelter during the summer of plants taken from the houses, while in this country a structure of the kind covered with tiffany is very serviceable for the growth of Camellias, Indian Azaleas, Sikkim Rhododendrons and hosts of other plants which require no protection beyond that so afforded. For our illustration we are indebted to Mr. Woodrow of Ghunesh Kind.

NEW OR NOTEWORTHY PLANTS.

ASPASIA PRINCIPISSA, *Rohb. f.*

THE species of *Aspasia* are not particularly common in gardens, though three of them have come into my hands during the past few months. The latest one, which was forwarded by the Messrs. Veitch, of Chelsea, I was particularly pleased to meet with, as it proved on examination to be the above-named very rare plant. It was discovered long ago by Warszewicz, and a coloured sketch of a single flower, made by that gentleman, is preserved in Dr. Lindley's Herbarium, now at Kew. And now comes

a flower from which that sketch might have been prepared, so close is the resemblance. It is to my mind an exceedingly interesting plant, though not exactly a beauty. The flowers are over 2 inches across, the shape being almost that of *Odontoglossum*, to which genus, indeed, it has been referred. The segments are lanceolate-linear, light green, each with about seven longitudinal narrow brown lines; and the lip, which is nearly 1 inch long, is broadly pandurate in shape, and light buff in colour, while near the base are a pair of prominent calli lying parallel with each other. *R. A. Rolfe.*

CYNOSORCHIS ELEGANS, *n. sp.**

It is a very exceptional thing to see specimens of this interesting genus, the specimens of which are mainly confined to Madagascar, alive in Europe. Messrs. H. Low & Co., however, have succeeded in flowering two species, both undescribed. This one is an exceedingly elegant gem. It has light green cuneate, oblong-lanceolate acute leaves, 2 inches in length by half an inch in breadth, with mauve-purple stripes underneath, and numerous transverse mauve-purple, short, seriate bars on the inner side, excepting on the simply green basilar part. In one of the specimens there were two smaller bars above. The slender naked peduncle has a sheath in the centre. The raceme bears three to seven flowers, which do not exceed those of a good *Gymnadenia conopsea*. Bracts triangular acute, from a quarter to three-fifths of the length of the ovaries. The odd sepal is gibbous (!), quite convex, abrupt over the triangular acute apex, shorter than the ligulate acute or blunt acute side sepals. Petals narrower, ligulate acute. Lip with a small angle on each side at the base. Lamina of the lip trifid, transverse, side-laciniae ligulate, blunt, or rather acute, divaricate; central lacinia triangular, sometimes broad, at others very narrow, much shorter. Spur filiform, straight or bent, nearly equal to, or distinctly shorter than the stalked ovary. Rostellum trifid, mid-lacinia triangular. Colour of flowers whitish with a very bright rosy hue. The lamina of the lip has deep rich purple spots or longitudinal lines. Spur at the apex white or green. *H. G. Rohb. f.*

CYNOSORCHIS LOWIANA, *n. sp.†*

This was also kindly sent me by Messrs. H. Low & Co., as well as the *Cynosorchis elegans*. As I believe that the name of this excellent family has never been associated with a plant coming from Madagascar, I now supply the defect with great pleasure.

The tubercles are elongate cylindrical, blunt or acute at the top. I have a single cuneate ligulate acuminate leaf belonging to them, a span long, nearly 3/4 inch wide. Messrs. Low, however, inform me that there are two-leaved plants. The colour is dark green without any spots. The slender peduncle at hand has four flowers, equalling those of *Cynosorchis fastigiata*. Bracts ligulate aristate, reaching nearly half the length of the stalked ovaries. The odd sepal is convex oblong, blunt acute, shorter than the lateral

* *Cynosorchis elegans*.—Folii in basi geminis cuneato oblongo lanceolatis acutis inferae violaceo purpureis longitudinaliter striatis, inferae trabeculis brevibus traeveris ejusdem coloris, suprapositis (semper?); foliis geminis parvis; pedunculo spithameo gracili calvo medio univaginato; cracemo triusque aseptifloro; floribus parvis; bracteis triangularibus; sepalis impari convexo gibbo galeato acuto; sepalis lateralibus ligulatis obtuse-acutis reflexis; tepalibus ligulatis acutis angustioribus; labelli auriculis in basi utriusque angulatis, lamina trifida, lacinia lateralibus divaricatis ligulatis obtusis acutis, lacinia mediana triangulari breviori, calcaris filiformis ovum obovatum quante. Flores albi et pallidissimi rosei maculis striisque optime purpureis in labello, calcar albam avac apicem versus parvis. Ex Madagascar imp. et boeae misit ex. St. Low. *H. G. Rohb. f.*

† *Cynosorchis Lowiana*, *n. sp.*—Tuberculis cylindricis acutis obtusis; folio cuneato ligulato acuminateo angusto (uncum foliis geminis ex Low); pedunculo apice paucifloro racemoso; bracteis triangularibus setaceis, ovaria pedicellata dimidia non attingentibus; sepalis impari oblongo acuto boeo convexo; sepalis lateralibus oblongis obtusis curvis; tepalibus ligulatis acutis, labelli ovato linearis, lamina trifida, lacinia lateralibus, ligulatis divaricatis, lacinia mediana producta bifida, cruribus linearibus retusis, calcaris filiformis apice inflato, ovario pedicellato paulo breviori apice ovarii ac basi calcaris glandipilibus. Ex Madagascar imp. ex. Low. *H. G. Rohb. f.*

oblong blunt sepals. Petals ligulate acute, curved. Lip with a long stalk, trifid, side laciniae linear, ex-torse, mid-lacinia deeply bifid, each shank linear, re-tuse. Spur filiform, clavate at the apex. Sepals and petals whitish-green. Lip fine lilac with an obcor-date deep purple spot at the base of the mid-lacinia. Anther mauve. Rostellum purple. These are glan-dular, hairy at the base of the spur and apex of ovary. *H. G. Rehb. f.*

CYPRIPEDIUM DAUTHIERI PETOT × (Br.) ROSSIANUM,
n. var. hybr.

A very unexpected and elegant novelty has appeared with Mr. H. J. Ross, of Castagnolo a Lastra, a Signa, near Florence, and has been kindly

CYPRIPEDIUM HEPHÆSTUS ×, *n. hybr.*

This is a waif that has found its way into the rich collection of Mr. R. H. Measures, at The Wood-lands, Streatham. Nothing appears to be known of its origin, but it is surmised that it may be a hybrid, artificially raised between *C. barbatum* and *C. Lawrenceanum*, an hypothesis founded on the cir-cumstance that the plant possesses characters that may be seen in both of the supposed parents, those of *C. Lawrenceanum* predominating in the foliage, and those of *C. barbatum* in the flower, whence the presnmption is great that this might have been the pollen parent, conformably to the observed influence of the pollen parent in a large number of hybrid

import whatever. [Why, therefore, not have given it an English name? Ed.] Nevertheless, the scien-tific value of the grand collection of *Cypripeds* at The Woodlands cannot be over-estimated; all pro-curable forms are here brought together, where they may be studied and compared by the botanist. *A. H. K.*

DOUBLE WHITE CAMPION.

THERE are probably few perennials to equal this in point of beauty, as all who have seen it in perfection will admit. Perfection, however, is rarely attained, and yet it would be difficult to name any plant among summer and autumn flower-

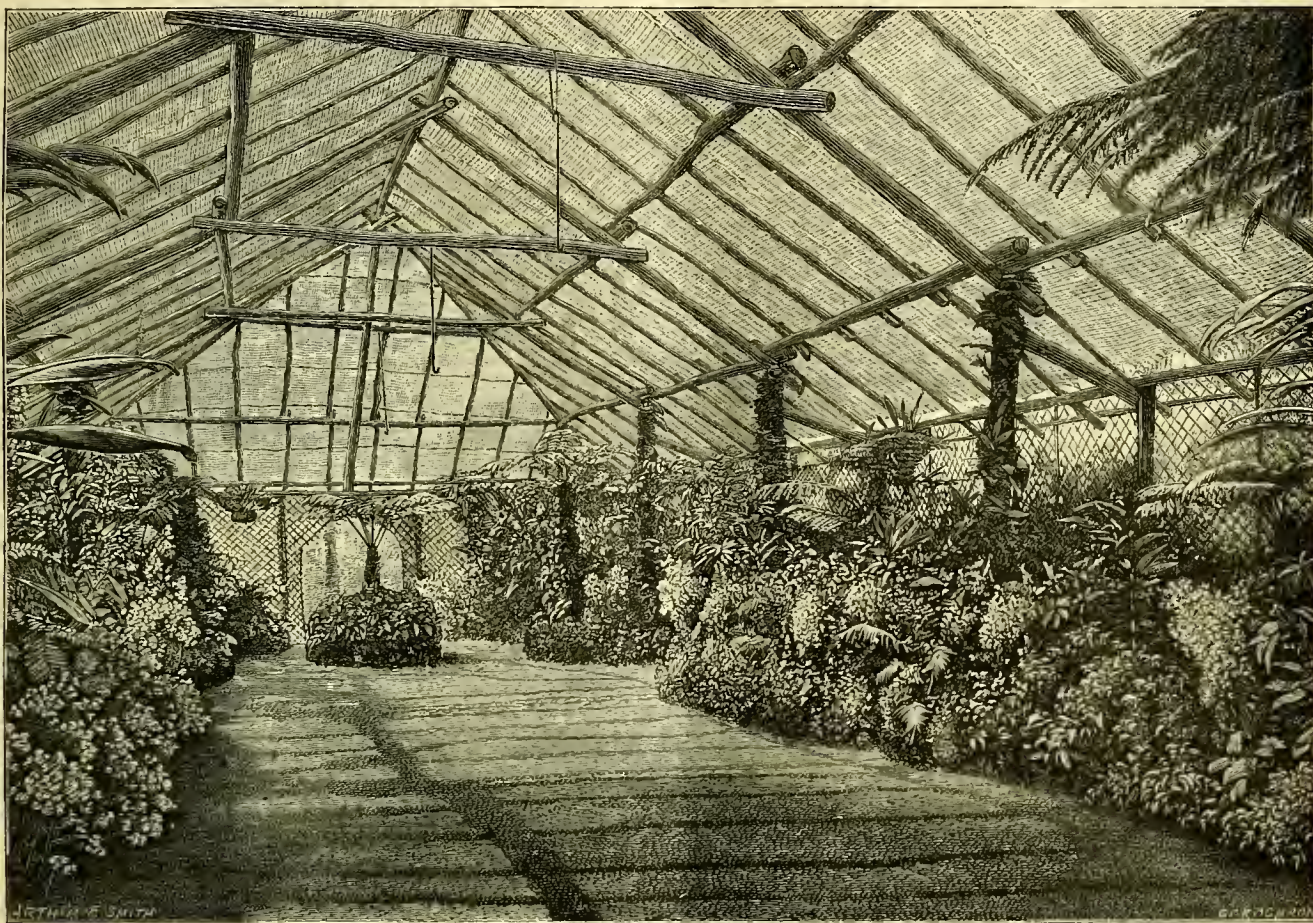


FIG. 60.—CONSERVATORY AT OANESH KIND, INDIA. (SEE P. 424.)

sent by him to me. The odd sepal has purple lines on a white ground. There is no green blotch as there is usually on the superior area, with the outer margins white, as was stated by M. Petot, or at the fine top, as I saw it in 1881, in a specimen kindly given me by M. Massange de Louvrex, of St. Gilles, near Liège. I have now before me a glorious flower of the typical plant, for which I am indebted to our veteran orchidist, Mr. B. S. Williams, of the Victoria and Paradise Nurseries, Holloway. There is no purple between the purple-lilac, which contrasts neatly with the white ground. The odd sepal has broken lines of black-purple spots outside in lieu of green lines. The petals have ochre-brown lines, and the greater part of the lip is ochre-brown, not Indian purple-brown. It is a pretty thing, quite a token of orchidic gratitude for the highly intelligent possessor, *H. G. Rehb. f.*

Orchids whose parentage is known. The leaves are those of *C. Lawrenceanum*, but the tessellation is not perhaps so bright. The flower is as large as that of a good *C. barbatum* with a somewhat broader dorsal sepal; this is white with alternate longer and shorter veins, the central ones green, the three or four marginal ones deep purple; the lower sepal is white, with green veins; the petals are slightly depressed, the basal half brownish-green, with a few blackish warts on the superior margin, the apical half dull purple; the lip is as deeply coloured as is that of the variety of *C. barbatum* called *nigrum*, but not so bright and glossy; the infolded lobes are dull vinous purple, studded with small warts; the staminode is pale green, with deep green reticulations in the centre.

The name suggested by the dusky colours of the lip, is, of course, purely a garden one, and has no scientific

ing perennials which can compare with it in the profusion of its pure white double flowers, which are slightly fragrant when the plants are well established. When liberal treatment is accorded to the plant, its flowers are fully 2 inches across. To secure this result strong one-year-old plants, well established in pots, must be obtained, and these should be planted in deep rich loamy soil at any time during the present month. Should dry weather ensue, water well till the plants are established, and in July or August they will begin to flower, and will continue to do so till cut down by frost. This extended flowering season may be considerably prolonged by potting the plants in October for employment in the conserva-tory or greenhouse. I adopted this plan with some large two-year-old plants, some years ago, and with excellent results, and the flowers continued to expand in an unheated house till the end of the year, when,

for the safety of the plants themselves, I cut away the flower-stems.

Some years since, in the richly stored garden of the late Rev. H. Harpur-Crewe, I saw a plant bearing hundreds of flowers; true, they were not of the size produced by younger plants, as indeed could hardly be expected, seeing their great profusion. Singularly enough the plant is rarely seen at any of the London exhibitions or meetings of the Royal Horticultural Society—a fact pointing to its relative rarity; and while it is by no means difficult to grow, it is not so readily propagated as the majority of the species. I have never known it to produce seeds, although the type does so abundantly, and by reason of its somewhat woody root-stock, it is not one of the plants easy to increase by division, and the only method of doing so is by cuttings. Root cuttings never make any attempt to grow.

With ordinary cuttings I have been most successful, and from time to time have rooted it in considerable numbers, the system which I have adopted being the following:—In March or April the stock plant is brought into the greenhouse—the earlier the better where large numbers are required—and being in a temperature of 50° the radical growths will soon push forth from the base of the plant. These are the only ones suitable for cuttings. These cuttings are put into sandy soil in the usual way, and covered with bell-glasses. After occupying a shady position on the open stage for a fortnight I plunge them into bottom-heat, when roots are readily emitted, and with few or perhaps no losses. The kinds of cuttings which always fail are those taken from the flower-stem during summer—axillary flower-buds, in fact—which cannot root, much less form a bud at their base. I have known a whole frame to be filled with such abortive cuttings which looked promising enough for a while, but which were exhausted as soon as the flower-bud appeared. Therefore, those who would succeed with one of the best hardy perennials in cultivation must as soon as possible secure cuttings of the right stamp. The popular name of the plant is the double white Campon, and it is synonymous with *L. dioica alba plena* [= *vespertine*?]; but must not be confounded with *L. diurna* or its forms, which are synonymous with *L. sylvestris* [= *Melandryum sylvestre*?] and which increase readily by division. *E. Jenkins, Waterloo Villa, Hampton.*

THE CROSSING OF FERNS.

THE crossing of Ferns, like other new truths, has had to go through all the different stages of ridicule and incredulity until the convictions of a few have at last forced conviction upon the majority, and the fact has received public recognition. I claim for the much despised race of British fernists the credit of having established the truth in this instance.

Until comparatively recent times it was generally accepted that Ferns did not cross; and yet, considering the assistance which, in their endless changes of structure, other forms of life were known to derive from the power inherent in them of crossing naturally, it must at times have seemed strange to the more thoughtful that in a class of plants so remarkable for variation as Ferns that power should be altogether absent.

No doubt the faculty of natural variation (independently of crossing) is great in Ferns, as elsewhere; and no doubt, also, in certain species of Ferns, and of British Ferns especially, this power of natural variation is so conspicuous that the more cautious botanists hesitated for a time—and perhaps for too long a time—to give attention to the conclusions of those who had carefully studied the subject, and thus the acceptance of the truth was retarded. It was not until a foreign Fern or two had done what many British Ferns had long been known to have done, that the serious attention of botanists was drawn to this subject; and I believe I am correct in saying that the first authoritative recognition of the fact was contained in a letter to Mr. E. J. Lowe from Sir Joseph Hooker about the year

1884, in which the latter used these words:—"The hybridisation of Ferns is now an accepted fact." But in the general ignorance formerly prevailing with regard to the reproduction of cryptogamic plants, it seemed altogether preposterous that Ferns could possibly cross. No bee or fly had ever been suspected of visiting a Fern or moss with any such intention or result, and enough was known of the structure of a Fern to preclude the idea of any external agency in fertilisation; enough was known of the history of a Fern from its first leaf until the completion of what appeared to be its final act, viz., the scattering of its spores, to negative the idea that the spore was the result of sexual action; it was known not to be a seed, but beyond that, I believe, nothing was generally known than that by some mysterious transformation, apparently not altogether unlike the threefold changes in the insect life, the Fern produced the spore, the spore developed into the prothallus, and from the prothallus came the Fern.

THE REPRODUCTIVE ORGANS OF FERNS.

It was not until Naegeli, Suminski, Hoffmeister, and other continental botanists, had raised the veil which had so long hung over the secrets of the reproduction of Ferns and other kindred forms, that people were able to recognise that, however different in the process, the principle involved in the reproduction of Ferns was the same as in higher forms of life.* It was they who showed that it was in the prothallus stage that the Fern practically flowered—that on the prothallus were developed the male and female organs (the antheridia and archegonia) corresponding with the stamens and pistils of flowers, and that under certain favourable conjunctions of heat and moisture the antherozoids (corresponding with the pollen of flowers) were detached, and not only so, but were endowed with motion resembling rather the consciousness of animals than the impassiveness of vegetable life, and that thus fertilisation was ensured, one archegonium only, I believe, being fertilised in each case, and one Fern only being produced from any prothallus; and as each prothallus contained all that was necessary for the reproduction of the plant, it was not suspected that antherozoids could have power of action beyond the sphere of their own prothallus, and it is sufficiently evident that, unless they had that power, Ferns could not cross.

I have not a word to say against antherozoids generally—they are, I believe as a rule a very steady, stay-at-home race of little zoids; but there are exceptions—occasionally there are some that show a vagrant tendency—hence the results that we have to chronicle.

Concurrently with, but independently of, the researches of Hoffmeister and others—independently also of each other—there were, among the earliest cultivators and students of the varieties of British Ferns, some who were occasionally struck by the appearance of forms bearing a very suspicious resemblance to combinations of other forms, and attention having been arrested, observation became keener; and as in course of time these instances became more numerous, cultivators could not at last resist the evidence of their senses, that, in some way, unknown to them, Ferns crossed, and experiments undertaken with the view of more completely testing the correctness of their impressions placed the matter entirely beyond doubt in the minds of all who had given attention to the subject.

PIONEERS.

When independent conclusions have been formed, nearly about the same time, by several, it would be unjust to transfer to any one in particular all the merit of a discovery. There were, I believe, in this case

* Antheridia and antherozoids were discovered by Naegeli in 1844; the archegonia by Suminski in 1846, who also witnessed the entry of the spermatozooids into the archegonium. Bernhardt, according to a statement of Regel in the *Botanische Zeitung*, 1843, was the first to announce the production of hybrid Ferns. Regel's observations are noted by the Rev. M. J. Berkeley, in our number for July 27, 1844, where also the remarks of the late Mr. Henderson on the subject are given. Ed.

five who had formed more or less certain conclusions on this subject. I will therefore mention their names alphabetically—and fortunately this will bring to the front one to whom I am sure no true fernist will grudge any distinction; for no one has worked harder and with less assistance, and to no one are lovers of Ferns and mosses more indebted than to Mr. J. M. Barnes, of Milnthorpe, who by his discoveries in *Lastrea montana* has opened up an entirely new field of interest, though I do not mean to imply that this is the only claim which Mr. Barnes has on the gratitude of all who are interested in these matters.

Next in alphabetical order is Mr. E. J. Lowe, the well-known author of *Our Native Ferns*, and so distinguished in so many other branches of science that no further remark is needed here.

Next, Mr. J. E. Mapplebeck, of Hartfield House, near Birmingham, than whom a more observant careful and successful cultivator of British Ferns, or a more uniformly successful exhibitor of them, was never known.

Next, Mr. James Moly, one of the most original, indefatigable, and successful of discoverers, formerly of Hawkechurch, now of Charnmouth, who with one or two others has done in the South with *Polystichum angulare* what Mr. Barnes and others have done with the *Lastreas* in the North.

Last, but not least, Mr. Stansfield, the elder, a botanist of no mean order and the original very enterprising head of the well known firm at Todmorden (now chiefly represented by his grandsons, Messrs. Stansfield of the Sale Nurseries, near Manchester).

To these five, I believe, is due the credit of having been the first to recognise the fact of the crossing of Ferns. There are, however, others who, though coming later into the field, have contributed so materially to its general recognition that this statement would be incomplete without alluding to them.

Of these the first entitled to be mentioned is the late Mr. A. Clapham, of Scarborough, so long known as one of the most observant, painstaking, and generous of the early discoverers and propagators of the varieties of British Ferns. Mr. Clapham was long known as the most successful of all hybridisers of plants in England, but through want of faith in this instance, he long held aloof from experiments with Ferns; but when at last (impressed by some of the results of Mr. Lowe's experiments) he did give attention to it, he approached it with all his old keenness of perception and judgment, and therefore his old success.

The writer of these notes is perhaps entitled to come next, and it is a pleasure to him to think that his experiments were not without influence on two others, who, in conjunction with him, have helped to produce an amount of evidence on this subject so overwhelming as to be absolutely convincing to all not predetermined to remain unconvinced. He refers to Mr. E. F. Fox, of Brislington, near Bristol, one of the most painstaking and successful cultivators and raisers of British Ferns; and the late Mr. W. C. Carbonell, of Rhieu Castel, Usk, who was not less distinguished in both these respects, and who has lately bequeathed the whole of his fine collection of British Ferns to Kew Gardens. *A. M. Jones.*

(To be continued.)

WEALD OF KENT AGRICULTURAL INSTITUTE.

AMONGST the very few first-rate establishments of its class in this country we may mention the newly-established college for teaching agriculture, rural economy, and "colonial handicrafts" at Hole Park, near Rolvenden, Kent. Mr. Richard Neve, the Director of the Institution, is an experienced land-agent, widely known in Kent, and his agency of such estates as Lord Cranbrook's at Hemsted Park and the late Mr. Beresford Hope's at Bedgebury, is, in many respects, advantageous to the students, opening to their observation many thousands of acres of really profitable and well-managed woods. Sir Joseph Hooker, Mr. Clutton, and other experts, recently assured a committee of the House of Commons that forestry in this country is sadly neglected, and that a School of Forestry is needed, the bailiffs of landowners being usually utterly ignorant of the subject. The exceptions to this rule are found in

Kent and some parts of Sussex, where we could point out woodlands that have brought the owners an annual return of £7 and £8 per acre per annum. The woodlands near Hole Park are admirably managed, and if timber becomes scarcer and dearer during the next thirty years, owing to the devastation of American forests by fire and cattle, forestry may prove to be what all the experts who gave their evidence to the committee, declared it will be—a strong resource for the future.

The College farm consists of about 1700 acres in Mr. Neve's own occupation. The area of grass and permanent pasture has been considerably increased of late, and the flocks of Kentish and other sheep numbered not less than 5000 at the time of our visit. The resident managers and proprietors at Hole Park are Mr. Herbert Neve, Fellow of the Surveyors' Institution, formerly of Cheltenham College, and for the past nine years an agriculturist engaged in farming and estate management in his native county of Kent; Mr. A. Curteis Neve, who gained a diploma with honours at the Royal Agricultural College, Cirencester, in 1833, and has since been an active manager of land; and Mr. Rich, a Fellow and examiner of the Surveyors' Institution, the gainer of three scholarships and the diploma of the Cirencester College, and of the only diploma with prize-money and life-membership awarded by the Royal Agricultural Society in 1874. He, too, is an agriculturist of wide experience, and we cannot doubt that with such a staff and such opportunities as those just noticed, the teaching of science with practice will be well blended here. *H. E.*

INDICATIONS OF SPRING.

THE subjoined table, which has been forwarded to us by Sir Joseph Hooker, extends over periods varying from thirty to sixty years, and will be read with

INDICATIONS OF SPRING OBSERVED BY ROBERT MARSHAM, ESQ., F.R.S., AT STRATTON, IN NORFOLK, LAT. 52° 45'.

(Read before the Royal Society, April 2, 1880.)

Indications.	Earliest.	Latest.	Difference.	Medium.	Observed in.
Thrush sings	December 4, 1735	February 13, 1768	81 days.	January 14, 1747	56 years.
Snowdrop appears	" 24, 1778	" 10, 1795	43 "	" 15, 1750	55 "
Ring-doves coo	" 27, 1751	March 20, 1761	83 "	" 22, 1750	47 "
Turp flowers	January 10, 1796	June 18, 1799	129 "	April 13, 1742	55 "
Yellow butterfly appears ...	" 14, 1790	April 17, 1783	93 "	March 3, 1773	36 "
Rooks build	February 2, 1800	March 14, 1757	40 "	February 21, 1744	53 "
Hawthorn leaf	" 11, 1759	April 22, 1784	70 "	March 19, 1758	59 "
Frogs and Toads croak	" 20, 1750	May 4, 1771	73 "	" 30, 1763	57 "
Birch leaf	" 21, 1750	" 4, 1771	72 "	" 29, 1745	52 "
Sycamore leaf	" 22, 1750	" 4, 1771	71 "	" 30, 1744	57 "
Elm leaf	March 4, 1779	" 6, 1781	63 "	April 6, 1773	47 "
Mountain Ash leaf	" 5, 1779	" 2, 1771	57 "	" 6, 1773	43 "
Hornbeam leaf	" 7, 1794	" 7, 1771	61 "	" 9, 1780	40 "
Horse Chestnut leaf	" 10, 1763	" 2, 1771	52 "	" 23, 1784	47 "
Maple leaf	" 15, 1794	" 7, 1771	53 "	" 12, 1788	34 "
Wood Anemone blows	" 16, 1790	April 22, 1784	37 "	" 5, 1788	30 "
Lime leaf	" 19, 1794	May 7, 1756	49 "	" 13, 1796	43 "
Young rooks	" 26, 1747	April 24, 1766	29 "	" 14, 1780	52 "
Chestnut leaf	" 28, 1794	May 12, 1770	46 "	" 21, 1776	36 "
Swallows appear	" 30, 1736	April 26, 1767	27 "	" 13, 1777	62 "
Oak leaf	" 31, 1750	May 20, 1799	50 "	April 26, 1757	54 "
Ash leaf	April 2, 1779	" 26, 1772	54 "	" 29, 1787	38 "
Beech leaf	" 5, 1770	" 10, 1771	35 "	" 23, 1785	53 "
Nightingale sings	" 7, 1752	" 19, 1792	42 "	" 28, 1784	59 "
Cuckoo sings	" 9, 1752	" 7, 1787	29 "	" 23, 1780	51 "
Hawthorn flowers	" 13, 1750	June 2, 1790	50 "	May 12, 1744	59 "
Churn owl sings	" 29, 1781	" 26, 1792	58 "	" 29, 1760	46 "

N.B.—These observations were brought down to the year 1797 by the late Robert Marsham, Esq., who died anno 1797, ætate 90.

interest, especially by those who contend that there has been a change of climate in this country of late years—a contention which is not borne out by carefully arranged statistics.

Mr. Marsham was evidently an observant naturalist, and several papers of his were published in the *Philosophical Transactions of the Royal Society*. It must be remembered that the Horticultural

Society was not then in existence. Thus we find that he published a paper on the usefulness of washing the trunks of trees, showing, by comparative observations and measurements, that the trunks of Beeches improved after having been washed and cleaned, and that there was an increased thickness of growth in such stems as compared with those that were unwashed. Other papers, published in 1759 and in 1796, give details concerning the growth of trees as measured at numerous definite intervals for a series of years.

The table here reprinted is evidently an abstract from the fuller ones given in the *Philosophical Transactions*, in which dates are recorded for each year in succession from 1735 to 1788. The abstractor has added a few observations made by some other observers subsequent to the death of Mr. Marsham.

It would be interesting to work out a comparison between the Marsham Records and those in the Cobham Journals edited for the Meteorological Society by Miss Ormerod; thus, for the Snowdrop, the earliest date given by Marsham in Norfolk is December 24 (in the year 1778), while in Surrey the earliest date given is January 10.

The latest day for the first appearance of the Snowdrop is noted in Norfolk as February 10 (1795), while in Surrey the date given is February 25.

The mean of 55 annual observations in Norfolk gives January 15 as the average date of the first appearance of the Snowdrop flower; while in Surrey the mean of twenty annual observations gives February 2 as the average date.

The difference between the earliest and latest date in Norfolk is given as 43 days, whilst in Surrey 46 days occur between the earliest and the latest record.

Similarly the Hawthorn (*Crataegus Oxyacantha*) is noted in Norfolk, from 59 annual observations, to

Unfortunately, in the present instance we have no corresponding tables of temperature, nor is there any indication that the same tree was observed throughout—an omission the more to be regretted as the individual variations of particular trees constitute a factor that cannot fairly be overlooked.

ALPINE RANUNCULUS.

ONE of the most characteristic genera of alpine plants is certainly the genus *Ranunculus*. It is divided into two great groups of species, those bearing white, and those bearing yellow flowers. The species with white and reddish-white flowers are much more numerous than those of the second category, which latter are only found in low and sub-alpine regions. All the species of *Ranunculus* which are found at higher altitudes, bear white flowers. I will begin by describing these because they are prettiest, most important, and also the most difficult to cultivate.

Rutaeculus rutaefolius, grows among the Alps and the Siberian mountains, both on calcareous and on granitic soils. Among the Alps it is rather rare, and is only found on the Grisons, Valais, and the Tyrol, at an elevation of 6174 to 8124 feet. It is found in abundance in the neighbourhood of Zermatt, and near the Hotel of the Schwarze See at the very base of the Matterhorn. The foliage of this species is much finer than the flower. It is glaucous in colour, and in shape reminds me of Rue, (*Ruta graveolens*); flowering season, June and July.

R. anemonoides, found in the Alps of South Tyrol and Styria, at an elevation of from 4875 to 7149 feet. It is one of the most beautiful species, when cultivated; the flowers are large, white inside, and outside of a bright rose-colour; the foliage much broader than is that of the preceding variety, which it somewhat resembles. It grows on calcareous soil, flowering in March and April. These two species, are easy to cultivate. The soil should be porous, though damp; well drained with pieces of limestone. The plant should be allowed exposure to the sun.

R. pyreneus.—Southern Alps and Pyrenees, at an elevation of from 5850 to 7800 feet. This species is very different to the two just described; the flower is of moderate size, the petals white, caducous, on an erect stem about 4 or 5 inches in height. There are sometimes five or six of these flowers on the same plant, presenting a very beautiful appearance. The leaves are narrow, linear, erect, of a glaucous green colour.

There are two varieties, one of *R. p.* var. *bulpeurifolius*, the other *R. p.* var. *plantaginifolius*.

This plant is easily cultivated; it requires a damp soil, rich in vegetable mould, and exposure to the sun. It flowers when under cultivation in March and April.

R. amplexicaulis.—A very pretty Pyrenean plant, resembling the preceding species in shape, but much finer in all its parts. The flowers are silvery-white, bright and pretty. Cultivation is easy, the plant growing in any soil, but requiring exposure to sun. It grows in the herbaceous border, flowering in April and May.

R. angustifolius.—Of the Pyrenees, seems to be only a variety of *R. amplexicaulis*, and is grown in the same way.

R. parnassifolius, is an essentially alpine plant, growing wild among rocks and between stones in sunny situations. It is found at an elevation of from 8124 to 10,074 feet. The flowers are pinkish-white, large, and borne on flexible creeping stems. The leaves are heart-shaped, resembling those of *Parnassia*. It is necessary in cultivation to supply a well-drained, stony soil, and the plants require a sunny situation. Flowering season, March and April.

R. glacialis.—A plant peculiar to the Alps, and met with at an altitude of from 7149 to 8124 feet, always on granite soil. It is one of the prettiest and most valued plants of our high Alps. When

have flowered earliest on April 13, 1750, latest on June 2, 1797, a difference of 50 days, the medium being May 12.

The corresponding entries in the Cobham Journals are earliest on the 120th day of 1834, and latest on the 142nd day of 1827. The mean date out of 14 observations being the 130th day from December 31.

growing it is generally in the truly alpine regions, and the traveller may be sure on seeing it, that he will henceforth be amongst the true flora of the higher Alps. The flower is large, white within, and copper-coloured exteriorly; in habit it is trailing and creeping over the ground. The foliage is very graceful, and suggestive of that of *Anemones* and *Callianthemums*.

I have found on the high summits of the Val d'Anniviers, in Valais, a variety with woolly foliage, covered with fine hairs.

The plant likes a cool situation, and a damp gravel or pebble soil, with an eastern or a western aspect. It flowers under cultivation in May and June.

R. Segueri is a native of the Alps of Southern Tyrol and Venetia, at an elevation of from 6174 to 7473 feet. This plant differs from the preceding species as its flowers are smaller, and pure white, the leaves less cut and shorter. It grows only on calcareous soil, is cultivated in the same way as is *R. glacialis*, and flowers in June.

R. alpestris.—Found in the Alps, Jura, and Pyrenees, at a height of from 2598 to 6498 feet. This plant has a delicate flower, of a bright, silvery-white colour, and is one of the prettiest of the *Ranunculus*. In summer it is covered with blooms which almost hide the foliage. It likes a porous soil, rich in vegetable mould, and a northern or eastern aspect. It flowers under cultivation during April and May, sometimes blooming again in the autumn.

R. Trautvelleri.—Alps of Tyrol, at an elevation of from 3900 to 4875 feet. This seems to be only a variety of *R. alpestris*, from which it differs by its foliage being more sharply cut, its flowers being smaller, while the shape of the beak of its carpels is also different. It is cultivated as is *R. alpestris*.

R. crenatus grows in Tyrol, at an elevation of from 3573 to 6498 feet, on granite soil. Foliage rounded, faintly ribbed, crenulate, and not cut round the edges; flowers pure white, opening in May and June. Cultivation the same as for *R. alpestris*.

R. bilobus grows in Tyrol, at a height of from 4875 to 5850 feet, in calcareous soil. It is rare, flowers in May and June, and is cultivated as is *R. alpestris*.

R. platanifolius and *R. aconitifolius*, are species belonging to the mountainous zone of the Alps, and found on the mountains of Europe at an altitude of from 1950 to 6498 feet. They have white flowers, small, and borne on numerous small stems. Both these species like cool shade, and a soil rich in humus. They flower from May to July.

YELLOW-FLOWERED SPECIES.

The yellow-flowered *Ranunculus*, as I have already said, are found both on the lower and the higher Alps. An exception to this rule is, however, *R. pygmaeus*, a very small plant, found in the highest regions of Tyrol and Carinthia on granite soil, and which has also been found in the regions of arctic America. I have not yet succeeded in cultivating this plant in the alpine garden, so can say nothing concerning its proper treatment. I have sown some seeds of it, which I hope will come up.

Another *Ranunculus* with yellow flowers, which is also found in the high Alps, is

R. Pathora, which grows in Tyrol at an altitude of 6498 feet. It should be grown in porous, damp soil in a sunny situation. It flowers in May and June.

R. Thora, L., is found on the Jura and the Alps, on calcareous soil. It is a very strange plant; the leaf is single, well-developed, rounded, reniform, crenulate, springing from the centre of the stem; it seems to spread like a fan under the flowers. The flower is small, yellow, and terminal. The plant likes a porous soil and exposure to the sun. It flowers in May and June.

R. montanus.—Common on all European mountains. A low-growing plant, with large golden-yellow flowers. It likes a sunny situation and a light soil. It flowers from May to July, often re-flowering in the autumn.

R. Villarsii is found on the Southern Alps, but is rare. It flowers in May and June.

R. Breynianus is found in Tyrol. The flower is golden-yellow, and opens from May to July.

R. Gouani, *R. carinthiacus*, and *R. lanuginosus* are remarkable neither for their interest nor for their beauty.

R. gramineus, L.—This plant, a native of the mountains of the South of Europe, grows in one or two places in Valais. It is a most curious and interesting plant. By its habit and foliage this variety resembles *R. pyreneus*, but its flower—of a bright yellow colour—places it in quite another category. The plant is remarkable for requiring a dry soil and a warm situation, with full exposure to the sun. It flowers in May and June.

All these different species of *Ranunculus* can be raised from seed. *H. Correvon*, *Directeur du Jardin Alpin d'Acclimatation, Genève*.

A STREAMLET AT CHARENTON.

THERE are few things that put to the test the artistic feeling of a landscape gardener more crucially than his treatment of water. Too often we see a streamlet such as that shown in fig. 61 either treated as a canal or else the banks are broken up by meaningless curves and zigzags which offend the eye by their number and crudeness. In such a case as we are considering the water flows—it is in motion; moreover, that motion is gentle, and the banks are of soft yielding material, so that to attempt to give such a rugged, broken outline to the bank as would be proper were the soil rocky would obviously be absurd.

The water should just fret the edge into shallow irregular curves and indentations, suggestive of the gentle force of the current and the shallow depth of the water. The banks should be too much encumbered by aquatic plants, handsome as they are. Judicious use should be made of them here and there, but their place is in clumps by the banks of a lake, rather than on the margins of a running stream.

Bulbous plants and low-growing perennials, Primroses and the like, afford a great charm in such situations. Trees adjacent to such a stream should be arranged in a direction somewhat parallel with the direction of the current, not at right angles with it, and an appearance of greater distance may be given by placing here and there a clump of trees nearer to the edge of the water than the rest.

The illustration at fig. 61 shows a streamlet at Charenton, and is taken from MM. Alphand & Ernouf's *L'Art des Jardins*, published by Rothschild, of Paris.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM CRISPUM.

M. ANDRÉ, alluding in the *Revue Horticole* of March 16, p. 133, to the habitat of this Orchid, says:—"After we had attained an elevation of 1623 feet above Pasca, a poor village of the Eastern Cordilleras, nearly 25 miles from Bogota, and at an elevation of about 6933 feet, the slopes became steeper and steeper, and the 'paramo,' or the cold upper region of the Andes, generally covered in fog, was visible beneath its veil of mist. The mules were confided to the care of a peon, and our ascent commenced. After two hours' walking through these 'lomas,' or mountainous prairies, covered with short grass, with here and there bushes of *Rubus bogotensis*, we entered the forest of Orchids. This was quite within the cold region. The arborescent vegetation was meagre and poor, covered with moss, lichens, and Hepaticas, which gave a green appearance to the branches in this region of perpetual damp. There were no flowers, with the exception of the beautiful clusters of white and pale rose of *Odontoglossum crispum* growing in the forks of the branches, of which plant I took a good supply. Certainly this

species is the queen of Orchids in the region of Pasca."

ANORECHM MODESTUM, Hook. f., *Bot. Mag.*, t. 6693.

A small importation of this rare and beautiful Madagascar Orchid is now flowering in the Angreum-house at Messrs. Hugh Low & Co.'s, at Clapton. In general appearance of its flowers it may be likened to *A. bilobum*, Lindl. The clear white flowers, which are borne on elegant sprays, are 1½ inch across, white, with a crystalline surface; spur 3 inches in length, white, tinged with cinnamon. The rachis and pedicels of most of the plants also are tinged with cinnamon. It is a charming species, and all the more acceptable on account of its odour of Tuberoses, which becomes very strong towards night. *J. O'B.*

CYPRIPEDIUM CAUDATUM, SEEGER'S VAR.

In the new Orchid nursery of Messrs. Seeger & Tropp, at Lordship Lane, S.E., perhaps the largest and darkest variety of this extraordinary Orchid ever seen is in flower. The large well-rounded pouch is purplish-chocolate on the outside, and white, beautifully dotted and marked with various shades of the same blackish hue on the inside. The very long petals are broad, and almost wholly reddish-brown; the sepals also very broad, yellow, veined with bright green. *Cypripedium vernixium superbum*, C. *superciliare*, a large and peculiarly marked form of C. *Harrisianum*, and other rare *Cypripediums*, and other Orchids, are also now in bloom with Messrs. Seeger & Tropp. *J. O'B.*

SEEDLING DENDROBIUMS.

This genus lends itself readily to the skill of the hybridist, and we may look for still more interesting results from his labours than those already obtained. The number of hybrids of *Cypripediums* and *Selenipediums* are now to be counted by scores, and amongst them are some of singular and quaint beauty; in all probability many scores more are in process of development, some of which will flower this spring and summer, and others will follow at later periods. As yet, however, the number of hybrid *Dendrobiums* is small, some five or six being all that have been considered worthy to receive distinctive names; I, however, look for many new forms to appear from time to time, and some of them, doubtless, will exceed in beauty any of the species with which we are at present acquainted.

I should much like to see the progeny of D. *nobile* crossed with D. *primulinum giganteum*, or D. *Dearei* and D. *bigibbum*; or, again, D. *Goldieanum* crossed with D. *Dearei*. Of these two latter crosses I have succeeded in getting seed-pods, and sowed the seed, but nothing came of it. It does, however, seem to me that if the pure white of D. *Dearei* could be so worked in with D. *bigibbum* that part of the flower would remain of a clear white, and the remaining portion of a deep rose colour, as the plant produces sprays with from four to eight flowers, lasting ten to twelve weeks in flower through the dull part of the year, we should secure a very beautiful and desirable object. I must confess to a feeling of considerable surprise and pleasure in seeing the figure in the *Gardeners' Chronicle* of March 17, of Messrs. J. Veitch & Sons' new hybrid *Phalenopsis*. It is a fine production, betokening great forethought, patience, and cultural skill.

I have before me the result of others' labours in the form of some blooms of seedling *Dendrobiums*, kindly sent me by Mr. W. Holmes, Grangethorpe, Rusholme, Manchester. I and Mr. Holmes were neighbours for several years, and he was just as much interested in observing my stock of D. *Leechianum*, and watching its progress, as I was in a batch of seedlings that appeared at Cromwell Range when he was gardener to O. Schneider, Esq. When Mr. Holmes entered the service of the late C. Moseley, Esq., he had a good portion of the seedlings presented to him. These have come on most rapidly, and at the present time have strong, plump, pseudo-

bulbs, on one of which no less than fifteen flowers have appeared, the bulb measuring only 10 inches in length. Its parents were *D. Findleyanum*—a grand variety—crossed with *D. aureum* (*heterocarpum*). The result is a progeny intermediate between the two, so far as form goes, whilst the substance, colour, and markings are more beautiful than those of either. The rich scent of *D. heterocarpum* is apparent in all, so that we have a hybrid satisfactory in every respect. The blooms sent represent four varieties, No. 1 being nearly 4 inches in diameter; sepals bright clear rose colour, darker towards the tips; petals white with bright rose coloured ends; lip full and open, the upper portion deep

growth, I anticipate that in a year or two we shall see pseudobulbs 2 feet or more in length, with from twenty to thirty flowers upon them. As is the case with so many hybrids, the growths of last year were much better than those of the previous season, whilst some of the leading pseudobulbs are now coming away with three new shoots from their base. *W. Swan, Preston.*

LOMARIAS.

LOMARIA *gina* is the best known and most useful species of the genus; although it is a little too dense in habit to be really effective for some purposes, it is

pleasing shade of green, and the plant has a very attractive appearance; but as a rule the vigorous growing varieties have rather a coarse appearance.

L. ciliata is a species which, although not so popular as the above, is, nevertheless, a very desirable Fern, and when well cultivated it forms a very pretty plant.

L. unda is a compact growing species, somewhat resembling a close growing form of *L. gibba*, and may be recommended, as it keeps in good condition in a low temperature better than most of the *Lomarias*.

L. discolor bipinnatifida—a very beautiful form—is rather scarce as yet on account of its rarely producing fertile fronds. It often produces what appear to be fertile fronds; but which, on examination, are found to be abortive. It has been cultivated at Messrs. Veitch & Son's nursery for a good many years, but it was not until lately that fertile fronds have been obtained. It remains to be seen if these will prove productive; and if a good batch of seedlings can be raised from them it is just possible that they will not maintain the true characteristic of the parent; but we may hope they may, and that this beautiful Fern may become more plentiful.

L. zamiaefolia is another distinct and useful species, and *L. L'Herminieri*, which I have previously alluded to as being remarkable for the brightly tinted young fronds, should be found in every collection.

TREATMENT.

Although all of the above varieties are classed with greenhouse Ferns, they succeed better in rather a higher temperature, especially during the winter months. The only objection to giving them a warm position is, that they are subject to the attacks of thrips, but if a moist atmosphere be maintained these troublesome insects may be kept in check. In growing-on seedlings, especially of *L. gibba*, the main point is to treat them liberally, and to prevent them from receiving a check in any way until they have attained a useful size, for as soon as they get a little stunted, they throw up fertile fronds as soon as given a fresh start, and although these are pretty in a young state, as the spores ripen the fronds turn to a brown colour, and give to the plants an impoverished appearance. *Pteris.*

FOREIGN CORRESPONDENCE.

BERLIN FLOWER MARKET.

THE shops have quite a spring-like appearance with fine Dutch bulbs, Lily of the Valley, Roses, Azaleas, Camellias, Deutzias, and Spiræas.

The Roses grown for forcing are chiefly root-grafted. On the occasion of my visit to the St. Petersburg International Horticultural Exhibition in 1884, the Roses observed there were worked about 8 to 10 inches from the ground, and presented a more artistic appearance, as well as finer flowers, and had a less compact crown than those which were root-grafted. *Apropos* of Roses, it may be mentioned that it is the opinion of the largest Rose forcer in St. Petersburg, and also of H. Drowich of Berlin, that Roses worked on 8 to 10-inch stems force more readily than others root-grafted. It is a fact, moreover, that owing to the great demand for the former, sufficient numbers are not to be found for forcing purposes at the present time. Indian Azaleas are grown mostly as small bushes from 10 to 20 inches in diameter; the larger Azaleas of a few years since are no longer to be met with. The old specimens have died, and now no one has the time, or will give himself the trouble to bring on others to take their places.

Pontic Azaleas (*A. mollis* and *A. pontica*) have appeared within the last few days. Why is it that these species force so badly? The few fine warm days recently have caused them to begin to grow in the open, so that the advantages of forcing the plants are very small. *Prunus triloba*, fl.-pl., as well-flowered standards, is to be observed in almost every



FIG. 61.—A STREAMLET AT CHARENTON. (SEE P. 428.)

orange with a patch of purple, and having a few lines of the same colour running into the yellow: this is surrounded with a zone of pure white, whilst the lower point is of a bright rose.

No. 2 is rather smaller, with clear white sepals and petals, with just a faint tinge of pink at the extremities; lip very similar to No. 1, with, however, more purple in the centre.

No. 3 is very similar to No. 2, excepting that the labellum is lengthened as in *D. heterocarpum*; deep yellow centre with no purple markings, very pretty.

No. 4 is the smallest of the number; sepals white, petals tipped with pink, lip clear yellow and white, with a nice patch of rose colour at the apex; the sepals are singularly reflexed, reminding one in some respects of *D. crassinode*.

As each of the hybrids is of very free and robust

one of the best Ferns for providing bright fresh greenery in groups arranged for effect, and as a commercial plant it finds considerable favour. There are several very distinct forms, and moreover the conditions under which the plants are grown will make a great difference in their appearance; but under treatment identical in its nature it will be found that the characteristics of the different varieties are fully maintained. The normal type as it was first sent out by Messrs. Veitch & Sons some twenty-five years ago, has not been much improved upon, but both the dwarfier and more compact growing varieties, and the more vigorous growing forms, are very useful for different purposes. Of the latter I saw a good variety at Messrs. Veitch & Son's nursery last year; it was named *L. gibba platyptera*, but the fronds in this variety are undulated, of a bright

florist's shop, and rarely as dwarf bushes—a most desirable form, but producing smaller flowers than the former. Rhododendrons well furnished with flower-buds are to be found, and more seldom *Erica persolnta*.

Enormous numbers of little bouquets composed of *Galanthus nivalis*—twenty to thirty blooms, bound up together in a bunch, in an utterly tasteless manner, find a very ready sale. Flowers of *Anemone fulgens* come from Northern Italy in large quantities, and are chiefly of the double-flowered varieties, in many colours. These are sold by the street flower-vendors in bunches as inartistic as those of the Snowdrop. Tasteful bouquets consisting of *Acacia dealbata*, *Violeta*, *Lily of the Valley*—set off by the indispensable foliage of *Mahonia*—are more rarely observed. *Lencium vernum* has not yet appeared, but will do so shortly. A well arranged wreath was noticed in a florist's recently, consisting of dark reddish-brown *Mahonia* leaves and a base of white *Camellias*, white *Azaleas*, *Helleborus niger*, and *Lily of the Valley*. The making of wreaths, has attained in Berlin, to a high degree of perfection, as was evident on the occasion of the death of the Emperor William. *Correspondent*.

EXHIBITION OF FORCING PLANTS, APPARATUS, &c., AT HAARLEM.

Among the many varieties of bulbous plants cultivated in Holland in recent years, so much attention as might have been desirable has not been paid to flowers suitable for very early forcing. The aim has always been to have large flowers of fine quality, and those are not always found to be the earliest. For many purposes, however, such early-flowering blooms are required, and there is now a tendency among growers to give them more attention than before. In January last a show of flowering *Ilyacinths* and *Tulips* was held in Overveen, near Haarlem, which was a fair success; and at the general meeting on March 26 last of the Royal General Union for the Cultivation of Flower-roots, at Haarlem, it was decided to hold a show of flowering bulbous and tuberous-rooted plants on December 24, 25, and 26, 1888. The previous programme, which was discussed and enlarged, contains forty classes—for *Ilyacinths* and *Tulips* in pots or glasses, for *Crocuses*, *Narcissi*, *Amaryllis*, *Orchids*, *Anthuriums*, *Cyclamens*, and for miscellaneous bulbs and tubers for the open ground as well as for glasshouses, and novelties. As this exhibition is principally undertaken for trade-purposes and for study, no medals or money prizes will be given, but Certificates of the first, second, and third class will be awarded. At this exhibition varieties fit for early forcing, and not sufficiently known at present, can be brought forward. It is to be hoped that cultivators of bulbs will do their best to make this show a fine one.

FLORISTS' FLOWERS.

SOME NEW GOLD-LACED POLYANTHUSES.

Among these should be placed *Firefly*, dark red ground, rich golden centre, pure well defined lacing, which cuts down to the "ground"—very pleasing and bright; *Model* (Barlow), red ground, deep golden centre, rather broad, and slightly paler lacing, good flat circular pip, and robust habit of growth. This fine variety expands badly, and requires a little assistance from the grower. *John Bright* (Barlow) will never be a leading exhibition variety, but it is a good grower and very fragrant, black ground, deep golden lacing and centre—very bright, wanting shape, but decidedly pleasant. *Harbinger*, like *Cox's Prince Regent*, and slightly clouded in the centre—the golden-laced edge not so broad as it is in the case of *Prince Regent*. *Sunrise* (Barlow), a beautiful red ground, bright and clear in colour, rich golden centre, lacing well defined—very bright, and good shape. When this can be distributed it will make an excellent exhibition variety. *Criterion* has a fine black ground, clear golden centre, very

neat and regular edging—bright and pleasing, and good habit of growth. *Zoe* (Bolton), rich black ground, fine clear golden centre, with regular lacing; very bright and effective, clearer in the ground than *Cheshire Favourite*. Whether any of these will be seen at the coming exhibition of the National Auricula Society in London I cannot say. At present it would seem that *Polyanthuses* will be late, for the cold wintry winds have a decidedly retarding effect. Those who can give them sufficient warmth to keep the temperature which surrounds them a little above freezing point at least, will find it very helpful. Those who have to grow in cold frames can scarcely do better than cover up at night while the freezing winds last. On March 19 my plants were frozen hard, and, indeed, they do not appear to have made any headway for a month past. And yet about the middle of January they appeared as if they would be unusually early in flowering; but then, who expected such wintry weeks in February, and such a tardy March? *R. D.*

AURICULAS.

In one of his pleasant chatty papers on the Auricula, the Rev. F. D. Horner has remarked that "The Auricula likes a half-yearly change, and although it will do in a clear North aspect the year round, the bloom will then be later, and with greater difficulty be protected from undesirable degrees of cold and dampness." This is very true. There is another trying influence of which Mr. Horner, away in his northern home, has little or no knowledge—and that is the London fogs. Damp and cold can be guarded against: but these terrible fogs defy remedy. They find their way through every crevice of the house or frame, and surround the plants. My neighbour, Mr. Roberts, at Gunnersbury Park, complains more and more of the effects of the London fogs in his plant and fruit forcing-houses, and they appear to be more destructive in January than in any month of the year. The purest of atmospheres appears to be required by the Auricula. There are a few sorts I cannot grow into size, do what I will. Among them is grey-edged *George Lighthody*. I have had some plants four years, and they are as small as when I first had them. They appear to make a free growth in spring and summer, and look promising in the autumn; but when the cold damp fogs of winter come, and with them a low temperature, the plants fall away to nothing, and make little or no headway in the direction of increasing size. I am sure I should succeed better could I give my plants a south aspect from October to the end of their blooming period, but having no accommodation I am obliged to keep the plants in a cold north house all the year round. Though they occupy an elevated stage, open below, and the plants near the glass, damp is ever with them, and it gathers upon the pots and the surface of the soil, and frequent washings of the one and stirrings of the other are necessary. At present I have scarcely a plant that is bare of trusses and the chances of having any in flower by April 24 looks very remote at present. The race is for those who can give their plants some fire-heat, and so help on their Auriculas into flower.

It is interesting to note how eager the plants appear to be to get forward into the blooming state. They have put forth a free healthy growth, but want the help of solar warmth to assist them on to the blooming stage. The pips expand but slowly in dull weather; the finer the quality of the bloom the longer time appears to be required to develop the pips into full character. At this stage fire-heat is an immense advantage, as with it the night temperature can be maintained as high as that by day, and even a little higher, whereas in a cold house, if there be some sun-heat by day, the temperature falls slow by night, and then the plants "experience the undesirable degrees of cold and dampness," of which Mr. Horner speaks, and which are great hindrances to a fine and correct development.

April is generally regarded as the mid-season of the bloom of the Auricula. It is then that the grower can survey the results of his care and toil,

and reap the reward of his industry. Happy is he who in such a late and cheerless spring can so cultivate his Auriculas as that April brings the mid-season of bloom. I am wondering if I shall have a fully expanded pip by the 1st of May, either of *Auricula* or gold-laced *Polyanthus*. Anyone who takes an interest in the annual exhibition of the National Auricula Society likes to exhibit, if he can, but only once in the past five or six years have I been able to stage six Auriculas. I hope the time is not far distant when classes will be provided for plants grown wholly without fire-heat. Some amateur cultivators have advocated this for a few years past. They who, like myself, have to grow these plants in a low temperature, and leave them to the tenderness of Nature to bring their Auriculas on into bloom without help in the shape of artificial heat, feel that they can put in a reasonable claim for some consideration. They do this annually, in the hope that some day it will receive due attention at the hands of the committee of the National Auricula Society. *R. D.*

THE WEEPING LARCH.

[SEE SUPPLEMENTARY SHEET.]

We give this week an illustration of a Weeping Larch in the nursery of Mr. Maurice Young, Milford, whose knowledge of trees and keen insight into their nature and habits, have often been put under contribution by us for the benefit of our readers. It is a remarkable specimen, and grafts from it would reproduce the weeping tendency. Some of the seedlings might do so, others would not; and so arises that persistent "Why?" We rejoice when we find an answer, but when it is otherwise, as it is—oh, how often!—then the little word sometimes becomes objectionable. Why do the branches "weep?" "Gravity," "geotropism," and various other "isms," are invoked in answer; but, after all, they are mere expressions of facts, not explanations; and the why for the present remains unanswered, but only for the present we may be assured. In the meantime our appreciation of a strikingly effective tree, however much it might be increased by a knowledge of the why and because, is not lessened by its absence; and so we recommend all who have an eye for good things to visit Mr. Young's nursery and see, among the many subjects of interest there to be found, the Weeping Larch. If they are in a position to say because to our why, we shall be glad to hear from them.

PLANTS AND THEIR CULTURE.

HARD-WOODED ERICAS.—For these employ the best peat in the potting; a few small nodules of white sandstone; and much silver-sand may be added with advantage; these latter aerate the soil and keep it cool and moist enough without becoming waterlogged—conditions, favourable to the wellbeing of *Ericas*. Stake and tie out as advised for *Aphelexis*, but fewer stakes are required, indeed they look better if their branches are allowed to droop below the rim of the pots. Although most hard-wooded plants are benefited by a free circulation of air, yet draughts are injurious. After re-potting it will be advantageous to shade slightly for a fortnight during the warmest part of the day. Should mildew appear on the plants, dust with flowers of sulphur, and maintain a slightly warmer and drier atmosphere for a few days.

Clerodendrons, which are now starting into growth, may, if they require it, be turned out of their pots, slightly reducing the ball of roots, and repotting them, using a light rich soil, consisting mainly either of peat or loam, separate or mixed, and well enriched with decayed manure or some prepared fertiliser. In this genus we get both stove and greenhouse subjects—some, indeed, are hardy, such as *fetidum* and *trichotomum*, but perhaps the most popular and useful is *Thomsonae*, variety *Balfouriana*, a native of Old Calabar, and therefore requiring stove treatment; it is a handsome subject for either pot culture or training up a rafter or pillar. By growing several specimens it may be had in flower the greater portion of the year. A good practice is to raise fresh plants annually,

employing cuttings of the young growths when about 6 inches long, which, if potted singly into thumbs and put into the propagating frame, will be well rooted in about a month, when they should be potted into 60's, and subsequently into 32's, using the soil before recommended, and standing the plants in a light position in a warm pit, syringing them daily. They should be stopped once and the shoots resulting should be about 6 feet long by the month of August, when they should be afforded more air, and less syringing, in order that the wood may be well ripened. These plants, after being rested, may be introduced into heat periodically during the following season, when, with the aid of manure-water a profuse crop of flowers will be obtained from plants in comparatively small pots. Training into the desired shape is best done when they are in flower. *C. speciosum* succeeds under the above treatment, and may be grown for variety. A handsome white-flowered climbing species is found in *C. nutans*, which, flowering as it does late in autumn, should be grown on that account. Of stove shrubby species, *C. fallax* is perhaps the best known; *C. squamatum* is similar to this, but is a rather stronger growing plant; both produce large panicles of scarlet flowers, and are easily propagated from seeds or cuttings. The best greenhouse species is *fragrans*, fl.-pl., but to have this plant in perfection it should be planted out in a similar manner to *Camellias*, when it will produce immense heads of its sweetly scented flowers for a long time in succession; treated thus, it is a handsome foliage plant, even when not in flower.

Miscellaneous.—Pot and prick off all seedling plants and cuttings as soon as they are fit to handle. Avoid bringing tender things into a cold or draughty potting-shed, and pay particular attention to damping and shading until the young plants are well established in their pots. In all cases, whether of stove or greenhouse plants, a genial growing atmosphere should be kept up while the plants are in this young stage. *Chrysanthemums* and *Salvias*, which are now established in small pots, should be potted on before they become pot-bound, using a strong loam, with a little soot and bone-dust added; a cool frame in a sunny position suits them admirably. Keep the plants well up to the glass, and if frost threaten cover with mats, or *Frigi Domo*. If freely aired on every favourable opportunity, there will not be much danger of mildew, or insects pests attacking them. *Ivy*, *Tulips*, and *Narcissus*, which are coming on too fast may be retarded by being placed behind a north wall. Fresh batches of hardy shrubs should still be brought on for indoor work. *Acer Negundo variegata* is a very effective subject for groupings with flowering plants, its long petiolate, white and green foliage harmonising well with other colours. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

BEDDING PLANTS.—*Pelargoniums* should have the points of all strong shoots pinched out, so as to maintain a dwarf sturdy habit. Overcrowding, resulting in spindling growth and the loss of bottom leaves, should be strictly avoided at this period; therefore, give more space where it can be afforded, and increase the ventilation in the day-time, preparatory to removing the stock to cold frames in a week, or ten days hence.

Begonias.—If tubers of these plants were started in boxes as advised, they should now be sufficiently advanced in growth to be divided and potted into small pots. Where it is desired to make the most of the stock in hand, each tuber, if of fairly good size, may be cut into three or four pieces, bearing in mind that, although they will grow very well if only one shoot is allotted to each, it is preferable to have two or three. Add to the compost in which they are potted, a small quantity of decayed manure, use clean pots well drained, and allow three or four days to elapse after potting, before watering.

Dahlias.—These may be treated similarly to the above, with the exception that each piece of the old tuber should be allowed to have only one young growth. Cuttings if put in now singly in thumb-pots and plunged in a bottom-heat of from 75° to 80°, will root quickly, and before becoming pot-bound, should be shifted into larger pots. Pot off young seedlings, and single varieties, transferring them to larger pots when large enough.

Seedlings of Petunias and other bedding subjects should be pricked out into shallow boxes or pans as

soon as large enough to handle, and be watered and shaded for a short time. *Asters*, *Ten-week Stocks*, and other seedling plants in frames should be closely attended to from this time onwards in regard to ventilation on bright sunny days, and watering them when necessary. Keep a sharp look-out amongst these subjects for slugs during the next two or three weeks, or considerable loss may occur. A second sowing of any of the above may be made if found necessary.

Propagation.—Continue till the end of the month the propagation of soft-wooded bedding plants. The first batch of early-rooted cuttings of *Alternantheras*, *Verbenas*, *Iresines*, *Ageratums*, *Mesembryanthemums*, and *Heliotropes* may have the tops cut off to form cuttings. These will be found to strike root more freely than cuttings from old plants. In the event of no more cuttings being required, move the boxes to a house having a lower temperature, and in a fortnight hence to the cold frames, *Alternantheras* and *Iresines* excepted. With increased solar heat more moisture will be required in the propagating house than hitherto. Fumigate with tobacco-paper to keep down aphids as occasion demands, and on alternate nights rather than by one strong fumigation. *J. Horsfield, Heytesbury.*

THE ORCHID HOUSES.

REPOTTING.—Hitherto much shading has not been needed, but it will be all the more necessary now, when bright days occur, and the blinds should be got in readiness, as the sun's rays will prove too much for the foliage of many Orchids. Now that the growing season has commenced many plants will require repotting, and the compost to be renewed. *Cattleya Gaskelliana* should be growing fast, and will need attention; specimens of *Lælia anceps* should be repotted and top-dressed as may be required; some plants that have outgrown their pots and have plenty of sound roots clinging round the outside suffer the least damage if the pot be set inside another one, at the same time breaking out the bottom of the inner pot, and also picking out all the old compost and filling the space with new crocks. *Lælia anceps* make roots the best when the peat and sphagnum are placed lightly about them, keeping the rhizomes of the plants well above it.

Deciduous Calanthes that have been lying on their sides in the East Indian house since the time their flowers were cut, are now starting to grow. I do not need to give advice on the potting of these *Calanthes*, for one of the largest bulbs here this last season was produced from a plant which had not been potted, but was grown again in the old compost. I think there is little doubt that the material about the roots of all Orchids would be greatly benefited and made almost sweet again if it could be thoroughly dried for a time without causing injury to the plants. These *Calanthes* will enjoy a place in the warmest house near the glass, and with very light shading, keeping the atmosphere of the house moist whilst there is abundance of sun-heat. *Masdevallia chimera* and similar forms that require it can be rebasketed, if boat-shaped baskets are used with narrow openings as a layer of sphagnum over the bottom instead of crocks will be best as this enables the flower-spikes to push out without hindrance. If these *Masdevallias* have been wintered in the *Cattleya*-house the cool house would suit them best at the present time, and they should be examined once in a fortnight, and some weak insecticide employed to rid them of red-spider and thrips. The flower-spikes of *Oncidium sarcoles* should not be allowed to remain on too long or the plants will become weakened and new growth fail to be made at the proper time. I saw a strong plant of this *Oncidium* the other day in the garden of A. Palmer, Esq., East Thorpe, Reading, bearing 167 flower-buds on one spike, also another spike coming away from near the top of a pseudobulb which struck me as being of an unusual size. *C. Woolford, Downside, Leatherhead.*

THE HARDY FRUIT GARDEN.

GRAFTING FRUIT TREES.—As vegetation is now fairly on the move, the grafting of fruit trees may be proceeded with, and if the trees have been headed back as previously advised, the operations connected therewith will be expedited. In grafting, it must be

borne in mind that success depends entirely on the perfect union of scion and stock, and it is therefore necessary that great care should be exercised in the performance of the work, especially in making the bark of both coincide at least on one side in the case of large branches, but it is better when it can be made to touch on both sides. Whip-grafting is the most convenient form for most purposes, and it is that which is generally adopted, except with old trees and large branches—cleft-grafting must then be resorted to, but it is a mode of grafting made but little use of out of the Cider Apple districts. Before commencing operations, pare the ends of the branches and the tops of the stocks perfectly smooth, and leave the surface slightly sloping towards the side on which it is proposed to work the graft. Choose as scions short-jointed well-ripened pieces, shoots with three or four buds on them, and in cutting them be careful to leave a bud near the base. With a keen knife cut the graft in a sloping direction, and make a slit or tongue about half way down the cut surface. Then remove a slice of bark and wood from the stock or branch of such a length and width that the graft will fit exactly, and make a corresponding slit on the surface to that on the graft, which must be held open with the point of the knife while inserting the tongue of the graft, and this being properly performed the graft is securely fastened to the stock. Then bind the graft round with matting—not too tightly—after which the point of union and some part of the scion above the tie should be clayed, or waxed over to exclude moisture. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

GENERAL WORK.—Tomatoes for outdoor culture should now be ready for potting into 6-inch pots, the soil to consist this time principally of good turfy loam; if this is of a heavy nature, a small quantity of leaf-mould and sand may be added to it. Each plant as soon as potted should be secured to a stick about 2 feet long, and may then be placed in a house with a temperature of 50° as a minimum, and where they will get sufficient light and air to keep them sturdy. Lettuces sown early in heat, should now be pricked out into cold frames at 4 inches apart, and kept rather close for a few days until growth begins. Peas sown early will now require to be staked, and if coal-ashes or similar materials, have been used to protect them from the depredations of slugs, carefully remove as much of it as possible, and with a rake draw a little soil up to the plants before putting the sticks into the ground. Cabbage and Lettuce intended to succeed those planted out in the autumn, should now be put out without further delay. Cauliflower plants protected in pits, &c., should be gradually hardened off in readiness for planting out about the middle of the present month.

Seeds to Sow.—The main crop of carrots should now be got in as soon as a favourable opportunity occurs, choosing the lightest soil of the garden, and in case of having to sow on soil of an opposite nature, endeavour to render it lighter by the addition of burnt earth and refuse sand, wood-ashes, &c. Matchless Scarlet is one of the best improved varieties to grow. More Peas should be sown according as the demand requires; and it is better to sow two or more varieties each time of sowing, a better succession being thereby maintained. The main crop of Celery should be got in as soon as possible if it is not already sown; Vegetable Marrows, ridge Cucumbers, and Gourds may be sown in pots for planting out on hot-beds afterwards, putting four seeds in a 5-inch pot to be reduced to the two strongest plants subsequently, and where heated pits are available some French Beans should be sown. *W. H. Divers, Kettleton Hall, Stamford.*

CAMBRIDGE.—The estimates for the new plant-house (£2700) and research laboratory (£250) at the Botanical Gardens are accepted, Messrs. Boyd, of Paisley, being engaged for the former, Mr. TINDALL for the latter. Sir JOSEPH HOOKER, Mr. THISELTON DYER, and several skilled horticulturists have inspected the plans, and they meet with general approval. The proposed Fern-house, stove, and Orchid-house have a combined area of 2660 square feet, as compared with 2290 square feet, the area of the corresponding present houses.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, APRIL 9—Ghent Chambre Syndicale.
TUESDAY, APRIL 10—Royal Horticultural Society; Scientific, Fruit, and Floral Committees.
THURSDAY, APRIL 12—Edinburgh Botanic Society.

SHOW.

SUNDAY, APRIL 15—Ghent Quinquennial peeps.

SALES.

TUESDAY, APRIL 10—First Portion of the Broomfield Collection of Orchids, at Protheroe & Morris' Rooms.
Roses, Camellias, Picotees, &c., at The City Auction Rooms, by Protheroe & Morris.
WEDNESDAY, APRIL 11—Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.
Collection of Orchids in Flower and Bud, and Imported Orchids from Messrs. H. Low & Co., at Stevens' Rooms.
Lilies, Roses, &c., at Protheroe & Morris' Rooms.
Nursery Stock, Stove and Greenhouse Plants from Sample, at Protheroe & Morris' Rooms.
THURSDAY, APRIL 12—Imported Orchids from Mr. F. Sander, 10,000 Lillium anatum from Japan, at Stevens' Rooms.
FRIDAY, APRIL 13—Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, APRIL 14—Lilies, Roses, and other Plants, at Protheroe & Morris' Rooms.

The Local Government Bill.

The measure introduced to the House of Commons by the President of the Local Government Board, and which relates to the

Local Government of counties and districts within counties, can hardly be ignored by gardening publications. It is true there are many aspects of gardening, and some, whose interests are small, find little to concern them outside their little gardens, or greenhouses, or nurseries, for it is by no means uncommon to find people of considerable education and taste, and even Horticultural Societies, who ought to know better, taking a very restricted view of the general aspects of gardening. But the Local Government Bill, whilst in no appreciable degree affecting private gardening, and not very considerably the nursery or seed trade, may, and indeed does, largely concern all that portion of the trade which applies itself to the production of food in some form or other, as well as of flowers, for the benefit of the public at large. Since the introduction of the new Bill for improved local government we have had a very complex financial scheme, the Chancellor of the Exchequer's Budget, introduced also; and here again we find provisions which may somewhat largely affect the interests of the nurserymen and of the market garden community. Possibly the chief element of change

may be found in the incidence of local rates, for rates have long been a cause of considerable worry to the market grower, and to the nurseryman, and as local rates are in the new scheme to receive considerable relief, in some form or another, from the diversion of other forms of taxation to local purposes, it is evident that the market gardener may approach the subject of Local Government Reform with hopeful anticipation. This relief will be specially found in the promised payment of 4*l.* per head for the maintenance of indoor paupers, as in that way alone the poor-rate should show a reduction of one-third at least; that 4*l.* per head will come from ordinary taxes and licenses, although the charge will also have to be made up in certain directions, which may prove burdensome to the ground cultivator. The conversion of all the county areas eventually into district board areas will probably lead to the placing of the whole of the more populous rural districts under sanitary regulations similar to those which now prevail in local-board areas. In that case land used for all gardening purposes is exempt from the payment of three-fourths of the full sanitary rate, so that the change will not appreciably burthen land. But the establishment of strong county and district boards having important powers may lead to the establishment of public markets for the disposal of produce, and should that be the case, it seems inevitable that growers must benefit as well as the public. New bodies freed from old traditions and entanglements may be able to promote markets in many directions which existing bodies cannot in earnest favour. The proposal to place all main roads under the charge of the county boards will lead to considerable additional expenditure both in material and management, but those who have horses and vehicles, especially those which are usually heavily loaded; can hardly fail to recognise the great saving from wear and tear to horses and vans which results from having high-class roads to travel over. The proposal of the Chancellor of the Exchequer, however, to place taxes first of 20*s.* on all heavy waggons—that is, to those over 10 cwt.—and also a wheel tax of 2*s.* 6*d.*, which will make an annual duty of 30*s.* upon all large waggons, the avowed object being to make those who use the main roads pay for their repair, is hardly likely to meet with cordial acceptance. It is true that the Chancellor specially exempts agricultural carts, but that exemption may refer solely to heavy vehicles employed about or on farms. The difficulty in the case of market gardeners is this, that whilst their vocation so far is agricultural, and may come under that term in relation to exemptions, yet around London and large towns no heavy traffic produces more wear and tear of the highways than does the market van traffic. Specially is it the case around London. Hundreds of heavily laden vans—the van and load often reaching 4 tons—having to traverse the main roads fully 14, 16, and even 18 miles some half-dozen times a week. If market vans escape this considerable tax of 30*s.* it will be hard to place it upon coal-waggons and numerous others, all of whom are legitimately engaged in conveying necessities of life to some portion or other of the community. Now market gardeners having narrow views of the necessities of existence, and who look no way beyond their own selfish interests, would doubtless prefer that the changes in local government and taxation indicated some considerable restriction of foreign imports of gardening produce. But there is a very big world outside of gardening which must live, and the Government does not yet exist which

will seek to restrict the supply of food to the masses. Hence the solution of market gardeners' difficulties in that direction may not be looked for. Others, again, very much more legitimately look—although, so far, with very little support—in the direction of reduced rents and the abolition of tithes, or their payment by the landowner. Well, relief in these directions may come some day, and relief to certain portions of the market-garden interest, in the practical equalisation of railway rates of transit for garden produce, seems appreciably near. That, however, may prove, even if granted, but an illusory or sentimental grievance removed after all. Changes of that kind are apt to act both ways, and do not always produce the benefits anticipated. With respect to the relief of local rates, on the one hand, through the diversion of considerable imperial taxation, there is to be set against it the possible new charges made under the Budget scheme, and which, if paid by market-gardeners, will be no light burthen. Taxes on locomotion of any sort are objectionable, and directly oppress, not only the public, but the trade of the community. We are not sanguine in assuming that new county authorities elected directly by the ratepayers will be any more economical than are existing authorities; and if they have considerable aid from taxes they may thereby be induced to spend freely—an almost inevitable result when income is not raised directly by rates. On the whole, the effect of the new Local Government and Budget schemes on the nursery and market gardening interest is problematical, and we should be unwise did we lead that interest to hope too much from their conversion into Acts of Parliament.

ROYAL HORTICULTURAL SOCIETY.—The meeting on Tuesday next, April 10, will be held in the Drill Hall, James Street, Westminster. The offices, reading-room, and library close by, at 111, Victoria Street, are approaching completion. By the way, it may be mentioned, that there are two houses of the same number in the street. The one in which horticulturists are interested is that to the west of the Army and Navy Stores, nearest to Victoria Station. At the general meeting, the new bye-laws will have to be confirmed or rejected. Up to the present time no one but the framers have had an opportunity of seeing them, which is unfortunate.

NARCISSUS COMMITTEE, ROYAL HORTICULTURAL SOCIETY.—Mr. C. R. SCRASE DICKENS, Honorary Secretary of the above, informs us that a meeting of the committee was held in the Drill Hall on Tuesday, March 27, when the list of garden and selected forms registered up to the present season was submitted. These number altogether thirty-one varieties if those of the white Ajax section now under trial at Kew are not excluded. A variety which was shown on April 13, 1886, and was then named provisionally "minor citrinus," was received again this year, and was found to be identical with *pallidus præcox*. The variety which has been widely distributed as "Ard Righ" was registered under that name; it is in the opinion of the committee identical with what has been shown as "Irish King," "Yellow King," and "Golden Dragon," on previous occasions. Mr. A. D. WEBSTER was elected a member of this committee.

THE GARDENERS' ORPHAN FUND.—Mr. W. WILDSMITH, the energetic Hon. Local Secretary for the Heckfield district, is showing a good lead, worthy of imitation by some of his brother gardeners. He has arranged for a lecture on "A Trip through the Great Desert to Mount Sinai and Petra," by a well-known lecturer, at which the local clergyman will preside: and the proceeds of the entertainment will be given to the Gardeners' Orphan Fund.



"INK PHOTO," SPANGLER & CO., 25, MARTIN LANE, CANON ST. LONDON, E.C.

WEeping LARCH IN THE NURSERY OF M^R MAURICE YOUNG, MILFORD.

NATURAL HISTORY SOCIETY OF ABERDEEN.—

On Tuesday evening, March 27, Professor J. W. II. TRAIL delivered a very instructive lecture to the members of this Society, entitled, "With the Scottish Alpine Botanical Club in Norway." An account of this excursion will be found in our columns for September 3 last year, p. 274.

EMIGRANTS' INFORMATION OFFICE.—

This quarter's circulars, relating to Canada, the Australasian and South African Colonies, have just been issued by this office, under the supervision of the Colonial Office; and a poster, giving a summary, is exhibited in every Post Office. Queensland grants free passages to female servants and selected agricultural labourers. Western Australia, Queensland, and Canada grant assisted passages, and the two former and Natal nominated passages at reduced rates—mainly to female servants and agriculturists. Farmers with capital, and female servants, are wanted in all the colonies; and agricultural labourers in Canada, New South Wales, Victoria, Queensland, Tasmania, and New Zealand; while mechanics and general labourers are only in demand in very few localities. Intending emigrants are invited to write to the office as to the arrangements (if any) which are made by Colonial Governments, and in some cases by private committees and individuals in the colonies, for the reception and assistance of emigrants on landing. The circulars are to be obtained, free of cost, from the office—31, Broadway, Westminster, S.W.; and ten separate handbooks, with maps, one for each colony, at 1d. each, post-free.

FLORENCE.—

The Royal Horticultural Society of Tuscany, as the daily papers have recorded, presented recently a basket of flowers to our QUEEN, now sojourning at Florence. From our Florence correspondence we are enabled to add some particulars of this elegant mark of courtesy. The gift was accompanied by the following lines:—

"Our Flora's bowers, proud to receive
The visit of Great Britain's Queen,
With pressing courtesy beg leave,
As welcome to this Southern scene,
Within her august hands to lay
These blooms that thrive where Britons sway."

The last lines refer to the fact that the offering was entirely composed of plants originally native of some part or other of HER MAJESTY'S dominions. Thus, there were Himalayan Rhododendrons, Indian Dendrobies, Burmese Vandas, Aërides, Cypripediums, &c., intermixed with Freesias from Natal, Ericas and Amaryllis from the Cape, Acacias, Epacris, Chorozema and others from Australia. Of course General PONSONBY returned a gracious acknowledgment on the part of HER MAJESTY.

SEED EXCHANGE LISTS.—

We have received seed lists from the Royal Botanic Gardens, Glasnevin, Dublin; the Royal Botanic Gardens, Kolosvar, Transylvania (Claudiopolis), Palermo (*Hort. Bot. Reg.*, Panormi). In this latter the plants are arranged under their orders in alphabetical sequence, as also the orders themselves within the classes. A few botanical notes are added by the Director, Dr. TODARO.

STRAWBERRY FORCING AT HECKFIELD PLACE.

—Mr. WILDSMITH is now picking very fine and highly coloured fruit of Vicomtesse Hericart de Thury. This and President are the two principal varieties forced—the former for his earliest crop. The first forced batch of 500 plants are grown in 48-sized pots, and Mr. WILDSMITH asserts that it is a positive advantage to have the plants in small pots when they are wanted for early work, as the pots become filled with roots, and the plants are enabled to bear hard forcing. One remarkable fact is mentioned by Mr. WILDSMITH. He says that while this particular variety can be so successfully forced at Heckfield, none of his foremen who have left him and gone to other places, have proved so successful with it as when with him. In reply to an enquiry as to the probable cause of this failure, Mr. WILDS-

SMITH can only hazard the conjecture that there is perhaps something in the soil, or possibly in the atmosphere of Heckfield that suits this particular variety, and these conditions are wanting.

"A NICE DERANGEMENT OF EPITAPHS."—

The pitfalls provided for the unwary by botanical nomenclature are varied and deep. Here is one, which, in its Iibernicism, is delicious. A correspondent sent us a note headed "bromus philippense the sweet-scented Broom from the Philippine islands." This naturally attracted our attention, for while we doubted whether the Philippine Islands were possessed of a Broom; we knew Bromus to be certainly a grass of which we know too much at home, but of whose existence in the Philippine Islands we also had strong doubts. Fortunately a specimen was at hand which cleared up the triply involved mystery. The plant turned out to be the beautiful and very fragrant Cytisus filipes. Cytisus may stand for Broom (not for Bromus), while the designation of the slender stalk of the flower (filipes) was here perverted into association with the Philippine Islands. Had the Canary Islands been mentioned it would have been nearer the mark.

CYPRIPEIDIUMS.—

A useful list of 341 species, hybrids, and varieties of Cypripedium which appeared in *Le Moniteur d'Horticulture* of March 25 is now issued as a separate publication. It professes to be the most complete list published, and any omissions will be presented at a later date, so as to make it complete. In the case of hybrids the parentage is given. The Selenipedium section and those with annual leaves are distinguished in the list before us.

THE LATE DR. LATHAM AND THE SPELLING

OF "POTATOS."—The recent death of this distinguished philologist and botanist recalls the question of the spelling of the word Potato in the plural. As many of our readers must have noticed—and as some from time to time remind us—it is the practice in this journal to spell the word in the plural without the *e*, thus—Potatos. The origin of this peculiarity is lost in obscurity. The Editor found it a tradition of the office on his accession to the editorial chair, and determined, if no good reason were shown to the contrary, to abide by the old practice. The tradition current in the office is that the peculiar spelling was in the first instance a pure accident, but that Dr. LINDLEY, who took strong views of things, determined to avail himself of a privilege which other journals, such as the *Times*, also adopt, of spelling particular words as they think fit, provided they are not absolutely incorrect. In any case, some years ago the present Editor submitted the case to Dr. LATHAM, then one of the correspondents of this journal, than whom no more competent authority could have been appealed to. Dr. LATHAM'S reply was of such a nature as to induce the Editor to retain the practice, for, said the lexicographer, it is not wrong; it is simply in advance of the times. Sooner or later all such words which have no "e" in the singular (volcano, calico, &c.) will also be spelt in the plural without the "e." As the *Gardeners' Chronicle* has always endeavoured to keep at least abreast of the times, if not in advance of them; the mode of spelling which thus received some sort of an endorsement, has been continued.

PORTUGUESE NARCISSI.—

In the lately issued part (3, 1887) of the *Boletim da Sociedade Broteriana* Professor HENRIQUES gives the following enumeration of the species of Narcissus found wild in that country:—*N. Bulbocodium*, *nivalis*, *pseudo-Narcissus* minor, *cyclamineus*, *calathinus*, *triandrus*, *odoros* *rupicola*, *jonquilloides*, *microfilorus*, *Tazetta*, *intermedius*, *hiflorus*, *serotinus* and *Gaditanus*. *N. cyclamineus* was described by PANKINSON in 1640, and figured in *Rudbeck Theat. Flor.*, 20, but not having been seen for many years was considered by Dean HENRIQUE as a figment. The Dean says of the plant represented in *Rodneca's* figures:—"I have no hesitation in rejecting it as a nonentity," a statement

which shows that Deans are fallible. Professor HENRIQUES' enumeration is accompanied by some critical notes on the species in the Portuguese tongue.

DUTCH FLOWERS.—

The President of the Royal General Union for the cultivation of flower roots (Mr. J. H. KRELAGE, Haarlem), sends the following communication:—

"In July of last year communications were made to this journal concerning the plans of the Royal General Union for the cultivation of flower roots (Haarlem), which was to do all in its power to stop the trade in cut flowers which was considered so very injurious to the bulb-trade. Resolutions on this subject were passed at the sixty-eighth general meeting of the Union, held on January 30 last, and at the sixty-ninth general meeting held on March 26 last, the results of the Union's operations in this direction were communicated. At that date 2081 bulb growers and bulb tradesmen had signed a declaration that they would not sell cut flowers of Hyacinths, Tulips, Narcissus, Ranunculus, and Anemones for trade, and that they would not deal with those persons who sold such flowers, or who refuse to sign the declaration. The number of signatures is daily increasing. On the other hand there were only 107 names on the list of those who refuse to sign, and there is all probability that this number will decrease. From these facts it may be concluded that the measures taken have received general sympathy."

POTATO SCAB.—

The following results were arrived at at the comparative experiments by Mr. BECKWITH, of the New York Agricultural Station, with reference to this subject:—

"The scab is not primarily caused by a fungus.

"It is not due to the work of insects.

"In nearly every instance an increased yield was accompanied by an increased percentage of scabby tubers.

"Any marked change in the rapidity of growth, either an increase or a decrease, leads to an increased production of scab.

"A continuous growth from the time of first vegetation until the tubers are fully matured appears to be the condition least favourable to the production of scabby tubers."

EFFECT OF HEAT, &c., ON POLLEN.—

The resistance of pollen to various external influences is, says *Nature*, the subject of a recent inaugural dissertation by Herr RUTTENHAUS in Bonn (*Naturf.* i, 1888). As to temperature, he found most pollen able to bear 90° C., half an hour, without losing the power of germination. A temperature-maximum was reached at 104°·5 for ten minutes. In conditions favouring germination, pollen does not bear such high temperatures as in the air-dry state. A moderately raised temperature (32° C.) accelerates growth of the pollen tubes. Low temperatures (e.g. under 9°) prevent germination, though a cooling to 20° for forty minutes can be borne without injury. As to liquid chemical reagents, the plasma of pollen proved very sensitive to antiseptics (more so, as a rule, than micro-organisms), but the resisting power is pretty different in different sorts of pollen. Chloroform vapour acting for twenty minutes was fatal, bromine vapour in five minutes, ammoniacal vapour in ten to twenty minutes. Rotation, several hours, of a spherical vessel holding pollen with nutritive solution, did not prevent free germination. The retention of the power varies widely in different plants. Thus, *Cyclamen* lost it soonest, in seventeen days; while *Clivia* and a *Narcissus*, still had it on the sixty-sixth day in (*Paeonia* fifty-eight, *Camellia* fifty-one, *Azalea* forty-two). The average is thirty to forty days.

PLANTKUNDIG WOORDENBOEK VOOR NEDERLANDS-INDIE . . . VOOR G. J. FILET.—

Mr. J. H. DE BUSSY, of Amsterdam, has published a dictionary of the vernacular names of plants as used in Java, Celebes, and other islands of the Dutch Indies. To each native name is appended the botanical appellation, and that of the natural order to which the plant belongs. In many instances additional particulars relating to the plants are also given, but as these are in the Dutch language, they

will be nearly as inaccessible to readers of other nations as the Malay names themselves. An excellent feature of the book, and one of cosmopolitan value, is the index of Latin names which thus forms a catalogue of the most noteworthy of the plants of the Archipelago.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual report, balance-sheet, and list of members of this Society has just been issued, and any one interested in it can obtain copies on application to the Secretary, Mr. W. COLLINS, 5, Martinhoe Terrace, Martindale Road, Balham, S.W. There are now thirty honorary members subscribing one guinea per annum, and 240 ordinary benefit members. But such a society—so helpful to habits of thrift and forethought—ought to have 1000 members at least, considering the number of gardeners throughout the United Kingdom who are unconnected with any such institution.

PROFESSOR PLANCHON.—The *Times* of Wednesday contains an announcement of the death of Professor PLANCHON, of Montpellier, who we may add, commenced his botanical career at Kew, as curator of Sir WILLIAM HOOKER'S herbarium, which he enriched with many critical notes. M. PLANCHON subsequently acted as Botanical Editor of the *Flore des Serres* for M. VAN HOUTTE, and was a constant attendant at all the important horticultural and botanical congresses. We shall refer again to his labours in a subsequent issue.

HORTICULTURAL CLUB.—The monthly dinner of the Club will be held on Tuesday next, at 6 P. M., at the Hotel Windsor, Victoria Street, nearly opposite the new offices of the Royal Horticultural Society. The discussion on Tuesday next will be on Daffodils, and opened by Mr. WALKER. We believe it is intended shortly to remove the Club to the Hotel Windsor, as convenient to the new premises of the Royal Horticultural Society. This is one of those indications of federal union between the Royal Horticultural Society and other bodies which we hope to see multiplied on all sides.

WATFORD CHRYSANTHEMUM SOCIETY.—Mr. CHAS. R. HUMBERT, Hon. Secretary and Treasurer, Watford, Herts, writes that the third annual exhibition of Chrysanthemums and other autumn flowers and fruits will be held in the Agricultural Hall, Watford, on Tuesday and Wednesday, November 13 and 14.

THE MANUFACTURE OF SUGAR FROM SORGHUM.—The British Consul at Chicago, says the *Times*, in a report laid before Parliament (Miscellaneous Series, No. 83), describes the results of experiments made during the past seven years in the United States to obtain sugar from Sorghum-juice. Aided by Government grants, these experiments were so successful last year that they have, "it is confidently believed, placed Sorghum sugar-making among the profitable industries of the country." The State of Kansas has been the first to demonstrate that it is practicable to extract sugar profitably from Sorghum. The Consul states that the experiments show that, taking $7\frac{1}{2}$ tons of clean cane as an average yield per acre of land cultivated with Sorghum (and good cultivation can increase the yield to 10 and even 12 tons), this will produce 750 lb. of sugar, 1000 lb. of molasses, 900 lb. of seed, 1500 lb. of fodder, and 1500 lb. of exhausted chips (dried), and that the total value of sugar, molasses, and seed is about £11 18s. For the corresponding gross yield of 10 tons of Sorghum, at 8s. per ton, the farmer will make £4 per acre on his crop, or more than double the yield of a crop of Wheat or Corn [Maize]; while as a gross product of agriculture and manufacture it is said that six times as much per acre will be realised from this industry than is usually realised from cereals in the State of Kansas. Sorghum seed is said to be of about equal value with Corn for feeding purposes. Mr. FISHER describes in detail the working of one of the experimental factories during 1887, and the various processes

through which the cane goes. The farmer's part is the most important of all, and it is thought that much may be done by experiments to improve the canes, on the same principle as Beet for sugar has been improved, viz., by careful manuring, producing different hybrids, and preserving seed only from such cane as has been shown by analysis to contain the greatest amount of sugar. It is also thought that the length of the season for working Sorghum may be extended by the development of earlier varieties and by cultivation.

NEW YORK AGRICULTURAL STATION.—The report of the Assistant Horticulturists for 1887, deals with the results of observations and experiments with reference to Potato scab, injurious insects, trials of vegetables and fruit.

THE WILTS HORTICULTURAL SOCIETY.—The date of the summer show of the above Society, to be held at Salisbury has been fixed for Thursday, August 23.

PEACHES IN MARCH.—We note in the *Journal of Horticulture* a statement that Mr. KING, gardener, Devizes Castle, gathered a dish of Early Alexander Peaches on March 26, from trees planted out in a mixed Peach-house. Forcing was commenced on November 15. The prices which Peaches fetch in Covent Garden at this season should encourage others to follow Mr. KING'S example.

BOLTON AND DISTRICT CHRYSANTHEMUM SOCIETY.—The committee of the above Society has issued the balance-sheet of its first exhibition, from which it appears that the exhibition was very successful. The balance-sheet shows a balance in favour of the Society, amounting to £15 12s. 10d., a sum which has induced the committee to offer a more extensive list of prizes for the next exhibition, which will be held on November 23 and 24.

PUBLICATIONS RECEIVED.—*Report of Papers read before the Preston and Fulwood Horticultural Society, 1886-7* (Preston: GREENALL, Cannon Street).—*Der Obstbau*, No. 1, viii. year (Stuttgart: W. KOHLHAMMER).—*Mrs. Caudle's Curtain Lectures*. By DOUGLAS JENKINS. (London: BRADY, AGNEW & Co., Bouverie Street, Fleet Street, E.C.).

NOTICES OF BOOKS.

THE FLORA OF WEST YORKSHIRE.

Under this title, Mr. F. A. Lees has published (Lovell Reeve & Co.) a complete enumeration of the flowering plants and Ferns, with a less detailed list of the other cryptogams found in the West Riding of Yorkshire. To a large extent the work is modelled on Mr. Baker's *North Yorkshire*, and it is no small praise to say that the present work bears comparison with its predecessor. The chapter on climatology is well written, and occasional reference made to the facts that may be gleaned from gardens as to the effect of frost on (so-called) hardy plants. We could have wished that so competent an observer would have indulged in a longer *excursus* of this kind, but he probably thought that a volume of 843 pages was already sufficiently bulky. Nevertheless, there can, we think, be no doubt that the elaborate record of the particular localities given for every plant of no matter what degree of importance or rarity occupies space in local Floras of this kind which might be filled with matter of greater value for scientific purposes. The distribution of those of our native plants sensitive enough to external influences to be indicators, according to altitude and climate, though few in number, might afford useful lessons to cultivators of fruit trees and vegetables. At any rate, a little more co-operation between the gardener and the botanist would in this, as in so many other cases, prove advantageous to both. The writer of the Flora before us has apparently not met with the elaborate Frost Report, edited for the Scientific Committee of the Royal Horticultural Society by the Rev. George Henslow, and wherein he would have found various illustrations of many matters treated of in his introductory remarks.

The incidental notes, which are specially interesting to a stranger to the county, are numerous and sometimes valuable. The large number of casual or alien plants introduced from abroad with wool or foreign agricultural seeds is worthy of special attention.

"For those who want a downright good botanical puzzle and a rousing lesson in plant-character, by the way, these foreign weeds answer admirably. It is only necessary to purchase a stone or two (!) of hen-corn at different mills, strew it at intervals in spring on waste garden ground, allowing fowls a few minutes to pick the Wheat, and in a few short weeks *voilà!* a parterre more bewildering to the lover of the botanically curious in its variety than it is possible to attain other ways with so little trouble."

Good indexes are given to the introduction and other sections of the book, but we should have been glad had it been possible to have indicated in the index also the "habitats" of the author's personal observations, upon which we alight at present in haphazard fashion as we turn over his pages, and which are in general very well worth reading. In any case we may congratulate him and the Yorkshire Naturalists' Union on the publication of a local Flora of very great merit.

PLANT NOTES.

TOXICOPIHLEA SPECTABILE.

This is a very useful plant for winter flowering and for cutting purposes. It is very floriferous and the flowers are strongly scented.

In habit it resembles an *Ixora*, the leaves are opposite, elliptical, and dark green; and the white flowers are produced in cymes springing from the axils of the leaves as well as from the terminal buds. For bouquets of all kinds, and wreaths, the dense bunches of bloom can be used as substitutes for *Bouvardias*, which they somewhat resemble, *Jasminae*, &c. The natural time of blooming is early summer, but the period may be altered by certain methods of cultivation, and some years ago I used to grow them in the stove, but of late years I do not grow the larger plants there at all—only the small or young stock—the old plants being grown in the vineries during the summer, and only introduced from time to time into heat so as to keep up a supply of flowers. Our plants have been in bloom more than three months and we have cut flowering shoots from 1 foot to 4 feet long, by the armful. The plant is a native of South Africa, and is, as its name indicates, of a poisonous nature.

Propagation is effected by means of cuttings, layers, and seeds, and the best soil for them is composed of two parts peat, one of loam with a considerable addition of sand; good drainage is a vital necessity. *A. Evans, Lythe Hill.* [This plant was fully described, with an illustration, in *Gardeners' Chronicle*, March 16, 1872. Some very robust, well-flowered shoots of the plant, together with the fruits, which we had not previously seen, accompanied the above note. En.]

AZALEA DEUTSCH PERLE.

This fine white Azalea will, without doubt, be increasingly grown as its excellent all-round qualities become more fully recognised. We have been struck during the past few weeks with the lasting properties of its flowers, no doubt enhanced by the fact of their being semi-double, and of good substance. Each flower is supported by a stout foot-stalk—an essential point when used in a cut state. The plants themselves bid fair to be of vigorous growth, more particularly those that have been increased by grafting. We are also growing the variety on its own roots; these promise to make sturdy little stuff, and are likely to prove useful when propagated in this manner for decorative purposes rather than for growing on into specimens. The purity of colour and beautiful form of each flower

add much to the attractiveness of this addition to Indian Azaleas. *J. Hudson, Gunnersbury*

AZALEA ORTUSA.

This species is not seen in private collections nearly so often as it should be. In growth it resembles *A. amona* somewhat, and flowers well under the same conditions of culture, and is a capital companion to that kind, but with flowers of an orange-red colour. Lately I saw it thriving and flowering freely with Mr. Foreman, Carlton House Gardens, Herne Hill, S.E., who sets great value on it for early work, growing several specimens for that purpose. Plants propagate easily from cuttings, and succeed well under the ordinary conditions of cultivation. *J. H.*

TREES AND SHRUBS.

ARNOLD ARBORETUM.

THE plan adopted for preserving the record of each of the type trees in this Institution is as follows:—“The holes occupied or to be occupied by the trees are numbered in sequence, and the number of the hole stamped into a small metal label securely attached to the tree planted in it. The exact position of each hole is carefully plotted, so that the maps show the actual position of each tree with the number which appears on its label. Accompanying the maps are records showing the name of the tree, the source whence obtained, the date of transplanting, and their height at the time. In the case of grafted trees the date when they were grafted and the nature of the stock are recorded.

A HYBRID POPLAR—POPULUS STEINIANA X.

Mr. Bornmüller, the Inspector of the Botanic Garden at Belgrade, figures and describes in the last number of the *Gartenflora* a Poplar found by him on the western coast of the Black Sea, near Varna. The young branches are described as hoary when young, afterwards glabrous; buds hoary, petiole compressed; leaves hoary beneath when young, subsequently glabrous, deltoideo-triangular, acuminate, lobed, toothed. The flowers and fruit are not known. The tree is named in honour of Mr. Stein, of the Botanic Garden, Breslau.

HALESIA HISPIDA.

What a pity it is that so beautiful and distinct a shrub is so uncommon; for we question much if it is to be found in a score of gardens in this country. (For illustration see *Gardeners' Chronicle*, vol. xxii. p. 177.) The flowers are of the purest white, very abundantly produced, and of remarkable substance. They hang in long triangular-shaped racemes, and impart to the plant during the summer months a most interesting appearance from their graceful arrangement and peculiarity of shape. It is quite hardy, and when thoroughly established grows with the freedom of a Laurel. *A. D. Webster.*

FORESTRY.

OAK FOR ESTATE WORK.—Taking into consideration the very low figures which are now obtainable for all except the very choicest descriptions of Oak, it would appear that there was never a more appropriate time for determining how far Oak wood is applicable to the general purposes of the estate. Even within the last decade Oak of moderate quality has sold for very fair prices, but in the last two or three years there has been a great change. At the present moment, reckoning of course the market value of the wood in the rough, Oak scantling can be cut out at a very small percentage in advance on the cost of imported deal. It is, therefore, clear that where durability is of paramount importance the conditions are greatly in favour of the substitution of Oak. This would largely apply to the chief buildings on a place, but as this is perhaps a little out of the scope of an ordinary forester's or estate

manager's business, I will endeavour to point out a few of the minor purposes to which it can properly be put. One of the chief of these is fencing, a class of work so wide and varied as to require almost every quality wood, from the roughest to the best. Since the cost of iron has relatively been so little, it has been the practice on many estates to employ it more extensively than was the case a few years ago, and in some situations there is no doubt that its effect is very good. Nevertheless, in the great majority of positions, so far as appearance is concerned, there is no reason why an Oak fence should not be selected if the material is at hand. The simplest form in which Oak can be so used is either in the shape of a trellis, for which small saplings or logs can be cleft or sawn through the centre—or as a post and rail fence with vertical posts set in the ground, and the clearest and best lengths cleft in about 9 feet lengths for the horizontal rails. A further use, and one which requires still better stuff and more skill in preparing and erecting, is the close park fence, with Oak posts and angle rails; to which the cleft pales are nailed. Between these types there are numberless variations, upon which there is no particular need to dwell now, as these remarks are rather suggestive than of a precise and technical character. Besides fences made wholly of wood, there are many in which wood and iron are combined. These, however, as a rule, have not the best effect, and are not the most durable, as the wires attached to wooden posts generally become loose and untidy. In cutting scantlings, or in squaring up large posts, there is always a quantity of rough cut-outs, or slabs, with one side only sawn. This, again, is a most useful material for fences which have to stand the thrust of cattle, as, properly secured to stout rails it can be made very rigid. In fact, now that small Oak especially is at such a discount, it is an open question whether occasionally it would not pay to cut up round pieces on purpose for this class of slabbing, *i.e.*, to get one or two planks from the centre of the pieces, and throw off the outsides in the way described. Field gates, again, can be more economically made of Oak than of any other material, even if the wood has to be purchased, but when it grows upon the place, and the right kind of tree can be selected, the advantage is all the greater. It would be easy to multiply instances in which Oak at its present low value should be used instead of buying other material, but the few hints given above will be enough to indicate the general lines upon which those who have the handling of the timber and of the estate work as well, would do well to look closely into the comparative suitability, durability, and cost of wood, iron, stone, or brick, for the wide range of work which invariably falls to their lot. The adoption of Oak would do good in two ways, as it would make durable work, and also help to absorb the surplus which has some way or other found its way into the market and forced prices down. *D. J. Yeo.*

HOME CORRESPONDENCE.

ROYAL HORTICULTURAL SOCIETY'S EXTRA COMMITTEES.—The existence of a committee in connection with the Royal Horticultural Society which applies its energies solely to the consideration of Narcissi, is, when properly regarded, a somewhat anomalous matter, because its existence either assumes that the ordinary Floral Committee, in spite of its numbers and representative character, is yet incapable of dealing with Narcissi, or else that this family of spring flowers merits much more than ordinary attention. It may be that this special body is riding Narcissi to death. It may be that in its action it is performing valuable service to one section of horticulture. Critics little gifted with the true faith assert the former; I prefer to hold to the latter, because I do not wish to see anything associated with horticulture made the subject of ridicule and contempt. No doubt this Narcissus Committee, although given to much refining, which vulgar minds find it hard to follow, yet find abundant work in the wondrously prolific characters of the Narcissi and their varied forms. Perhaps an end may be reached some day, but the faithful holds such consummation to be remote. Narcissi, in addition to being so abundant, are exceedingly varied, and in spite of their being served up through the spring almost *ad nauseam*, are yet admittedly exceedingly beautiful. Then they are all very hardy, and will grow in almost any garden soil, although more or less well according to culti-

vation. These things allied to a fairly long season certainly tell immensely in favour of the Daffodil, and appreciably justifies the existence of the Narcissus Committee. But still there does remain the question, Why a special committee for Narcissi only?—why not one specially for Orchids, or Roses, or Dahlias, or Chrysanthemums, or even for Apples or Potatoes? Granted the necessity in one case and the existence of such extra committee, it is hard to refuse in another; and after all it becomes a matter worthy of consideration whether it would not be good policy on the part of the Society to call more of these committees into existence. Were that done, instead of limiting the interest in the actual supervision of flowers, bulbs, &c., to the ordinary committees each extra committee would evoke the enthusiasm of many outside the present select circle, and the active committee range might be quadrupled, thus bringing in many who are still outside the Society's ranks. Of what matter would it be were there a score of these extra committees sitting at varying periods through the year, if all were under the authority of the Council, and all doing good horticultural work. Either the Narcissus Committee is a useful body, or it is a sham. If the latter, it stands condemned; if the former, then it proves up to the hilt that equally good work can be done by other special committees in numerous directions. Some will aver that sheer impudence on the part of the Daffodil men provoked the appointment of the committee; but without assenting to that opinion I will at least say that impudence, if you like to call it so—although I prefer the terms boldness and enthusiasm, are the elements to achieve aims and to promote success. I shall therefore be bold enough to suggest that similar sub-extra committees be formed by the Society for any specialty which calls forth peculiar interest, or evokes active interest. Why, for instance, should not Trees, Roses, and Orchids have special committees? Why should the Royal Horticultural Society so languidly hand the Queen of Flowers over absolutely to the mercies of the National Rose Society? Then if we consider the numerous variety and beauty of the Chrysanthemum, do we not find a field open to a special committee to which Narcissi offer in comparison but an acre to a square mile? In vegetables, sub-committees might be profitably employed in dealing with Peas and with Potatoes some of the most popular of vegetables. Until really set about in a studious and practical fashion it is impossible for any one to tell how much room for work may be found in the directions indicated. If the Council would agree to form these special committees let them fix their numbers at, say, twelve members, four of whom should belong to the Floral or Fruit Committee, as the case may be, while the other eight might be obtained from outsiders who have good reputations in connection with the flowers or vegetables named. Give these committees a fairly free hand, except in the expenditure of money, let their proceedings be made as public as possible, and they will create a public interest in horticulture, of which the regular committees, as they exist, are incapable. If the Royal Horticultural Society is to become a real factor in horticulture it must get away from its old-fashioned rut of action, and thoroughly adapt itself to the needs and variations of the age. *Spade.* [The formation of numerous special societies shows that the Royal Horticultural Society hitherto neglected its work. There should be no room for special Societies if the parent society did its work properly. *Ed.*]

MEETING DAY OF THE ROYAL HORTICULTURAL SOCIETY.—Cannot the Royal Horticultural Society's fortnightly meetings be so arranged as to fall on any other day but Tuesday? I think it would be found that many country gardeners at a distance, who are unable to send in any other way than by parcel post, would be only too pleased to have the opportunity to send their oft-times meritorious examples of flowers, fruits, &c., to place before the different committees. As at present arranged, unless they send on Saturday they are not always delivered in time; and of course flowers, &c., are quite spoilt by that time. In many outlying country places there is but one post, and that, as a rule, late in the evening, consequently any parcel posted on Monday evening could not be delivered until the afternoon of Tuesday—also too late. The Society having now, as it were, started on a new life, would it not be to their advantage to do anything likely to gain the good-will and ultimate help of gardeners at a distance less fortunately placed in this respect than their brother gardeners nearer London? *J. W. R., Blackmoor.*

WANTED, A GARDENER.—The above at the head of last week's "Want Places" appears most ironical. The number of situations were six, "not including the woman," whilst the advertisers for situations numbered upwards of a hundred. How many of these unfortunates would receive an answer to their advertisements? And still apprentices and improvers come crowding on, and head gardeners are aiding and abetting them. Perhaps the latter see in the dim distance a brighter future than is at present apparent to many of the despondent ones, whose advertisements are to be seen week after week in the *Gardeners' Chronicle* applying for situations; if so, it would be an act of charity to make known in what direction it is to be looked for. Is it in any of the Colonies? If so, would it not be wiser rather to expend the money, offered here in premiums, to pay the passage out? Or is it at home, after all, where these volunteers will get active service? It will readily be admitted that at present it is impossible for a large proportion of the applicants to reach the goal they have in view, *i.e.*, the management of a garden themselves some day; nor will the emigration of a great number of gardeners be any loss to the profession. At the same time it is much to be feared that the Darwinian theory of the "survival of the fittest" does not always work out satisfactorily. Could not the Royal Horticultural Society make it practicable to issue certificates of efficiency in the several grades of gardening on examination, say, similar to those of the Science and Art Department? It would be the means of weeding out numbers who now crowd the profession needlessly, and therefore make it all the better for gardening and gardeners. *Querist*. [We hope and believe that this subject will speedily receive the attention of the Council. Ed.]

PRIORITY IN NOMENCLATURE.—In your report of the Crystal Palace Show we are sorry to notice your representative omitted to observe that, although we had renamed the new quilled Cineraria, "Emperor Frederick," we attached below the name under which it was certificated (Alexander Warwick) last year, at the time we purchased the entire stock. As your report at present reads in a manner liable to cause some misapprehension, we shall be glad if you will state that we purchased the entire stock under the name of "Alexander Warwick," and have since decided to give it a popular and well-known name, instead of retaining one that has no significance. *James Carter & Co.* [Messrs. Carter do but confirm the accuracy of our reporter's statement, which indeed was apparent from the labels. We think Messrs. Carter's practice of renaming a plant already certificated, is open to serious objection. Ed.]

EXCEPTIONS TEST THE RULE.—Under the above heading there appeared in the *Gardeners' Chronicle* of Feb. 25, an article and figure (40) of an *Odontoglossum Pescatorei*, producing its flower spikes from the top of the pseudobulb, instead of from the side as usual. When looking through Mr. W. Gillett's collection at Oak Lodge, Bishopstoke, a few days ago, I saw the same occurrence on a plant of *Lycaste Skinneri*; and now I have just observed one of our *Odontoglossum Alexandræ* which has a spike with six buds on the top of the pseudobulb, and another showing from the side. I have never seen similar abnormal growths before, except in the case of *Calanthe Veitchii*, a plant that does so with us. *N. Blandford, Moor Hill, West End, Southampton.*

CARNATION BUDS GOING BLIND.—This malady is the result of bad management, intensified, perhaps, by the cold, dull weather. If "G. G." had removed the adventitious growths on the stem, the flower-buds might then have developed. Some varieties of the Carnation have a tendency to develop side-growths, but all are liable to it, especially at mid-winter. The probable causes are badly ventilated structures, too great distance from the roof-glass, over-rich soil, and too much water at the roots. It is difficult to obtain good Carnation blooms from some varieties at the most sunless portion of the year, and they should at all times be grown in places well lighted and ventilated, in which the atmosphere is moderately dry, and the plants so near the glass that the flower-buds may be within a foot of it. Another item of importance is the state of the roots; the pots ought to be well-filled with them, and no water should be supplied to the plants unless they really need it. It is a fact that retopping the plants late in the autumn, when they have not time to root into the new compost before the winter, will cause the flower-buds to become blind, with the

certain result that side-growths will be produced. *J. Douglas.*

NARCISSUS MINOR.—The enclosed Daffodil grows wild here, and in considerable quantities. I see a *Narcissus* in some catalogues as *minor nanus*, is it that? Also, can you tell me how the bulbs increase and run? Sometimes a clump will put out offshoots a yard off without any apparent connection. Often I can trace the cause to rabbits, and often to birds pulling the bulbs up and dropping them again. I can trace them on banks where the rain has washed bulbs down and they have stuck and taken root, and formed in time fresh clumps. But very often their spreading puzzles me. They are in great abundance here, and come up frequently in gravel walks and paths. *E. W. W.* [If this plant (*N. minor*) is so very abundant its bulbs may often get removed to considerable distances in the garden by various agencies, especially by the lawn and walk sweepers. A bulb may get trodden unperceived into the surface of a walk, to reappear, it may be, next season as a flowering plant. No offsets, unless detached from the parent, would appear at a distance of 1 yard from the latter. Ed.]

LOAM FOR RHODODENDRONS.—I hope that readers of the *Gardeners' Chronicle* will not be induced by your correspondent, "W. G." (p. 403), to attempt the growth of the better kinds of Rhododendrons without some peat, as loam will not answer in all localities. About five years ago I was persuaded by a local nurseryman to plant a small border in my garden with Rhododendrons, making the bed of turfy loam and cow manure well rotted together. The plants were obtained for use from a well-known nursery, and were as fine looking a lot of young plants as any one could wish to see. They flowered profusely the first year, but after flowering many of them dwindled away instead of making healthy growth; and by twos and threes each year the whole, with the exception of about three, which are now as miserable looking as possible, have by this time disappeared. My neighbour seeing my first year's display, imitated my example with even more disastrous results. Those which I took up dead, had not in any case sent out roots into the prepared soil, living wholly in the ball of suitable soil which originally accompanied them. That the locality is not to blame (for we have no chalk within forty miles) is proved by a friend who lives within six minutes walk, who grows his Rhododendrons to perfection, but he has a friend the owner of several acres of peat-land, who has supplied him with truckloads of peat to make his beds. I may also add that in this neighbourhood, where the ground is naturally sandy, and has been enriched with manure and leaf-mould, the forms of *R. ponticum* do very well. *S. Cumming, Rugby, March 31.* [We know by ample experience that Rhododendrons will do perfectly well in sandy loam without peat. Ed.]

STOPPING VINE SHOOTS AT MANÈGE, BELGIUM.—I have noted at p. 333, your short extract from the *Bulletin d'Agriculture*, relative to some experiments in stopping vine shoots at Manège, in Belgium, and expressing the hope that some one would try the experiment here. Indirectly, I have no doubt this is very frequently done. The first point to consider is this, why do we stop the Vine shoots at all? The common practice is to do so at the second leaf beyond the bunch, and the reason is, not that we expect to improve the bunch of fruit by doing so, but purely for the economy of space, and to prevent confusion and crowding of the shoots. Good cultivators know the value of leaving the shoots longer than the general limit, because the more leaves fully developed the better, but the longer they are left the wider apart must the Vines be, and the fewer the bunches—and the less the crop. That the bunches on the unchecked shoots should be as good as those on the stopped shoots goes without saying, but that the fruit should ripen "three weeks in advance," requires a lot of believing—why this is better than many tons of coal! *A. F. B.* [We concur, and at the same time are glad to have a sensible reason assigned for stopping. Ed.]

CHRYSANTHEMUMS.—I fear Mr. J. Murphy has misunderstood, or not read carefully, that which I wrote at p. 303, for in taking exception to the paragraph in question he writes, "I propagate most of my plants in boxes from cuttings;" and further, "I never think of planting whole potfuls together," &c. Exactly so; neither do I think of planting out whole potfuls together, and have not advocated such

an absurd practice. If your correspondent will kindly refer he will find it stated that the plants should be of "the previous year's growth in pots," and that I also write, "turn out the whole stools, and reduce the balls to one-third of their bulk." Surely from this he would not infer that potfuls of rooted cuttings were intended to be planted out. *J. Horsfield, Heytesbury.*

THE PROSPECTS OF A FRUIT CROP.—It is rather soon to begin bemoaning a small Pear crop this season, but on looking round my garden I can see but very little prospect of even an average crop. My trees are scarcely showing any fruit-buds at all, although in the last season, and, indeed, for some years past, we have had an abundant show of flower; but this year only half the number of my trees are showing any at all. I attribute this state of things to the cold winds of last year, which tore off the tender foliage and young fruit alike, leaving the trees as though scorched. The consequence was that the growth was checked, and did not recommence for some time, and did not get properly ripened, and to this cause may be due the scarcity of bloom. *Pomona.*

MIXTURE FOR MILDEW.—I can add my testimony to that of "R. D.," p. 404, as to the efficacy of the mixture he recommends for destroying mildew. We made a quantity two years since in the way he describes, but although it destroyed the mildew and left no sediment on the plants, it caused a lot of dark brown spots on the paint wherever it touched it, which had a bad look, and it was almost impossible to wash them off. The mixture resembles sulphide of potassium in appearance when ready for use, and is quite as effectual; is very much cheaper, and has not the objectionable smell of that substance. As a "cure" for mildew I prefer sulphur on the pipes to any of the various remedies I have tried; but would not advise any one to use it for Vines before the berries are stoned, unless put on and well heated several times soon after the Vines are first started, in which case most of the strength would be exhausted before the Vines are in flower; but of course a great deal depends upon the temperature at which the pipes are usually kept. Prevention of mildew is, however, always far better than a cure. The note by the Editor is well timed, for I once remember seeing a viney, when calling on a friend, in which the crop was completely spoiled through syringing with Fire-tree oil when the Grapes were the size of Peas—the skin of the berries hardened and prevented their swelling. *W. H. Divers, Ketton Hall, Stamford.*

HARDINESS OF EUCALYPTUS COCCIFERA.—You have been good enough on one or two occasions to insert in the *Gardeners' Chronicle* some remarks of mine relative to the hardiness of *Eucalyptus coccifera*. About three, or perhaps nearly four years ago, I had planted in the garden of the Atkinson Morley Hospital at Wimbledon, four small plants of this *Eucalypt*; one perished from drought, but the other three, notwithstanding the exceptional severity of the late three winters, have withstood snow and frosts remarkably well. They are now from 8 to 12 feet high, in an exposed site, and look (I saw them this day, March 27), in perfect health and vigour. Of all the tribe, *E. coccifera* is the one which will best bear our winters out-of-doors. It is quite a mistake to plant *E. globulus* for such a purpose. It might grow, in fact I have seen it grow, in the open air in winter in Cornwall, and in a secluded sheltered spot in Dorsetshire and Hastings Old Town: whereas the *E. coccifera* will flourish in any season, and its culture should be encouraged and promoted by all means. *John Colebrook.*

STATE AID FOR HORTICULTURE.—In your well-timed leader on February 25, in reference to the proposed Board of Agriculture, you remark that "It is very important at the present juncture that horticulture should be recognised in the constitution of this new Department, for it is obvious that while agricultural methods are no longer adequate to meet the circumstances of the times, the requirements of the case would be very largely met by the introduction of horticulture, or of horticultural methods." To refer to a few instances where State aid in horticultural matters would be invaluable. As is well known, the Royal Horticultural Society has in the past conducted a series of valuable trials in flowers, fruits, and vegetables in their experimental garden at Chiswick. How important it is to the community that such trials should

be exhaustive, and that a knowledge of their results should be widely and quickly diffused. Hitherto a sorely crippled exchequer has prevented this. When fruit culture is beginning to form an important industry in this country, it is necessary that cultivators should be made thoroughly acquainted with all matters concerning stocks for working fruit trees on, the best varieties to plant for quick returns, the influence of soils, aspects, and other practical details in connection with this subject. Then as to vegetables, to instance only one—the Potato—two-thirds of the varieties at present in cultivation should be discarded. If there are any "disease-proof" varieties let it be known which they are, or which are those that partially resist disease. Many of the exhibition sorts want exterminating, and the public

matters the importance of the subject must be at the earliest possible moment urged and brought before Parliament by our representatives. There would seem to be a capital opening just now to do this. Sir Trevor Lawrence, the President of the Royal Horticultural Society, is a Member of the House of Commons. He would, if requested, doubtless use his influence in this matter, and would, we venture to say, be supported by other admirers of horticulture. Reading recently an American work written some years ago on the propriety of the State Legislature exercising a fostering care over the interests of agriculture, I came across some remarks which seem to be quite worthy of reproduction here, such a bearing have they on the matter under present consideration. Sub-

science should be amply tested, and carried out before submitting them to the public. The most competent men at home and abroad should be invited to fill its professional chairs, and if money would tempt a Liebig, a Boussingault, a Johnston, or a Playfair, to leave the investigations of European soils and products, and devote all their mind and energies to the development of American husbandry, it should be freely given. These institutions should be schools for the teachers equally with the taught, and their liberally appointed laboratories and collections should contain every available means for the discovery of what is yet hidden, as well as for the further development of what is already partially known. Minor institutions should, of course, be established at different and remote points, to scatter the elements of agricultural knowledge throughout the land, and bring them within reach of the lowest citizens and the humblest capacities." J.



FIG. 62.—HERACLEUM GIGANTEUM.

look to some impartial, disinterested body to perform this much needed work. We are sadly in want of horticultural schools, in which respect we are much behind continental nations. While they do everything that is needed in these matters (with assistance from their various Governments) we practically do nothing. There would seem to be a large field here for the representative society to exercise its energies upon, provided it were assisted by the State. Supposing that such schools in this country were State aided, much needful work, by way of illustration, could be performed in the one department—the "Chemistry of Horticulture." Much of the knowledge possessed by gardeners about the application of manures is empirical, yet how markedly the matter bears on every-day work, and the help of true science in this field would prove an efficient helpmate indeed. If we are to make way in these

stitute gardeners for farmers, and horticulture for agriculture, and the case on our side is complete. The author remarks:—"Education in all its branches is under their (the State's) exclusive control, and to endow and foster every institution which has a tendency to raise and improve the intellectual, the moral, and the social condition of the people, has ever been their cherished policy; yet, up to this time, no institution expressly designed for the professional education of farmers has ever been established in this country. . . . In addition to continuing and making more general and comprehensive the encouragement for other objects heretofore considered, it is the duty of each of the larger States of the Union, liberally to endow and organise an agricultural college, and insure its successful operation within its jurisdiction. Connected with them, should be experimental farms, where the suggestions of

WINTER TREATMENT OF ALLAMANDAS.—The winter treatment of Allamandas seems to have given rise to much difference of opinion. Some correspondents consider the drying-off system inimical to the well-being of the plant, whilst other cultivators regard the process as beneficial. Experience teaches me this particular plant should have a thorough rest for three months at least. Three years ago I planted out a plant of *A. Hendersoni* from a 32-sized pot. The accommodation was very limited. A small recess, about 18 inches square, was built of bricks enclosed on two sides with hot-water pipes. This of course demanded that a greater amount of water should be afforded to the soil than it otherwise would have required. The soil was composed of two parts fibre loam and one of peat, with a little coarse sand added, and plenty of drainage. The first season the growth was rapid but the blooms were few. About the middle of October water was gradually withheld, and the second week in November the plant was pruned back like a Vine. It was allowed to remain in this condition until the first week in February, when tepid water was again applied; it soon started freely into growth, and bloomed abundantly up till the end of October, when the treatment above stated was repeated. Noticing last spring the strong and rapid growth it was making, I determined to keep a correct record of the numbers of blooms cut through the season; this was rather a tedious undertaking, but from the first week in May till the end of October there were gathered no less than 6280 blooms, many of them measuring six inches across, and I have counted 900 blooms fully expanded at one time. Before pruning it covered a space on the roof 27 feet by 7, and even on the same day as it was pruned 200 good blooms were taken off it. Owing to the density of the foliage early pruning was necessary, so as to give light to plants growing underneath. This season it started into growth much earlier, and opened its first bloom on Good Friday. The treatment above described seems to prove that a thorough rest in winter and close pruning are essential to ensure success the following season. J. G.

HERACLEUM GIGANTEUM.

SOME gardeners go to great expense and trouble in housing "sub-tropicals" which, after all, generally have a foreign look, and do not look "at home" in the places where they are generally placed. To come upon them in the dell or the wild garden is to receive a shock of inappropriateness. It is so obvious that they are strangers and that their disposition is incongruous and artificial. Their place is in dressed gardens and localities obviously made by Art and not in wild or quasi-wild spots. For such localities a bold hardy perennial or biennial, such as *Heracleum giganteum* (fig. 62) is more suitable. There are few, if any plants, more noble in appearance than this gigantic Umbellifer. Its rapid growth and stately appearance always excite attention. It seeds so freely that care must be taken not to allow it to spread too much. A rich deep loamy soil suits it best, but it is not very particular. It is not suitable for the dressed garden or near to the house, as its perfume is coarse, and to most people objectionable. One of the earliest of the many services rendered to horticulture by the late Mr. Thomas Moore was the introduction of these hardy Umbellifers as decorative plants.

SOCIETIES.

LIVERPOOL HORTICULTURAL ASSOCIATION.

MARCH 28.—Plants were shown in considerable numbers, and in some cases the competition was remarkably close. For six stove and greenhouse plants, three foliage and three flowering, F. H. Gossage, Esq. (gr., Mr. J. Jellicoe), had the premier collection which included a grand *Pritchardia pacifica* and *Latania borbonica*, each about 10 feet through; *Croton Queen Victoria*, *Rhododendron fragrantissimum*, a splendid plant; a large bush of white *Azalea*, and *Chorozema Lawrencianum*. For a table of miscellaneous plants arranged for effect W. H. Watts, Esq. (gr. Mr. A. R. Cox), was first with his usual light artistic arrangement consisting of a groundwork of *Adiantum cuneatum*, with *Crotons*, *Palms*, &c., rising at intervals, the whole being enlivened with bulbous and other flowering plants. Mr. Jellicoe was a good second, having a more massive arrangement containing a larger and more varied selection of flowering plants.

For six *Azaleas* Mr. Jellicoe took the lead with fair sized specimens, fresh and well-flowered, the most meritorious being Feilder's White, Charles Van Eek-hante, and roseum; H. Cunningham, Esq. (gr. Mr. Wilson), was 2nd with a fine lot, but a size smaller.

For three distinct varieties J. R. Dixon, Esq., was 1st.

For a single stove plant in flower Mr. J. Harrison was 1st, with a splendid plant of *Peristeria elata* with seventeen spikes.

For four exotic Ferns J. Gowan, Esq. staged the leading collection, which included a magnificent *Goniophlebium sub-auriculatum* well furnished with fronds from 6 to 8 feet in length.

Mr. J. Jellicoe was 1st, for a single Tree Fern, with a good specimen of *Dicksonia antarctica*.

For four hardy *Rhododendrons* Mr. W. Binstard was 1st, with large well-flowered plants.

For one greenhouse variety Mr. A. R. Cox was 1st with a magnificent plant of *H. Gibsoni* var. *superba* over 4 feet in diameter.

For six forced hardy plants, A. Crosbie was 1st, his collection containing *Clematis Ilon D. Neville*, *Azalea amena*, and a nice *Deutzia gracilis*, &c. The same exhibitor led for three *Palms*, or *Cycads*, with *Cocos Weddelliana*, *Kentia Fosteriana*, and *Latania borbonica*. For a single specimen, Mr. J. Jellicoe staged a grand plant of *Dion edule*, with some fifty fronds upwards of 4 feet in length. For six *Cinerarias*, Mr. J. Stevenson was 1st; whilst of a like number of *Primulas*, Mr. A. R. Cox had the best.

Orchids were in fair numbers, and of good quality, the best four coming from H. Tate, Esq. (gr., Mr. J. Edwards), who staged an *Odontoglossum radiatum* with four spikes and thirty-seven flowers; *Cypripedium villosum*, with about four flowers; *Maxillaria Harrisonii*, with twenty flowers; and *Cattleya Mendelii*. R. Young, Esq. (gr., Mr. T. Poynter), was 2nd, with fine specimens of *Dendrobium nobile*, *Wallichianum* and *crassinode*. The best single plant was staged by Mr. J. Jellicoe, who had *Dendrobium Jamesianum*.

BULBS.

These in some cases were hardly of the high order of merit usually seen here. Hyacinths were not so numerous, and the spikes hardly so massive as usual. Narcissi were not represented largely, the border section not being recognised in the schedule, which is surely an oversight. Cyclamens were keenly contested, a splendid bank being staged, the individual crowns in many cases carrying from 100 to 200 flowers of splendid colour, substance, and size. The Lily of the Valley brought out another strong competition, ten lots being staged, all of marked excellence, carrying fine spikes and good foliage.

For eighteen Hyacinths, distinct varieties, Mrs. J. Aiken (gr., Mr. C. Waring) was 1st; Mr. J. Kelly was a good 2nd.

Miscellaneous.—This section seems to increase in extent. Some capital stands were arranged. Messrs. T. Davies & Co. showed a fine basket of Mushrooms, and T. Winkworth a collection of cut flowers of *Hellebores*. R. C. Naylor, Esq., had a collection of Apples in good condition, and Messrs. Fishlock Bros. showed mosses, bouquets, sprays, &c. Messrs.

R. P. Ker & Sons sent a collection of *Azalea indica*, *A. mollis*, &c.; and Messrs. J. Dickson & Sons a good selection of Narcissus and Hepaticas. The Liverpool Horticultural Company staged a table of miscellaneous plants, Mrs. Vesty a collection of skeleton leaves, and Messrs. Joseph Braham, Arthur Huxley, W. Wood & Son, J. & F. Mee, and Bethel horticultural requisites.

ROYAL CALEDONIAN HORTICULTURAL.

BULBS, &c.—The spring show was held in the Waverley Market, Edinburgh, on the 4th and 5th inst. Notwithstanding the long period of cold dark wintry weather that has prevailed, the entries were quite up to the average in number, and the exhibits equal to anything usually seen at these attractive shows. Spring and forced flowers were the principal features. Hyacinths were on the whole good, though generally there were noticeable, elongated flower scapes and flaccid foliage, owing to absence of light and natural heat which had necessitated the use of more artificial aid in pushing the plants forward than was desirable. Still in the several classes, viz., amateur, professional, and nurserymen, the leading lots were very meritorious indeed. Messrs. Laird & Sons took the first position for twenty-four, not less than twelve varieties distinct, with a very superior lot; and Messrs. Alex. Kerr & Son, Kalefoot, Roxburgh, were a close second with a well-balanced and distinct collection.

Tulips and Narcissi were a more than usually extensive show, and, on the whole, good. By far the larger number of the latter were of the Polyanthus section, but such of the *Dafodil* and *incomparabilis* types as were represented appeared to have a larger share of the admiration of the public than the first named.

Roses.—These were a very remarkable feature of the show, being larger in number and better in quality than they are usually seen at Edinburgh spring shows. The 1st prize lot of six, put up by Mr. John Paterson, Mill Bank, Edinburgh, were remarkably good, large well grown specimens and well flowered. The 2nd prize lot, from Mr. James Reid, Canaan House, were also capital plants, but not up to specimen size.

Cut flowers of Roses were also well represented, particularly *Maréchal Niel* and *Gloire de Dijon*, the former being very fine considering the date and the cold sunless period under which they have been produced. Mr. L. Walker, Linlithgow, took 1st prize for twenty-four cut Roses, not less than eight varieties, and Mr. W. Parlane was a good 2nd. Mr. Walker was again 1st with twelve *Gloire de Dijon*, which were very fine; Mr. J. Pearson, Beachwood, being 2nd in this class, with also very fine blooms. In the nurseryman's class for cut Roses Mr. J. Bryson, Helensburgh, took the 1st prize both for twelve in not less than six varieties, and for twelve *Maréchal Neil*, the latter being very fine indeed.

In the competition for nurserymen's tables of plants there was only one entry—Messrs. Laird & Son's, whose exhibit was a most attractive one, consisting largely of *Azalea indica* in variety, *A. mollis*, forced *Lilacs*, *Narcissi*, *Hyacinths*, *Cyclamens*, &c., intermixed with *Palms*, *Crotons*, *Aralias* and other foliage plants, and Ferns, in very tasteful combination.

Vegetables were well represented as regards quality, though the number of competitors, no doubt owing to the severity of the winter, was far below ordinary at this season's show. In the collections of twelve kinds Mr. Gideon Potter, North Berwick, was a very good 1st, but was closely pressed by Mr. Robertson of Hartridge, Tedburn.

Mr. Thomas Milne, Sunny Bank, Edinburgh, was an easy 1st with twelve distinct sorts of salad stuff; and Mr. Davidson, Trinity, Edinburgh, staged a very meritorious collection which took 2nd prize. Mushrooms were well shown by Mr. J. Gordon, Liberton, and Mr. McLennan, Restalrig House, Edinburgh, who took honours in the order named. French Beans were set up by several competitors, Mr. J. Gordon being placed 1st, and Mr. J. McIntyre, Darlington, 2nd. The heaviest Rhubarb came from Mr. Thomson, Ferry Road, Edinburgh; the best twelve early Potatoes from Mr. Bigham, Edgerston House, Jedburgh; the 1st prize Broccoli, from Mr. T. Milne; the twelve largest Onions from Mr. T. Hogg, Cathcart; the biggest Leeks from Mr. G. Potter—and they were perhaps the biggest Leeks ever seen at these shows, which is saying a good deal: they were 7½ inches in circumference and about 18 inches blanched.

The various classes of plants were represented in about the usual number of entries and quality. Orchids were well put up by Mr. Curror, of Dalkeith, and Mr. Grossart, Oswald Road, Edinburgh, the former staging a very fine *Dendrobium chrysanthum*, *D. devonianum*, and *D. nobile*; *Cattleya Triane*, a very deeply coloured variety, with large blooms, &c., took 1st prize in the class of six distinct; and the latter's collection, if less showy, was very attractive, and composed of well-grown plants of *Cymbidium Lowii*, *Dendrobium thyrsiflorum*, &c.

Stove and Greenhouse Plants.—*Azaleas* were well represented in the collections staged by John Paterson, Millbank, who took 1st honours in the class of four plants; and by Mr. Bald, who took 2nd prize in the same class.

In stove and greenhouse plants, six distinct, the last-named exhibitors stood in the same relative positions as regards prizes, and also in the competition for Cape Heaths. The class for four plants in flower, distinct, brought Mr. Grossart and Mr. Wilkins, Cannonhills House, to the front in their order.

Miscellaneous.—Ferns were well represented, especially filmy species and varieties, the best of the latter class coming from Mr. P. N. Fraser, Rockville, Murrayfield; and the 2nd best from Mr. Anderson, Model Buildings, Filrig Park.

Space will only further admit of noting that fruit, in the shape of Apples, was well represented, the best twenty-four kitchen kinds being staged by Mr. McKelvie, Broxmouth, Dunbar, who also put up the best twenty-four dessert sorts. Pears came in fair condition from Mr. Brunton, Drem; and from Mr. Robertson.

In black Grapes there were only two competitors—Mr. Smith, Oxenford, and Mr. McKinnon, Melville Castle.

Of special exhibits there were several that were notable. Messrs. Ireland & Thomson had a magnificent bank of Conifers, *Clematis*, standard and dwarf *Azalea mollis*, and Ghent varieties, *Cytisus præcox*, *Lilacs*, and other forced flowering shrubs, at one end of the market, to which the committee, on the suggestion of the judges, gave a special award. The same firm had also a beautiful table of flowering and foliage plants near by, comprising some very excellent varieties of *Odontoglossum Alexandræ*, *A. Pescatorei*, *Dendrobium devonianum*, and others. The Lawson Seed and Nursery Company set up a very full collection of Japanese Acers, which formed an interesting feature to the general public and to gardeners. Messrs. James Dickson & Sons had a very neat table of plants of the usual type of nursery, greenhouse, and stove stock. Messrs. Methven & Sons set up a large table of handsome flowering and foliage plants, and Mr. Robertson Munro had one of the best exhibits of spring flowers and alpine plants ever exhibited at these shows.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

MARCH 28.—The spring show under the auspices of this Society was held in the City Hall on the above date. Under ordinary circumstances amateurs contribute largely while full stately plants have been mainly furnished by the nurserymen in and around the city. Moreover the directors could, in emergency cases, always draw upon the Botanic Gardens under the now dissolved proprietary; but owing to the "thaw" between the suburban districts and the city proper, these fine gardens, with their wealth of plants, are a closed book to the public, and not one plant can be moved for any purpose. Hence the show, although a florid one, was conspicuous for want of some stately plants to fill the eye and give dignity to the groups. The weather, too, was of the most unpropitious character for many plants any distance from greenhouses to Hall—indeed, we have had no such month of March to contend with in that way from beginning to end of it since 1866.

Passing to the exhibits, Mr. Hogg, gr. to Mr. John Gordon, of Aitkenhead, had probably the most conspicuous individual plants, and taking foremost prizes in a great many classes. Among his best plants were *Rhododendron Countess of Haddington*, one of the best habited of the hybrid *Sikkim* class, full of bloom; also *Clivia miniata*, several good *Azaleas*, not the least worthy was *Louis de Kerchove*, *Duchesse de Nassau*; a well-bloomed *Cologne cristata*, an excellent *Cypripedium villosum*, and *C. insigne*, along with the showy *Dendrobium Wardianum*, and several others. Mr. George Wes-

ton, gr. to Mr. Cassewell, Murcia House, Pollok-shields, had the best table of plants, comprising some good Kentias and other Palms, several of the higher coloured Dracenas, a miscellaneous lot of Orchids, Arthruriums, nicely set round with Maiden-hair Ferns and grasses, and making a very effective whole. He was awarded the Gold Medal given by the Vice-President, Mr. John L. Henderson.

A very effective group of Orchids came from Mr. Kidd, gr. to R. B. White, Esq., Arddarroch, comprising fine pieces of *Dendrobium Dalhousianum*, *D. nobile*, *D. Wardianum*, and others, along with *Celogyne cristata*, several *Oncidiums*, &c.

Mr. George Russell, gr. to J. B. Merrilies, Esq., Kelvinside, exhibited a good assortment of seedling *Rhododendrons*, mainly from Veitchii, ranging from pure white to flesh colour. Messrs. Austin & McAslan, Messrs. Smith & Junior, had showy tables of plants. Mr. Peter McKenzie, Paisley, had a superb assortment of bouquets. Mr. Bryson, Helensburgh, showed two or three boxes of superb blooms of *Maréchal Niel* Roses; and Messrs. Dobbie & Co., Rothesay, had a fair collection of Daffodils.

Hyacinths were generally good, the same varieties taking 1st rank year by year, indeed we did not notice anything in the same way of colour to beat *Grandeur à Merveille*, *Mont Blanc*, *Von Schiller*, and *Macanlay*.

Mr. P. Mackenzie had the best groups in the open classes followed by Mr. John Sutherland, Lenzie, Mr. Donald McBean (gr. to J. C. Cunningham of Craigends), Mr. Charles F. Carnegie, Garshore House; and Mr. George Irvine had the best groups in the amateur classes. Tulips were a fair show, the best coming from Mr. James Hern, Pollock House Gardens, who showed the best lots of *Polyanthus* and *Narcissus*. Mr. James Miller, Castlemilk Gardens, had a very good basket of spring rockery plants, a new feature introduced at the meeting.

The cottagers' class was only represented in generally good form *Azaleas*, *Dentzias*, *Spiraeas* of which there was a large and an effective lot; *Cyclamens*, *Cinerarias*, *Ferns*, *Lily of the Valley* and all kinds of bulbs. The whole of the arrangements were as usual under the management of Mr. Franc Gibb Douglass, who was ably seconded by the members of the committee in carrying the project to a successful issue.

NOTICES TO CORRESPONDENTS.

APPLE: *A. M.* Good keeper and showy, but has little flavour.

AZALEA MOLLI: *G. R.* The last season's growth was badly matured, or there is something wrong at the root. The plant makes early growth, and in some districts is spring-tender, which points to the need for some method of retarding growth or of protecting it when made. It dislikes hard forcing, so that only gentle pushing on is possible if good results are to be looked for, say, 45°—48° at night, with 10° rise during the day, with some ventilation. Plants that have been forced and those that have been hard pruned should complete their growth in, or at least be kept in a cool pit till there is no longer danger from frost. Unforced plants in pots may either make their growth in sunny pits or be shaken out of their pots and planted in a peat bed, taking care that they are not shaded by other plants, &c. For young plants peat and sand are sufficient, but strong plants may have a little finely sifted loam mixed with the coarsely divided peat.

BOTANIC GARDENS, ATHENS: *E. Fison.* Dr. Théod. de Heldreich is the director of the Garden. The list of gardens published in our issue for January 7 last, only includes gardens in the United Kingdom, the British Colonies, and India.

CARNATIONS GOING BLIND: *G. G.* See this week's issue, p. 436.

CRIONODONIA WITH WHITE FLOWERS: *G. P.* Certainly very rare, but we have seen it on one or two occasions before.

CINERARIAS DYING OFF: *G. H. M.* Send soil and affected plant to this office for examination.

CUCUMBERS IN HOUSE: *G. N.* Stop the plants once when the main shoot has reached the trellis. You will then obtain four or five shoots, which should be allowed to reach the limits of the trellis without further stopping. Employ loamy soil, with one-quarter its bulk of decayed manure: it need not

be deeper in the hills than one foot. See our Calendarial directions from time to time.

CURRENT BOD MITE: *L. H. G.* The bnds are affected with this pest, which seems unusually prevalent in the North. It has been repeatedly figured in our columns. No remedy short of destroying the affected branches is of any use.

FOREST OFFICERS IN CANADA: *A. F.* These appointments are made locally. Apply to the Agent-General for the colony concerned, at his office in London.

FURZE: *J. M.* The quantity of seed required is 20 lb. to 24 lb. per acre, which may be sown either broadcast or in drills—the latter is the better way. If vegetation was abundant before the ploughing, and was turned under, then nothing may be needed beyond hoeing the ground during the summer; but should there have been but little growth on the land, some slight dressing of artificial manure may now be of use. Get the seed through any good seedsman.

INSECTS: *Furner.* The eggs of the Lacquey Moth, *Bombyx neustria* (see fig. 63). The caterpillars are very destructive to Oak, Elm, Beech, and Apple trees, &c. The moths are of variable colours, with rusty fox or ochrey markings. It is stated that the moths seldom fly, but hide in grass and under leaves during the day, and come out at night. Cut off the shoots with the rings of eggs, and burn them; also watch for the sulphur-coloured webs which the caterpillars spin, and follow the same course. The undergrowth of the orchards should be kept in good order, as it is in

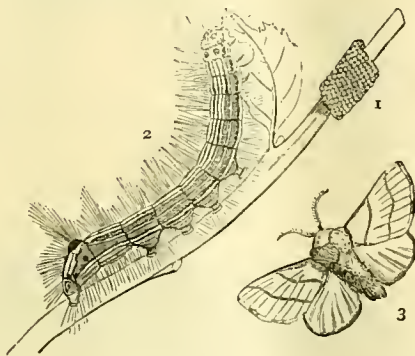


FIG. 63.—THE LACQUEY MOTH.

this that the insects hide. The orchards should not be overcrowded, as if the trees are close birds cannot act so freely as insect destroyers.—*I. J. T.* The insects you have found on your young Vines are a species of Click-beetle (*Elatér hæmorrhoidalis*). In this state they do no injury to the Vines, but they deposit their eggs in the ground, and produce cylindrical scaly larvæ known under the name of Wireworms, which are injurious to plants, gnawing their roots and fibres. *I. O. W.*

GROWTH OF PLANTS: *J. H. G.* It is now established that the principal growth of plants takes place during darkness, while the preparation for it, as you say, is made in sunlight. Plants become drawn under glass because they are stimulated by the light, while there may be also a warmer temperature and more moisture there. The fullest modern account of the theory of plant growth suitable for practitioners is in Cassell's *Popular Gardening*, now in course of re-issue. See also *Plant Life* (Bradbury & Co.).

HERBACEOUS PLANTS: *G. B.* Yes, in the absence of any stipulation to the contrary, we should include bulbous plants such as die down in winter among herbaceous perennials.—*E. P.* The plants you name are all herbaceous plants. See previous answer.

KAMTSCHATKA BULB: *L. M.* The edible bulb stored like Onions by the natives of Kamtschatka, is that of *Fritillaria kamtschatkensis*, the *Sarana edulis* of some authors.

LATE CHRYSANTHEMUMS: *T. B.* The variety is well worthy of propagation as a late bloomer, and also for its colour, which is almost identical with that of *Cullingfordi*.

LILY OF THE VALLEY: *J. L. H. Dammann, Jun.,* Breslau, Germany.

LOW TEMPERATURES: *S. M.* In 1837-38 a temperature of —13°·5 was recorded at Beckenham. In 1845 on February 12 at Isleworth —5°, and on December 25, 1860 —15° at Cheadle. In December, 1879, was the lowest temperature recorded for December of the century, viz., at Leaton —11°·9. About the middle of February 1881, the temperature at Kelso was —16°, shortly after this —10° was registered at Cardigan.

NAMES OF FRUIT: *W. B. K.* Wyken Pippin, in capital condition.—*J. S. H.* The specimen is not in character now; send next season when in good condition.

NAMES OF PLANTS: *Clonmel.* (Daffodils, no numbers). Flower all white, N. cernuus; flower with pale yellow segments, long yellow cup, N. princeps; flower with white segments, yellow crown, N. bicolor Horsfieldi, P. B.—*F. J.* 1, *Hepatica triloba*, double pink variety; 2, *H. triloba*, single blue.—*W. S. Bissett.* 1, *Cymbidium Hookerianum*; 2, *Celogyne elata*; 3, *Cymbidium aloefolium*.—*A. L.* *Lycaste plana*.—*Will Sorley.* *Celogyne flaccida*.—*John Waldie.* 1, *Odontoglossum luteo-purpureum*; 2, *O. Andersonianum*: a very pretty variety.—*A. B.* *Eriobotrya japonica*.—*E. H. C.* 1, *Cystanche lutea*; 2, specimen insufficient.—*F. S.* *Trichopilia suavis*.—*Camjee.* *Dendrobium nobile*.—*W. Owen.* *Cypripedium hirsutissimum*: a fine bloom from a strong healthy plant.—*W. G.* A species of *Crotalaria* from Honolulu; we cannot determine which, as the specimen was not sufficient.

COMMUNICATIONS RECEIVED.—*J. D.*—*W. Gilford*.—*A. D.*—*N. B.*—*Theta*.—*Scot.*—*Adam*.—*I. O. W.*—*Lawson Seed Co.*—*R. A. R.*—*H. W. W.*—*W. G. P.*—*F. R.*—*Collins Bros.* & *Gabriel*.—*J. S.*—*J. H.*—*W. Brockbank*.—*J. A.*—*J. Shiel*.—*Rangiora*.—*N. Z.*—*J. H.*—*A. M.*—*C. E.*—*Plowright*.—*J. H.*—*Goodacre*.—*Miller & Johnson*.—*Veitch & Sons*.—*A. F.* (next week).—*W. K.* (already published).—*D. M.* (under consideration).—*J. H.*—*Captain Bax*.—*E. B.*—*Paris*.—*X.*—*Bilbao*, unsuitable.—*U. D.*, Berlin. —*J. H. de B.*—*Amsterdam*.—*A. W. T.*—*Oporto* (greatly obliged, letter to follow).—*L. I.*, Brussels. —*P. W.*, St. Petersburg (letter to follow).—*G. S.*, Beckenham (many thanks, let us have your full address).—*J. C. M.*, letter to follow. —*L. H. G.*—*M. Y.*—*G. P.*—*Col. Jones*—*W. J. M.*—*G. J. N.*—*H. J. G.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	Above or below the Mean for the week ending March 26.	TEMPERATURE.			
		ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from 31, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	
0. SCOTLAND, N. ...	5 below	0	50	—	45 + 156
1. SCOTLAND, E. ...	5 below	0	47	—	77 + 104
2. ENGLAND, N.E. ...	5 below	0	37	—	81 + 66
3. ENGLAND, E. ...	6 below	0	43	—	120 + 137
4. MIDLAND COS. ...	5 below	6	43	—	125 + 143
5. ENGLAND, S. ...	7 below	3	35	—	140 + 167
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 below	2	40	—	77 + 94
7. ENGLAND, N.W. ...	6 below	4	36	—	99 + 109
8. ENGLAND, S.W. ...	7 below	7	36	—	164 + 227
9. IRELAND, N. ...	6 below	4	42	—	90 + 57
10. IRELAND, S. ...	6 below	11	39	—	128 + 102
— CHANNEL ISLANDS	6 below	6	23	—	151 + 133

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	6 more	56	9.7	28	23
1. SCOTLAND, E. ...	4 more	50	6.1	24	22
2. ENGLAND, N.E. ...	2 more	43	4.4	34	21
3. ENGLAND, E. ...	5 more	41	4.7	16	20
4. MIDLAND COS. ...	4 more	38	4.1	21	19
5. ENGLAND, S. ...	5 more	40	5.2	14	18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 less	33	8.3	38	23
7. ENGLAND, N.W. ...	1 more	46	4.5	39	23
8. ENGLAND, S.W. ...	4 more	43	6.4	24	28
9. IRELAND, N. ...	3 more	42	6.5	27	21
10. IRELAND, S. ...	2 less	37	6.9	38	28
— CHANNEL ISLANDS	5 more	56	6.5	21	24

DISTRICTS.	TEMPERATURE.			
	Above or below the Mean for the week ending April 2.	ACCUMULATED.		
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	5 below	0	45	— 52 + 105
1. SCOTLAND, E. ...	5 below	0	41	— 88 + 110
2. ENGLAND, N.E. ...	5 below	3	32	— 87 + 67
3. ENGLAND, E. ...	4 below	12	31	— 126 + 133
4. MIDLAND COS. ...	4 below	13	35	— 131 + 144
5. ENGLAND, S. ...	4 below	14	25	— 150 + 188
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	5 below	5	32	— 85 + 99
7. ENGLAND, N.W. ...	5 below	8	31	— 106 + 114
8. ENGLAND, S.W. ...	5 below	11	31	— 171 + 239
9. IRELAND, N. ...	6 below	7	30	— 100 + 63
10. IRELAND, S. ...	6 below	14	32	— 140 + 114
— CHANNEL ISLANDS	3 below	23	8	— 155 + 139

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible duration for the Week.	Percentage of possible duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	2 less	62	10.1	31	24
1. SCOTLAND, E. ...	3 more	55	6.9	15	21
2. ENGLAND, N.E. ...	9 more	49	5.6	23	22
3. ENGLAND, E. ...	1 more	50	5.2	19	19
4. MIDLAND COS. ...	2 more	43	4.6	20	19
5. ENGLAND, S. ...	2 more	46	5.8	16	16
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 less	41	8.8	38	27
7. ENGLAND, N.W. ...	0 (aver.)	51	5.0	31	24
8. ENGLAND, S.W. ...	2 more	48	7.2	28	27
9. IRELAND, N. ...	3 more	47	7.3	31	22
10. IRELAND, S. ...	1 more	41	7.6	39	29
— CHANNEL ISLANDS	3 more	61	7.4	46	26

THE PAST WEEK.

The following summary record of the weather for the week ending, April 2, is furnished from the Meteorological Office:—

"The weather has continued in an unsettled condition generally, although at our more western stations some bright intervals have been experienced. Rather heavy falls of cold rain, sleet, or snow have occurred in most districts—especially over the north-eastern parts of England.

"The temperature has again been below the mean. The highest of the maxima, which were recorded on March 29 in England and on April 1 in Ireland and Scotland, varied from 50°, in 'England, N.E.' and over the north and west of Scotland to 56° in 'England, E.' and 57° in the 'Midland Counties.' The absolute minima, which were registered on March 28 in Scotland, and on irregular dates elsewhere, were as low as 5° in 'Scotland, E.' (at Braemar), and 15° in 'Scotland, N.' (at Laing), while in the other parts of the kingdom they ranged from 22° in the 'Midland Counties,' and 'England, S.W.' to 29° in 'England, E.' and 36° in the 'Channel Islands.'

"The rainfall has been rather less than the mean in 'Scotland, N.' and 'Scotland, W.,' and about equal to it in 'England, N.W.,' but in all other districts it has been more than normal. In 'England, N.E.,' a very considerable excess is shown.

"Bright sunshine has not differed materially in most districts from that reported last week, the percentage of the possible amount of duration ranging from 15 in 'Scotland, E.,' and 16 in 'England, S.' to 38 in 'Scotland, W.,' 39 in 'Ireland, S.,' and 46 in the 'Channel Islands.'

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING APRIL 14. (AVERAGE OF FORTY-FOUR YEARS.)

April 8	47°·1	April 12	47°·6
" 9	47°·2	" 13	47°·7
" 10	47°·3	" 14	47°·9
" 11	47°·5	Mean for the week ...	47°·5

MARKETS.

COVENT GARDEN, April 5.

MARKET still very quiet, with good supplies of hot-house fruit. The first Peaches this season to hand this week. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ...	3 0-6 0	Pears, per dozen ...	3 0-6 0
Grapes, per lb. ...	3 0-6 0	Pine-apples, Eng., lb.	1 0-2 0
Kent Cobs, 100 lb.	0-45 0	— St. Michael, each	2 0-5 0
Lemons, per case ...	12 0-21 0	Strawberries, lb. ...	4 0-10 0
Peaches, dozen ...	12 0-12 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz. ...	6 0-18 0	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., bund.	1 0-5 0	Mustard and Cress,	
— English, 100 ...	12 0-0 0	punnet	0 4- ...
Beans, Kidney, lb. ...	3 0- ...	Oatmeal, per bushel ...	9 0- ...
Beet, red, per dozen	1 0-2 0	Parsley, per bunch ...	0 6- ...
Brus. Sprouts, lb. ...	0 6- ...	Potatoes, per cwt. ...	4 0-5 0
Carrots, per bunch ...	0 6- ...	" kidney, per cwt. ...	4 0-5 0
Cauliflowers, each ...	0 3- ...	Rhubarb, per bundle	0 4- ...
Celery, per bundle ...	1 6-2 6	Seakale, punnet ...	1 6-2 0
Cucumbers, each ...	0 9-1 6	Shallots, per lb. ...	0 6- ...
Endive, per dozen ...	2 0- ...	Spinach, per bushel ...	4 6- ...
Green Mint, bunch ...	1 0- ...	Spruce, per bundle ...	1 0- ...
Herbs, per bunch ...	0 4- ...	Tomatoes, per lb. ...	2 6- ...
Leeks, per bunch ...	0 6- ...	Turnips, per bunch ...	0 6- ...
Lettuce, per dozen ...	1 6- ...		

POTATOS.—Markets about the same as last week. Hebrons finished.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Evergreens, in var.,	
Azaleas, per dozen ...	24 0-36 0	per dozen	6 0-24 0
Bouvardias, per dozen	9 0-12 0	Ferns, in var., doz.	4 0-18 0
Cinerarias, dozen ...	6 0-12 0	Ficus elastica, each	1 6-7 0
Cyclamens, per dozen	12 0-24 0	Foliage plants, vari	
Cyperus, each	4 0-12 0	ous, each	2 0-10 0
Daffodils, dozen ...	9 0-12 0	Genistas, dozen ...	8 0-12 0
Deutzias, per dozen ...	6 0-12 0	Hyacinths, doz. ...	6 0-9 0
Dracena terminalis,		Lily of the Valley,	
per dozen	30 6-60 0	12 pots	12 0-18 0
— viridis, per doz.	12 0-24 0	Marguerites, doz. ...	9 0-12 0
Dieffenbachia, dozen ...	12 0-15 0	Myrtles, per dozen ...	6 0-12 0
Epiphyllums, doz. ...	12 0-24 0	Palms, in var., each	2 6-21 0
Ericas, various, per		Pelargoniums, doz. ...	18 0-24 0
dozen	9 0-18 0	Primula sinensis, per	
— ventricosa, doz. ...	18 0-30 0	dozen	4 0-6 0
Eucalyptus, in var.,		Solanums, per dozen	9 0-12 0
per dozen	6 0-18 0	Spiraeas, dozen ...	9 0-15 0
		Tulips (pots of), doz.	6 0-8 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Acacia, or Mimosa,		Lily of Valley, 12 spr.	0 6-1 0
per bunch	0 9-1 6	Marguerites, 12 bun.	3 0-6 0
Anemone, French, 12		Mignonette, 12 bun.	3 0-6 0
bunches	1 6-4 0	Narcissus, paperwhite,	
— fulgens, 12 bun. ...	3 0-6 0	Fr., 12 bunches ...	2 0-4 0
Arum Lilies, 12 blms.	4 0-6 0	Various, 12 bun. ...	3 0-6 0
Azaleas, 12 sprays ...	0 6-1 0	Pelargoniums, 12 spr.	1 0-1 6
Bouvardias, per bun.	0 6-1 0	— scarlet, 12 spr. ...	0 6-0 9
Camellias, 12 blms. ...	1 0-3 0	Primroses, 12 bun. ...	1 0-2 0
Carnations, 12 blms.	1 6-3 0	Primulas, double, 12	
Cinerarias, 12 bun. ...	6 0-12 0	sprays	1 0-1 8
Cyclamens, 12 blms.	0 4-0 6	— single, 12 bun. ...	4 0-6 0
Daffodils, double, 12		Roses, Tea, per doz.	1 0-6 0
bunches	4 0-6 0	— coloured, dozen ...	2 0-4 0
— single, 12 bun. ...	4 0-9 0	— red, per dozen ...	2 0-6 0
— Lent Lily, 12 bun.	2 0-6 0	— Safrano, dozen ...	1 6-3 0
Deutzia, 12 bunches	4 0-9 0	Snowdrops, 12 bun.	1 0-4 0
Eucharis, per dozen	4 0-6 0	Tuberose, 12 blms. ...	1 6-2 0
Gardens, 12 blms. ...	3 0-6 0	Tulips, 12 bunches ...	0 6-1 0
Heliotropes, 12 spr.	0 6-1 0	Violets, 12 bunches ...	10- ...
Hyacinths, Roman ...		— French, bunch ...	1 6-2 0
12 sprays	0 6-1 0	— Fr. Parme, bunch	2 0-3 0
Lilium longiflorum,		White Lilies, Erebob,	
12 blooms	4 0-6 0	per bunch	3 6-6 0

* * * Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: April 4.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market quiet. The recent unfavourable weather, and the holidays together, curtailed for the time the demand for field seeds. Nevertheless, a large business undoubtedly remains to be done. Stocks meantime continue in moderate compass, and prices all round are very low. As regards Alsike and white Clover, Continental advices are very firm. There is no change in red Clover seed. Spring Tares realise late rates. For Canary seed the sale is slow. Hemp seed on the spot is still very scarce.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: April 4.—Good supplies of all kinds of green vegetables, Potatoes, and other produce. Trade very fair generally, especially for good samples of Potatoes. Prices:—Cauliflowers, 5s. to 10s. per tally; Savoys, 8s. to 12s. do.; Brussels Sprouts, 6s. to 7s. per bushel; Broccoli, 2s. 9d. to 3s. 6d. do.; Spinach, 2s. to 2s. 6d. per sieve; Turnip-tops, 2s. 6d. to 4s. per sack; Greens, 4s. to 8s. per dozen bunches; Turnips, 3s. to 4s. do.; Carrots, 2s. 3d. to 3s. do.; English Onions, 12s. to 14s. per cwt.; foreign do., 10s. to 11s. per bag of 110 lb.; Curly Kale, 2s. 6d. to 3s. per bushel; Seakale, 1s. 6d. per punnet; Horseradish, 10d. to 1s. 6d. per bundle; Celery 8d. to 1s. 6d. do.; forced Rhubarb, 2s. to 3s. per dozen bundles; natural do., 2s. 6d. to 3s. do.; Cabbage Lettuces, 8d. to 1s. 6d. per dozen; Mustard and Cress, 2s. to 3s. per dozen baskets; Cos Lettuce, 2s. to 3s. per dozen; Endive, 2s. do.; Leeks, 2s. 6d. do.; Beetroot, 8d. to 1s. do.; Parsnips, 9d. to 1s. per score; English Apples, 4s. to 7s. per bushel; American Apples, 14s. to 22s. per barrel; Carrots, 35s. to 45s. per ton; Mangol, 20s. to 22s. do.

STRATFORD: April 3.—Quotations:—Savoys, 8s. to 12s. per tally; Greens, 4s. to 4s. 6d. per cwt.; Turnips, 2s. 6d. to 3s. per dozen bunches; ditto, 40s. to 55s. per ton; Carrots, household, 40s. to 60s. do.; do., cattle feeding, 25s. to 34s. do.; Parsnips, 6d. to 1s. per score; Mangels, 20s. to 22s. per ton; Swedes, 18s. to 22s. per load; Onions, English, 12s. to 14s. per bag; do., Dutch, 10s. to 12s. per bag; Apples, English, 5s. to 7s. per bushel; do., American, 10s. to 26s. per barrel; Watercress, 6d. per dozen; Celery, 9d. to 1s. per roll, Rhubarb, 3s. to 3s. 9d. per dozen bunches; Salads 1s. 6d. to 2s. per dozen baskets; Radishes, 9d. to 1s. 2d. per dozen bunches; Carrots, 2s. 6d. to 3s. do.

POTATOS.

BOROUGH AND SPITALFIELDS: April 3.—Good samples alone are in request, and of these descriptions the supplies comprise only a moderate proportion, for which ready rates are obtained. Quotations:—Regents, 50s. to 100s.; Magnum Bonums, 50s. to 105s.; Champions, 50s. to 110s.

SPITALFIELDS AND COLUMBIA: April 4.—Quotations:—Imperators, 70s. to 80s.; Magnums, 45s. to 90s.; Regents, 65s. to 90s.; Victorias, 50s. to 65s.; Champions, 50s. to 60s.; Beauty of Hebron, 120s. to 140s. per ton.

STRATFORD: April 3.—Quotations:—Scotch Regents, 75s. to 95s.; do. Magnums, 70s. to 90s.; English do., 55s. to 80s.; Fenland, 45s. to 55s. per ton.

SANKEY AND SON'S GARDEN POTS.

From Messrs. MARSHALL BROS. AND CO., Barnham and Brighton, Agents for our Pots for Brighton and district.

"GENTLEMEN.—The last consignment of 16,000 pots to hand in very good condition. We like your pots very much; they are light, and very durable, and we save fully £50 per annum by using them instead of our local pots."

From Messrs. ARMITAGE AND SON, Nurserymen, Huddersfield.
"We have used for over twenty years, and are still using and selling, only Sankey's Nottingham-made Garden Pots."

"BULWELL POTTERIES," NOTTINGHAM.

Carriage and Breakage Free on £10 Orders. Half
Carriage and Breakage Free on £5 Orders.

Samples (carriage free) gratis, prices free on application.

From Messrs. HARLEY AND SONS, Dundee and Perth, N.B.
"We are very pleased with quality of your pots; we grow large quantities of plants for market, and find nice-looking pots make the plants look and sell better; yours are not only superior to others in colour and shape, but are not half the weight, yet stronger, neither do they turn green."
From Messrs. WALSHAW AND SON, The Nurseries, Scarborough.
"The pots are so superior over all others we have used that we shall have great pleasure in placing our orders exclusively with you."

USEFUL PRESENTS FROM IRELAND.

CAMBRIC	Children's...	Per doz.	Hemstitched :-	Per doz.
	Ladies' ...	1s. 2d.	Ladies' ...	2s. 11½d.
	Gents' ...	2s. 4½d.	Gents' ...	4s. 11½d.
POCKET HANDKERCHIEFS.				

Embroidered Handkerchiefs, from 1s. each.

Pretty FANCY BOXES, suitable for half-dozen or dozens of Handkerchiefs, encased in Cardboard Covers, so as to pass uninjured by post, 3d., 6d., 9d. to 1s. 6d. each.

IRISH DAMASK TABLE LINEN.

Samples and Illustrated Price Lists, post-free.

FISH NAPKINS, 2s. 11d. per dozen. Dinner Napkins, 5s. 6d. per dozen. Table Cloths, 2 yards square, 2s. 11d.; 2½ yards by 3 yards, 5s. 11d. each. Kitchen Table Cloths, 11½d. each. Strong Hackback Towels, 4s. 6d. per dozen. Monograms, Initials, &c., Woven and Embroidered.

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By Special Appointments to H.M. the Queen and H.I. and R.H. the Crown Princess of Germany,

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Best Quality Long Cloth, with 4-fold finest Linen Fronts, 35s. 6d. per half-dozen (to measure or pattern, 2s. extra). Patterns of materials used, also of newest styles in Fancy Cotton, Flannel, Silk, and Silk and Wool Shirts, sent free on application.

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GUANO—2-lb. Tins, 1s.; in Bags, 7 lbs., 2s.; 14 lbs., 4s.; 28 lbs., 6s. 6d.; 56 lbs., 10s. 6d.; 1 cwt., 16s.; 2 cwt., 30s. Special terms for larger quantities. Analysis guaranteed.

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To Gentlemen, Nurserymen, Builders and Others intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LINES, ELMS, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. CATALOGUES free on application.

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- 100 CONIFERS, in 50 distinct varieties ... for 50s.
- 100 ORNAMENTAL TREES, in 50 distinct varieties, including many variegated golden and purple Acers, &c. ... for 50s.
- 100 DECIDUOUS SHRUBS, in 50 distinct varieties ... for 20s.
- 100 EVERGREEN SHRUBS, in 50 distinct varieties ... for 30s.
- 100 ROSES, in 50 finest varieties, of H.P. and Tea on the Seedling Brier, from the open field ... for 35s.

We may state that we have grown Teas on the Seedling Brier in the open field for many years back, proving that they are about as hardy as the H. P., as we have frequently had the latter cut back to the snow line. It is only when the thermometer registers below zero that they require protection.

- 100 HERBACEOUS PLANTS, in 50 fine varieties ... for 20s.
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MORRISON BROTHERS, NURSERIES, ABERDEEN.

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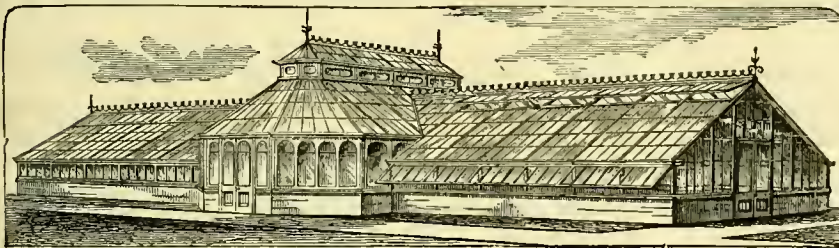
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ROSES 20 ACRES.

Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. BUSHES, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100. STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for cash with order.

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RHODODENDRONS, hybrid seedlings, various colours, 1 to 1½ ft., 6s. per doz., 40s. per 100, many with buds.
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HOLLIES, Common Green, extra transplanted, bushy plants, 1½ to 2 feet high, 25s. per 100; 2 to 3 feet, 50s. per 100.
„ Silver-variegated, well-formed plants, 1½ to 2 feet high, 15s. per doz.; 2½ to 3 ft., 24s. to 30s. per doz.
All the above are well-rooted, healthy plants.
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Condensed Farm yard Manure, 7s. 6d. per sack. Fertilising Moss, bags, 1s and 3s. 6d.; per bush, 7s. 6d.

Composts, special for Exhibitors of Chrysanthemums, Ferns, Greenhouse and Stove Plants, Lawns, Vines, and Fruit, &c.

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Liquid Manure Powder, the “Perfect Stimulant,” for Pot-plants, Roses, Flower-beds, Strawberries, Vines, &c., per 7 lb., 3s.; 14 lb. 6s.; ½ cwt., 12s.; cwt., 21s.

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May be obtained from all Nurserymen and Seedsman in the United Kingdom and the Colonies.

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COCOA-NUT FIBRE REFUSE (best only), 1s. per sack; 30 sacks, 20s.; truck (about 2½ tons), 20s. f.o.r. PEAT (good brown), 20s. per ton in trucks. Yellow Fibrous LOAM, 10s. per ton; truck of 6 tons, £2 15s. Finest TOBACCO PAPER and CLOTH, 50s. per cwt. J. MEARS AND CO., 3, Bury Court, London, E.C.

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Is acknowledged to be the best for all kinds of CHOICE PLANTS, FERNS, HEATHS, &c.; and their Specially Selected do. for Orchids, by innumerable unsolicited Testimonials. Rhododendron PEAT, LEAF-MOULD, LOAM, SAND, SPHAGNUM, COCOA-NUT FIBRE, CHARCOAL, &c., and all kinds of Garden Requisites, and NURSERY STOCK. For Price List and Testimonials, **EPPS & CO., RINGWOOD, HANTS.**



Sold in Packets, 6d. and 1s. each, and in
SEALED BAGS ONLY,

7 lb. 14 lb. 28 lb. 56 lb. 1 cwt.
2/6 4/6 7/6 12/6 20/-
CLAY & LEVESLEY.
TEMPLE MILL LANE,
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C. & L. also supply Crushed Bones, Bone Dust, Peruvian Guano, Sulphate of Ammonia, and Nitrate of Soda, in best qualities only.

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TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)
 PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d.
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 LOAM, PREPARED COMPOST ... 1s. per bush., 3s. per sack
 LEAF, or PEAT MOULD ... (sacks included)
 SILVER SAND, coarse, 1s. 6d. per bush., 14s. half-ton, 24s. ton.
 RAFFIA FIERE, best only ... 1s. per lb.
 TOBACCO CLOTH, or PAPER ... 8d. lb.; 28 lb., 18s.
 SPHAGNUM MOSS, all selected, 3s. per bush., 8s. per sack.
 CHUBB'S "PERFECT" FER-
 TILIZER (the Best Food for
 all kinds of Plants, Flowers,
 Fruits, Vegetables, &c. ... 7lb. 14lb. 28lb. 56lb. 1 cwt.
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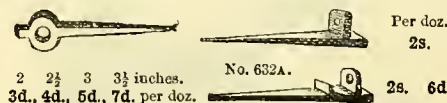
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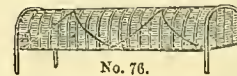
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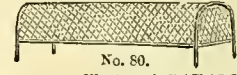
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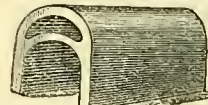


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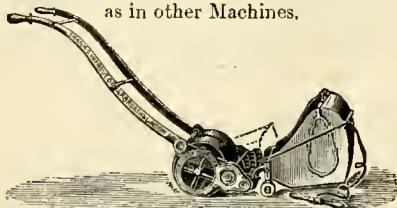
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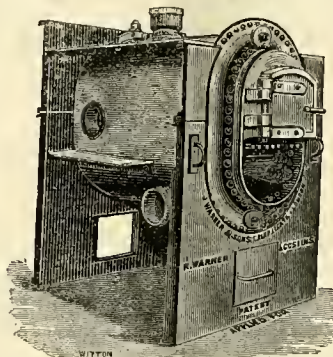
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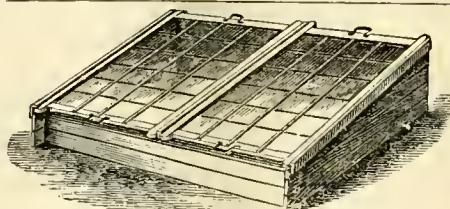
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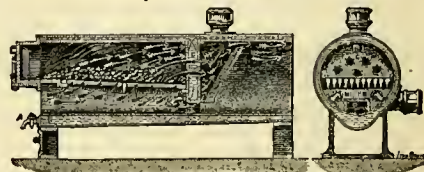
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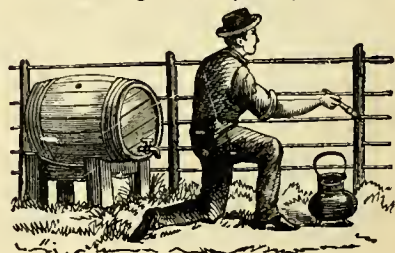
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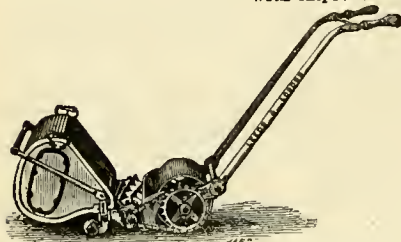
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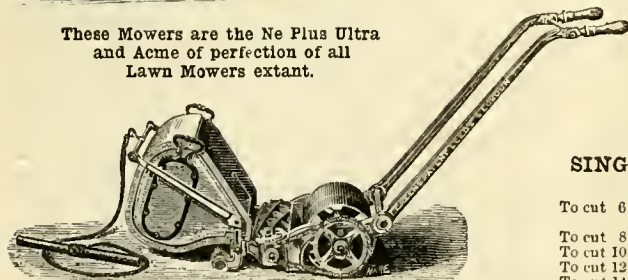
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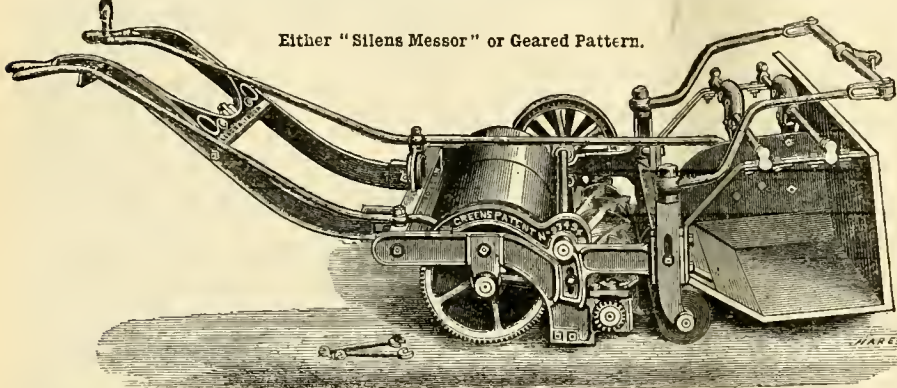
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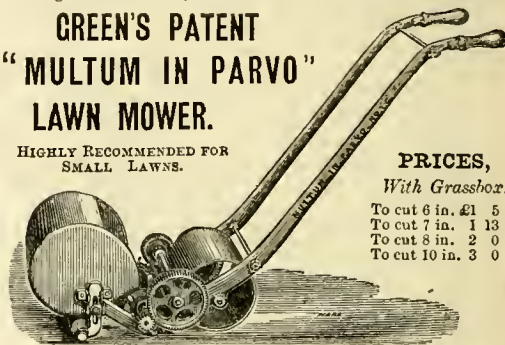
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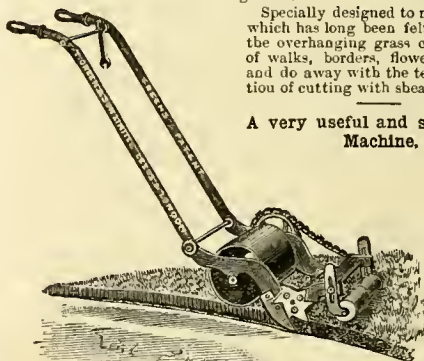
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.

No. 2468.

No. 68.—VOL. III. {THIRD SERIES.}

SATURDAY, APRIL 14, 1888.

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NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

NOTICE TO SUBSCRIBERS.—All Numbers of the "Gardeners' Chronicle" from January 1, 1887, are still to be had.

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Spring, 1888.

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MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest. Amongst other varieties will be found a grand collection of the rarest and choicest CYPRIPEDES, in the finest health.

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For further particulars apply to Mr. E. ELLIS, Solicitor, 23, Birch Lane, London, E.C.; or, to Messrs. JOHN LAING AND SONS, Nurserymen, Forest Hill, S.E.

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American Arbor-vitæ, 2 to 2½ feet, 16s. per 100; ditto, 3 to 3½ feet, 20s. per 100. Aucuba japonica, 1½ to 2 feet, 30s. per 100. Berberis aquifolia, 1 to 1½ foot, 50s. per 1000. Box Trees, 2 feet, 20s. per 100. Griselinia littoralis, 1½ foot, 30s. per 100. Laurel, Common, 2 to 2½ feet, 10s. per 100. Laurel, Portugal, 1½ to 2 feet, 20s. per 100. Laurel, Colchic, 2 to 3 feet, 16s. per 100; ditto, 3 to 4 feet, 20s. per 100. Laurel, caucasicum, 2 to 3 feet, extra, 20s. per 100. Rhododendron ponticum, 1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100; ditto 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per 100. White and other colours, strong and bushy, 70s. per 100. English Yews, 2 feet, 20s. per 100. Arcaurica imbricata, 1½ to 2 feet, 24s. per dozen; ditto, 2 to 2½ feet, 35s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen. Cupressus Lawsoni, 2 to 3 feet, 20s. per 100. Cupressus erecta viridis, 2 feet, 30s. per 100. Pinus Nordmanni, 2 feet, 35s. per 100; ditto, 3 to 3½ feet, 18s. per dozen. Retinospora plumosa, 1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. Retinospora plumosa aurea, 1 to 1½ foot, 50s. per 100. Retinospora squarrosa, 12 to 18 inches, 20s. per 100; ditto, 2 to 2½ feet, 50s. per 100. Thuia Lobbi, 2 to 2½ feet, 20s. per 100; ditto, 4 to 5 feet, 12s. per dozen. Thuopsis borealis, 2 to 2½ feet, 50s. per 100. Thuia dolabrata, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3 feet, 30s. per dozen.

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All applications must be made on a proper printed Form, copies of which may be obtained gratis of the Hon. Secretary, or of any of the Local Secretaries. Such form must be correctly filled up, duly signed, and returned to this Office not later than Monday, 23rd day of April next.

A. F. BARRON, Hon. Sec., Royal Horticultural Society's Gardens, Chiswick.

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CUTHBERTSON'S PRIZE PANSIES are the most select in Scotland. Only such as are used for competition at our best shows are grown. Twelve named Fancy, 4s.; do. Show, 3s. Fifty, in 50 varieties, Show and Fancy, 13s. 6d. (extra choice varieties). Price per 100 or 1000 on application. NEW PRIZE VARIETIES of 1887, 12 of the best Show and Fancy, 15s. All Post-free, my selection. Seed from my famous collection, 1s. per packet, three for 2s. 6d. New striped Pansies, very beautiful, large packets, 1s. VIOLA Seed, extra choice, 1s.

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LARGE SPECIMEN SHRUBS.

Immediate Effect.

ARAUCHARIA imbricata	... 8 to 10 feet high.
ABIES Douglasii	... 8 to 10 feet "
... canadensis	... 4 to 5 feet "
CEDRUS Deodara	... 6 to 8 feet "
... atlantica	... 4 to 5 feet "
HOLLIES, English, Green	... 6 to 8 feet "
LAURELS, latifolia	... 4 to 5 feet "
... Portugal, all shapes	... 3 to 6 feet "
PICEA Nordmanniana	... 3 to 6 feet "
... nobilis	... 4 to 6 feet "
YEWs, English	... 4 to 5 feet "
THUJA Lobbi	... 4 to 5 feet "
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The above are all well-grown perfect specimens, will remove with good balls, and travel any distance. This is the best month to transplant.

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MAIN CROP (Delightful)	... 1s. 4d.	...	5s. 0d.
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COLLECTION of twelve HARDY BORDER PLANTS, distinct and useful for decoration and cutting purposes; for 2s., free.

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From English named varieties.
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Wrench's Extra Dark Blood.
Covent Garden strain.
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Pod perfectly straight, and of extraordinary length. Unrivalled for exhibition purposes. Tender and delicious. Proved last season to be unequalled.
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The earliest and dwarfest variety in cultivation. Admirable for private gardens. Per Packet, 1s.

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Wrench's New Main Crop.
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A regular prize-taker.
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The finest stock in the world.
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As a Supplement
TO THE
GARDENERS' CHRONICLE
FOR
Next Week, April 21,
WILL BE
Published an Ink Photograph
OF A
BAOBAB TREE at QUILIMANE,
East Coast of Africa, and of
CELOSIA PYRAMIDALIS
VAR.



THE
Gardeners' Chronicle.

SATURDAY, APRIL 14, 1888.

THE FORESTRY SCHOOL AT
COOPER'S HILL.

WE have so often advocated the establishment of a properly equipped Forest School in this country as part of the requirements needed for the education and training of foresters, gardeners, and farmers—of all, in fact, who have to do with plant-culture—that we can but rejoice to see some part of the plan in active operation. The whole has been accomplished so quickly and so quietly, that we expect the statement we now extract from the columns of *Nature* will prove new to the majority of our readers, even to those interested specially in forestry:—

"The Forestry School at Cooper's Hill is intended in the first place for the education of a certain number annually of young officers for the Indian Forest Department. The arrangements are, nevertheless, of such a kind that private students are admitted to the forestry course, in as far as space is available, and on condition that they conform to the rules.

"The Forestry School itself consists of a block of buildings attached to the Royal Indian Engineering College, on the brow of Cooper's Hill, near Staines, and looking north over Rannymede and the valley of the Thames. It is within a convenient distance from London, the traveller arriving at Egham (the nearest station on the London and South-Western Railway) in from forty-five to sixty minutes from Waterloo. Windsor Great Park is within a mile of the beautiful and spacious grounds in which the College stands, and the fine trees of all kinds to be met with in the neighbourhood give to the situation much that is desirable for a centre for the teaching of forest botany, and several parts can be made use to a certain extent for illustrating subjects in forestry proper.

The building of the Forest School itself consists of large and small class-rooms, a museum, and the well-designed and appointed botanical laboratory. In this block the students pursue their main studies—botany, forestry, and entomology; their other studies—engin-

earing, surveying, mathematics, geometrical and freehand drawing, physics, geology, and one or two other subjects to be referred to presently—are pursued under the direction of the various Professors in the class-rooms—and laboratories of the Royal Indian Engineering College, to which the Forestry School is attached.

"The forest museum is a convenient, well-lighted room, rapidly filling with useful collections of specimens illustrating the chief departments of forestry. Among the most valuable and conspicuous objects in this splendid collection may be mentioned the series of European and Indian timbers, which are so disposed that the student has ready access to them, while the Professors are able to refer to them in lecturing, and thus make the teaching, in the best sense of the word, practical. Then there is a remarkably complete and interesting collection of implements used in forestry, and there are models of timber-slides, apparatus for catching timber, and other forest works, also so disposed that every student can handle and examine them, and learn their uses with facility. Another valuable feature in this museum is the series of economic products of Indian plants. This is of course not complete, but the greatest credit is due to all concerned for bringing together for such useful purposes so many instructive specimens of fibres, seeds, barks, fruits, food materials, &c., from the chief representative Indian plants; and when it is remembered that the Forestry School is so young in this country (it was started in September, 1885), it is the more praiseworthy that the authorities have made such good use of their opportunities and time. The collections must no doubt receive numerous additions as time passes, for it is well known that a museum takes many years to bring within measurable distance of completeness, but the Cooper's Mill museum is already fairly filled, the nucleus of the collections having been derived from the late Indo-Colonial Exhibition, and from the Royal Gardens, Kew. It would require too much space to enumerate the remaining interesting features of these instructive series of forest objects: specimens of timber showing the changes due to abnormal growths, the healing of wounds, the various injuries produced by unsuitable environment or by the attacks of insects and other living organisms; and last, but by no means least, a unique collection showing the ravages of those fungi which injure timber trees, collected by Professor Robert Hartig, of Munich, and presented to the School, and a collection of the more injurious forest insects, presented by Herr Oberforstrath Judeich, of Tharand. There is also a small herbarium, of a particularly interesting character, containing an excellent series of Conifera and other trees.

"The hotanical laboratory has just been completed, and is, without doubt, one of the best designed small laboratories, for its purpose, that we have seen. It consists of an oblong room running east and west, and lighted from the north and east by windows arranged conveniently for work with the microscope. There are also tables and apparatus for experimental demonstrations in vegetable physiology; provision will exist for cultivating seedlings and plants at constant temperatures, for measuring growth, and for exhibiting the influence of light, gravitation, &c., on the growth of plants; and arrangements for showing the quantities of water given off from transpiring leaves, for developing plants in water-cultures, &c. The students are supplied with microscopes, reagents, and accessories, and are taught to familiarise themselves thoroughly with all modern appliances bearing practically on their studies.

"The above-mentioned block of buildings also includes one small and one larger lecture-room, which are provided with necessary teaching appliances. The series of botanical diagrams especially are remarkably good, and in fact many of them are unique, being the private property of the Professor of Botany, and drawn and coloured by himself. Another feature which must not be overlooked is the projected botanic garden. This will consist of a series of seed-beds, &c., illustrating the raising of

forest trees, and of beds of plants chosen from the most important natural families, in order that the students may familiarise themselves on the spot with their chief characteristics. This botanic garden is now in process of being laid out, and it will be ready for the use of students in a short time.

"The courses of studies followed by the forest students are admirably adapted to the wants of practical men whose lives will be largely spent in the creating, planting, preserving, and using of forest and other trees. Obviously, such a course must comprise several branches of teaching, the one thing common to all being that they bear upon the practical needs of the future forester. That the same training applies to a planter or estate-manager needs no remark, and portions of the course would be suited for others engaged in work in woodlands, and in the colonies, &c. The full course, as at present set forth in the syllabus of studies, is as follows:—

"The student begins work in September, and attends lectures regularly during two academical years. In engineering, he is taught the principles of road-making, and the building of forest bridges and other structures; he is also instructed in the practice and theory of surveying under the care of the Professor of Surveying. In his first year he studies for two terms under the instructor in geometrical drawing, and in his second year receives lessons in the keeping of accounts. To these subjects may be added freehand drawing and a modern language. In addition to these more technical subjects the student attends certain short courses in mathematics and in applied mathematics, under the Professors of these sciences; he also studies physics—in lectures as well as in the laboratory—entomology, and geology. A short course on organic chemistry is now being commenced.

"The rest of his work consists in the special training as a forester, and it may safely be stated that there is no other centre in the empire where so thoroughly and excellently designed a curriculum for a forester or planter can be obtained. The two subjects of forestry and botany are under the care of separate Professors. Dr. Schlich lectures on forestry, dividing his subject as follows:—In the first year he deals with the various soils, climates, and the regulating effects of forests on these; silviculture, artificial and natural woods; the tending, thinning, pruning, &c.; the protection of forests against man and other animals, and especially insects, and against injurious plants, climatic influences, &c. During the second year the student is instructed in the utilisation of forests; the technical qualities of woods; the felling, shaping, transportation, &c., of timber; the utilisation of minor forest produce; the preservation of wood; sawmills; charcoal, &c. He then passes to the study of working plans, and especially the arrangement of cuttings; surveying and mapping forests; measurement and determination of ages of trees and forests; and the methods of regulating the yield of forests. The final course of lectures is on forest law. In addition to the lectures the students also make occasional excursions, under the direction of Dr. Schlich; the neighbourhood of Windsor Forest facilitating this important object, and enabling the Professor of Forestry to make his teaching thoroughly practical.

"In botany, under the management of Professor Marshall Ward, the students are instructed by means of lectures, and practical work in the laboratory and in the fields and woods in the neighbourhood. The course in botany is designed to train foresters, not technical botanists: its aim is throughout practical, and directed to teaching the students exact and thorough knowledge of the life-phenomena of the trees and plants which it will be their duty to rear, and take care of, and utilise in the future. Commencing with a short course of thoroughly practical instruction in the elementary biology of plants selected as illustrative types of the vegetable kingdom, the young student is taught the use of the microscope, and how to apply it practically in examining the tissues of plants. He is then instructed in the organography and anatomy

of plants, learning (not only in lectures, but also in the laboratory and in the field) what the organs of plants are, and what they do; so that roots, stems, leaves, buds, bulbs, tubers, tendrils, thorns, &c., become to him, not mere abstractions, but objects on which his attention will be continually fixed as active parts of plants. The study of cells and their contents, of epidermis and stomata, of vascular bundles and other tissues—of wood, bark, cambium, and so forth—is carried on thoroughly, not only that the forester may know the principles by which to classify and recognise timbers and foreign products, and learn their uses, but also that he may understand what these various parts of the plants do in Nature; how heart-wood is formed, how the timber grows and may be improved, how wounds may be healed over, how the roots take up substances from the soil, and how the plant makes use of them, and so forth. The student concludes his first year's study in botany (in the early summer) by familiarising himself with the names and systematic position of the plants in the neighbouring fields and woods, especial attention being paid to the important trees and shrubs, and their relations to the forest flora of India.

"During his second year the student is instructed in the physiology of plants—how they feed, respire, and chemically change substances in their interior; how they grow, and are affected by light, gravitation, temperature, moisture, &c.; how they are reproduced hybridized, and so on; the effects of various agents, in the production of wood, in influencing the fertility, and so forth. The course is completed by the study of the diseases of plants, and especially of timbers, and how their effects may be minimized or healed.

"As special features of the greatest importance, it should be mentioned that the senior students pay periodic visits under the direction of Prof. Marshall Ward, to the magnificent gardens, museums, and plant-houses at Kew, in order that their knowledge of the important economic plants and their products shall be real. They see the plants growing, learn to familiarize themselves with their peculiarities and habits and uses, and are thus not strangers to them when they land in India. Secondly, the young foresters are taken abroad, and taught what life in the forest really is. At the completion of their first year's studies, they accompany the Professor of Forestry to Scotland, or to the New Forest, or to the Forest of Dean, as may be decided for the year; and at the end of their second year they are taken to the Continent for three or four months' practical work in Germany and France, to examine the systems pursued in the large and more systematically managed forests of those countries, and thus to study the art of forestry in practice under conditions more resembling those met with in the huge and valuable forests of India.

"During the summer of 1887, for instance, the young officers who are now in India were taken to Bavaria, under the direction of Dr. Schlich, accompanied by Prof. Marshall Ward and Mr. Gamble. They visited the magnificent museum and laboratories of the Forestry School at Munich, the Forest of Freising, the Willow nurseries and plantations at Oberberghausen, the Spruce forests at Hohenaschau, and the timber depot at Traunstein. They then proceeded to the Austrian forests of the Salzkammergut; and later to the Forest School and school forests at Nancy, the Cork Oaks and Pine forests in the Esterel, and the Pinus maritima forests on the west coast of France, used for the preparation of turpentine as well as for timber.

"With this practical tour, the training of the young forester in Europe stops, and he departs for India to assume the new duties and large responsibilities of his life as a forest officer under the Imperial Government."

GRASS SEEDS FOR THE LONDON PARKS.—Messrs. JAMES CARTER, and Co. have again been selected to supply their tested grass seeds to form lawns in the London Parks under the control of the Metropolitan Board of Works.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM ROTHSCILDIANUM n. sp.*

This very surprising plant appears to be the nearest ally to *Cypripedium præstans*. Its leaves are unusually long, more than 2 feet in length, $2\frac{1}{2}$ to 3 inches in width, green, glossy, very strong. The peduncle is said to be three-flowered, but may become more florid later. It is reddish with few very short hairs. The green bract is spatheaceous, not equal to half the stalked glabrous ovary, and has a few dark longitudinal stripes at the base. The fresh flower at hand is much smaller than my wild ones, which are quite equal to those of the best of its Papuan consort, *Cypripedium præstans*. Odd sepal cuneate oblong acute, yellowish, with numerous longitudinal dark, almost blackish, stripes, also white at the borders. Lateral sepals united into one nearly equal smaller shorter body. Petals undulate at the base, linear, narrow at the top, yellowish-green with dark longitudinal lines, and dark blotches at the base. Lip like that of *C. Stonei* and *C. præstans*, very strong, almost leathery, cinnamon-colored, with ochre border to the mouth, and with an ochre-coloured mid-line underneath. The most peculiar point is the staminode. It is quite novel. It has a stout base, and rises erect, bending down into a beak-like, narrow process, covered partly with hairs. These hairs consist of rows of cells, and the cells have several girdles of numerous tubercles in their circumference. The numerous hairs are thicker, and white at the top. This staminode looks much like the throat and head of some bird, such as a crane.

It is one of the most astonishing introductions we have ever seen, and is due to the indefatigable zeal of Mr. F. Sander, who is desirous that it bear the name of Baron Ferdinand de Rothschild, of Aylesbury. This I accede to with great satisfaction. *H. G. Rehb. f.*

PHALANOPSIS LEDA, n. hybr.

This attractive novelty has just reached me from Messrs. James Veitch & Sons, of Chelsea, in whose nursery it was raised. The plant is a stray seedling, detected about seven years ago growing in a pot in which no other *Phalanopsis* seed had been sown, so that nothing certain is known of its parentage. It has at present three elliptical-oblong deep green leaves, the last developed being 6 inches long. The flower is over $2\frac{1}{2}$ inches across, much resembling *P. amabilis* (*P. grandiflora*, Lindl.) in shape, and having some yellow at the base of the front lobe of the lip and on the front margin of the side lobes, which points out that species as almost certainly one of the parents. The tendrils are broadly anchor-shaped, like those of *P. Stuartiana* ×, but a little more elongated, while on the inner half of the lateral sepals near the base are some purple spots, both of which point to this or some hybrid of *P. Schilleriana* and *P. Aphrodite* as the other parent. Nothing else would account for the anchor-shaped tendrils, unless, of course, *P. Schilleriana* itself, and the green leaves are more against this than against some hybrid which had already half blood of a green-leaved species in it. *P. rosea* seems out of the question, for with *P. grandiflora* it would give a hybrid much like *P. intermedia* ×, and this, with *P. grandiflora*, gave *P. F. L. Ames*, with the tendrils quite narrow at the base, as would indeed be expected. The side lobes of the lip are of the usual shape, but not pointing a little backward, as in *P. Stuartiana* ×, and with a few very distinct purple spots below the middle, and a few bars of the same colour on the stalk of the lip. Crest yellow, with purple spots, as in *P. Stuartiana* ×. Front lobe of lip densely covered with minute dots of rosy tint, its apex and the tendrils pure white. It is as handsome as others of

the group, which, except in the characters I have pointed out, it closely resembles. If I have interpreted its characters aright, the blood of three distinct species, viz., *P. grandiflora*, *P. Aphrodite*, and *P. Schilleriana*, are represented in it. *R. A. Rolfe.*

THE BULB GARDEN.

PORTUGUESE NARCISSI.

KINDLY permit me to point out an error in a note under the above heading at p. 433. It is there stated that "*N. cyclamineus* was described by Parkinson in 1640, and figured in Rudbeck, *Theat. Flor.*, 20." Now as a fact, Parkinson does not mention *N. cyclamineus* neither in his *Paradisus* (1629–56) nor in his *Theatrum Botanicum* of 1640. The fact is, *N. cyclamineus* is figured by P. Vallett in the *Jardin du Roy*, Paris, 1623, and in the anonymous *Theatrum Floræ* of 1633. The last-named folio was first published in 1622, but I have not seen that edition. It seems probable that this book contains the earliest figure published of this remarkable plant.

The Rudbecks, father and son, published figures of many Narcissi in their great and now rare *Campi Elysi*, 1701, but I need scarcely say that they had nothing to do with the rare folio, *Theatrum Floræ* of 1622–33—a work quite unique in its way, and remarkable for the fine bold and free drawings it contains.

Dean Herbert and Haworth are primarily answerable for confounding or connecting the *Theatrum Floræ* with Rudbeck's name, and at a later date the book became confounded in a similar manner with Parkinson's *Theatrum Botanicum*, in which Narcissi are not even mentioned, as I believe.

I have paid much attention to the literature of the Narcissus, and spent days last year in the British Museum in looking over and tracing figures from the *Campi Elysi* and other rare works. I also especially visited the Sherardian Library at Oxford, wherein Professor Bayley-Balfour most courteously showed me beautiful copies of the *Jardin du Roy*, *Theatrum Floræ*, and the unique copy of the *Campi Elysi*, and other rare books, which I should recommend visitors to the Oxford garden to see for themselves if at all interested in botanical literature.

Having been the first person, as I believe, in modern times to allude to the authenticity of the old portraits of *Narcissus cyclamineus*, I also suggested its being possibly still in existence in the *Gardeners' Chronicle*, 1885, December 19, pp. 789–790, where I observed, prior to the re-discovery of the plant near Oporto in 1886:—"This is such a curious thing, that I give a small tracing of the flower (fig. 185), in the hope that some modern grower after old Daffodils may recognise this as an old friend, if he should perchance meet with it in his rambles during the next spring." As a matter of fact, A. W. Tait, Esq., and his aide-de-camp, Mr. Johnstone, did find it near Oporto "during the next spring," and I regard myself as its godfather in a way, and feel quite proud in having been instrumental in getting the hardy little foundling rechristened in the *Botanical Magazine*, t. 6950.

Both Haworth and Herbert were weak in their literary knowledge of the Narcissi, and both were mainly dependent on the late Rev. H. G. Ellacombe, of Bitton, for cultivated specimens. *F. W. Burbidge, F.L.S.*

VERNAL CROCUSES.

Despite the weather—which has been of a character to seriously impair the beauty of the flowers—the spring Crocuses are very fine this year. The yellows are always the earliest to bloom, and what a wealth of blossom they give. About seven years ago I planted some clumps of the common yellow Crocus in a bed on a north aspect, and the bulbs have so increased that they have grown into large size, and bloom a week or two later than those on the south side. I placed among them, so as to fill a circular bed, some clumps of the Siberian Squill, and I made a permanent edging of white striped and blue Crocuses. This

bed is now a charming floral picture, only that the cold north-easterly wind detracts from rather than adds to the beauty of the blossoms. For massing and for making permanent lines the following are the best varieties of Crocus, viz., the Large Yellow, which should be plentifully used both for the sake of its earliness and also for its rich golden colour; David Rizzio, blue-purple; Ne Plus Ultra blue, edged with white; Pride of Albion, heavy violet-striped; Sir Walter Scott, light violet-striped; and Mont Blanc, white. These are all good old standard sorts of great beauty and usefulness, producing freely large blossoms. There are other varieties of more recent introduction, but those I have named can be depended upon. Early planting is a matter of importance. Crocuses can be had by the first week in September, and they should be planted by the end of October. *R. D.*

THE CROSSING OF FERNS.

(Concluded from p. 426.)

HYBRIDISATION.

A year or two since I was told by one of the most discriminating botanists, Mr. Churchill, that it was now accepted that *Asplenium germanicum* was a hybrid between *A. septentrionale* and *A. rutamuraria*; and as Mr. G. B. Wollaston, of Chiselmhurst, *facile princeps* among British fernists, is entirely of the same opinion, the idea cannot be lightly regarded. I am told that *A. germanicum* is never found where *A. septentrionale* and *A. rutamuraria* are not found, and that where these two species abound it is very rare not to find *A. germanicum*—that it is never found extending over a considerable space as ordinary species do, more or less, but in detached clumps or isolated plants as hybrids, having a difficulty in reproducing themselves, might be expected to do. It is reputed to be barren, and yet it is on record that Sim of Foot's Cray once raised a variety from it, recorded as "*acutidentatum*" both by Mr. Moore and Mr. Wollaston; it cannot therefore be said that it is impossible that a spore might not be thrown from one of such hybrid plants with sufficient constitution and general fitness for survival to establish a new race. There is also the case of *Lastrea remota*, of which four plants were found growing in a clump in Westmoreland, by Mr. F. Clowes, about thirty years ago; nor has it been found elsewhere in this country; it has long been accepted by British fernists as a natural hybrid; though apparently profusely soriferous, it has, after what might have been considered exhaustive experiments, been considered incapable of reproducing itself from spores, and yet it is, I believe, sufficiently established that one of the original plants which Mr. Stansfield has, did once cover the pot in which it was with fertile spores and though the young plants may not yet be in every respect entirely like the parent, they are, I believe, sufficiently unlike every other British Fern to prove their origin: and would it not be unreasonable to conclude that not one of these could have power to reproduce itself with ordinary freedom?

The remarkable "confluent" forms of *Asplenium Trichomanes*, as fertile in appearance as they have hitherto shown themselves to be barren in reality, are considered by those who have most studied the subject to be hybrids, as are also the "microid" forms of *A. Adiantum nigrum* and *A. lanceolatum*. There is also the unique cruciate *Asplenium*, which appeared self-sown in Mr. Clapham's fernery, and the remarkable hybrid *Asplenium* found by Mr. Wollaston in Switzerland. There are two or three other forms marked apparently with the bar sinister, but I pass to less doubtful cases.

To Mr. E. J. Lowe is due the credit of having been the first to raise an unmistakable hybrid between two acknowledged species, which was neither a monster of ugliness nor incapable of reproducing itself from spores. It was no accident, for with deliberate intent Mr. Lowe set himself to produce a cruciate *Polystichum aculeatum* by crossing a very narrow cruciate

* *Cypripedium Rothschildianum*, n. sp.—Affine *Cypripedium præstans*: pedunculo minute velutino; sepalis oblongis acutis margine ciliolatis; tepalibus basi undulatis linearibus antrorsum attenuatis, labello ultra bis superantibus; labello coriaceo bene angulato, calcei ore retuso; staminodii petiolo crasso, corpore lineari deflexo, superficie hinc capitato pilosa. Ex insula Papuan. imp. exc. Sander. *H. G. Rehb. f.*

form of *P. angulare*, well known as *Wakeleyanum*, with a very robust form of *aculeatum*, equally well known as *densum*—two more marked forms could not have been selected. In his first sowing he was rewarded with four plants as narrow and symmetrically cruciate as *Wakeleyanum*, with all the coriaceous texture, the glistening colour and decurrent pinnules of *P. ac. densum*; and on repeating the same experiment he was rewarded with two other plants. A grander form does not exist among British Ferns—the most convincing proof of which lies in the simple fact, that even people quite ignorant of Ferns hardly ever pass by the plant which Mr. Lowe kindly gave me without remarking, to my disappointment, that it is the most striking plant in my collection! The judgment passed by Mr. Lowe on this form is that it is barren, and so the plant with which he has himself experimented may be; but I have equally good grounds for knowing that the plant he gave me is not so, for it has been proved by myself and others to be easy of reproduction from spores. If this distinction between two of these plants be real, it will be recognised as a most instructive fact, and I should also mention that a batch of seedlings, raised from another of Mr. Lowe's four plants by Mr. Carbonell, were, without exception, *præmorse* and dwarfed. Nor is it without interest in connection with this matter, to mention that Mr. E. F. Fox once raised from a magnificent plant of *P. ac. densum* an abundant crop of plants almost entirely *præmorse* and dwarf. But, it may be said by some, "After all, this only proves that *P. aculeatum* and *P. angulare* are forms of the same species." If so, I will simply ask them to define clearly and fully what a species is.

Subsequently to this two other instances of a clear cross between these two species have occurred. Mr. E. F. Fox, from a sowing of a very marked form of crested *angulare* raised accidentally about a dozen plants of *P. aculeatum*, in which the peculiar cresting of the *angulare* in question was reproduced in an unmistakable manner—the crossing having evidently been effected by stray spores from an almost normal plant of *P. aculeatum*, growing in close proximity with the plant from which the spores had been gathered; and I myself raised two plants in which the polydactylous cresting of an *angulare* reappeared in a decided *aculeatum*—a polydactylous *aculeatum* having been previously unknown.

Nor should Mr. Stabler's remarkable *Lastrea* (so well known as *L. f. mas Stableri*) be passed over here; it has been universally regarded by fernists as a cross between two species of the male Fern, the marked character of *L. f. mas Barnesii* being transferred to the more solid substance of *L. ps. mas*. It is easily reproduced from spores.

CROSS-BREEDING.

So far the crossing of species, or hybridisation proper. I will now take a few of the most marked instances of the crossing of varieties, nor will I mention any with regard to which doubt could be likely to arise in any reasonable mind, and I will not confine the instances to any one species.

Years ago, returning from a successful hunt, Mr. Barnes thought he would put to the test the suspicions regarding the crossing of Ferns, of which he could not rid his mind; he accordingly chose two of the most marked forms of *Lastrea propinqua*, both of his own finding—(1) a truncate form, whose claim to distinction lay in the entire deficiency of the upper part of the frond (to the extent of about a third); (2) a very symmetrical crested form, the best of its class—*L. p. cristata* of Barnes. Spores of these were sown together and the result was, I should think, sufficiently conclusive—one plant being an exact reproduction of the truncate form with the addition of the cresting of the pinna; other plants resembled the crested parent, with depauperation so slight as not to affect the general symmetry of the frond; and there were all intermediate forms between these. Another successful cross of Mr. Barnes was between two perfectly distinct forms of *A. F. femina* *Frizelliae* and *Craigii*. *Frizelliae*, as is well known, has a way of occasionally sending up a normal

frond, and the crested forms of *Frizelliae* produce also crested fronds; but the plant of *Frizelliae* in question, whenever it attempts to revert, or rather to show its other parent, sends up an unmistakable frond of *Craigii*, a thing never seen before.

Mr. Moly's most marked instance of crossing was with a *Scolopendrium*. He had found a very remarkable variegated form, with bright green bands on a white ground, the latter presenting the appearance of being deficient in one of its tissues, the green portion standing out above it. Mr. Moly was not quite satisfied with this Fern, thinking it too narrow, so he sowed it with a broad form, "*fissum latum*" of Moly, with a view to a cross; and he got a plant of *fissum latum* variegated in the unique manner above referred to.

An experiment by Mr. Mapplebeck with *Scolopendrium* was not less remarkable. He sowed a conglomerate form with a form of *periferens* with astonishing results. In several of the plants the conglomerate character was retained, but in many cases little pouches were distinguishable at the extremities of the leafy portion. It is well known that the conglomerate forms have a way of occasionally throwing a normal frond, but in the case of these crosses fronds of simple *periferens* were thrown, truncate with horn and pouch. Another very striking cross of Mr. Mapplebeck was with *Pteris aquilina*. I had myself raised a crested flexuose *P. aquilina*, a cross between *P. a. cristata* of Glover and the flexuose form (*glomerata* of Jacob Jones). Mr. Mapplebeck was so much struck with this plant that he determined to try the same experiment, using spores from his own garden. He raised at least three plants of the same cross—one much more marked than my own.

Mr. Stansfield's first experiment was with the cruciate form of *Athyrium Pritchardii*. Thinking that a crest at the end of the frond would be an improvement to it, he perseveringly sowed crested forms with it until he succeeded in his wish; he tried the same experiment with the congested form, *Grantia*, with similar success. The cresting of *Feras* is, of course, no absolute proof of a cross, as it is known to result in many cases from natural development; but the following case speaks for itself:—Mr. Stansfield sowed his own splendid plumose form of *Athyrium* with *Craigii*, and he produced an unmistakable plumose *Craigii*. It was barren, and papery to an extreme; and, as if to settle for ever all doubts as to its origin, it produced last year a frond of the typical plumosum, simply crested, without a taint of *Craigii*, except the cresting. Mr. Stansfield also raised a remarkable cross between *A. F. f. congestum* and *Craigii*.

It is difficult to say whether Mr. Lowe's crossings of *Scolopendrium* or *Athyrium* were most marked. In the former almost every conceivable combination of undulatum, multifidum, marginatum, and muricatum are to be seen in his garden; and it is the same with *Athyrium*. It was Mr. Lowe's extraordinary combinations between *Victorie* and *proterum*, with crested forms, which roused Mr. Clapham to exertion.

Mr. Clapham confined his experiments to *Polypodium vulgare*, his most marked success being with the finely-cut *Davallia*-like form known as *cornubiense*; he sowed with this a multifid form of *bifidum*. Here, again, the proof is conclusive. *Cornubiense* is well known to have a habit of partial reversion—sometimes it is the whole frond, at other times it is a portion only that reverts; these crosses of Mr. Clapham (of which there were about six) revert to an ordinary multifid bifid frond, while the finely cut portion is forked at the apex of the frond and the apices of the pinnae, exactly as was to have been expected in such a cross.

I come now to my own experiments, and I must admit that they were originally the result of accident, and that I am mainly indebted to the late Rev. C. Padley for the materials with which I worked; nor can I mention the name of one who was so accomplished a naturalist, and so ardent, discriminating, and successful a fernist, without recording that to none of the southern hunters are the lovers of Ferns more indebted than to Mr.

Padley, for he was as generous as he was successful. The late Dr. Wills was another of this class; and if one mentions in connection with these and with those before mentioned, the names of Dr. Allchin, Mr. Grey of Exeter, Mr. Jackson of Barnstaple, Mr. James of Vauvert, Mr. Clowes of Windermere, and Mr. Phillips of Belfast, one will have mentioned all the original pioneers to whom the present and future generations of British fernists are most indebted.

Mr. Padley had given me, among others of his best Ferns, three very marked forms of *P. angulare*, his polydactylum from the Vale of Avoca, his multilobum ovale (the divisions of whose pinnules are not less marked than pretty), and his *inaequale variegatum*, an entirely unique form. Being very much struck with the superiority of this polydactylum over all other crested forms of *angulare*, I sowed it freely with other forms, but keeping a record. Without expecting a cross I sowed it with the cruciate form of *angulare* before mentioned (*Wakeleyanum*), and I got two plants of a polydactylous cruciatum. I sowed it with multilobum ovale, and got four plants of polydactylum with pinnules divided in exactly the same way as multilobum ovale; and I sowed it with *inaequale variegatum*—the result being five plants of a character so marked as to be conclusive. Convinced at last of the reality of crossing, I sowed in faith; and as Mr. Fox and Mr. Carbonell followed on the same lines, there is now hardly a distinct form of *angulare* that is not polydactylous; there are now polydactylous divisilobes, there are frondose and decomposite forms; forms, also, of lineare, congestum, and flexuosum all polydactylous. Mr. Fox's most marked success was, perhaps, his polydactylous congestum, of which he raised many plants; but his cross of *Athyrium F. f. reflexum* with *Craigii* is not less marked. Mr. Carbonell's crosses between *P. ang. divisilobum* of Padley, and *grandiceps*, Moly, and crosses between polydactylum of Padley and other forms, are well worthy of note.

It is, I think, now perfectly clear, that it only requires patience and ordinary skill to effect endless crosses between almost every species, for there is hardly a species of British Fern in which there are not now sufficient varieties to begin with, and there are several species in which an addition to the existing varieties would well repay any exertion—for instance, in *Osmunda regalis* *Pteris aquilina* and *Lastrea recurva*. On the other hand care should be taken to discriminate between what are really new varieties and mere trifling differences, and this partly from a sense of justice to others and partly to prevent flooding collections with interminable repetitions. The practice of raising from well known forms and putting in a claim for the general result is as little to be defended on grounds of logic as of morality. Surely there should be a generous rivalry between all engaged in such a pursuit to accord to others what is their due.

HOW TO EFFECT A CROSS.

It only remains to give a few hints how to ensure the greatest chance of success in crossing. It is clear that the closer the juxtaposition of the prothalli the greater the chance of the antherozoids from one prothallus straying on to another, therefore thick sowing is a consideration; but as thick sowing is a fruitful cause of an unhealthy state of the prothalli (which is generally the destruction of the whole), extreme care should be taken to ensure healthy conditions in every respect. And first perhaps in importance is it that spores only should be sown; for this purpose it is best to have an abundance of spores and so to manipulate them as to sift them well with care and the skill which comes easily with a little practice, and this can be done so that practically only spores remain. But even more important than that is it that the spores, which it is intended to cross, should have come to maturity about the same time; for it is well known that spores that have been gathered some time do not germinate so soon as those that have recently dropped, and of course, unless the prothalli are fit for fertilisation at the same time the whole chance of crossing is lost.

Other probable aids to crossing may be a judicious watering overhead just at the right time, and possibly it may be a further help either to sow on an incline, or afterwards to tilt the seed-pan. I have only, in conclusion, to add, that where so much is necessarily dependent on chance, one must not be too sanguine; with care, however, and perseverance, results are certain to follow in due course. *A. M. Jones, Clifton.*

ROSES.

THE MASSING OF ROSES.

SYMPATHISING fully with "Rosa's" main contention on p. 362, it is not necessary to stop to inquire how, if the terms group and mass are not synonymous, "by a group we mean a mass"—but some of the unaccountable omissions and recommendations of sundry Roses in the list of varieties selected for massing cannot pass unchallenged. Taking the classes and names *seriatim*, although Fellenberg is given twice over, a conspicuous omission is made among the Bourbons in not mentioning Rev. H. H. D'Ombraïn, a most valuable variety, fine in form and colour, early blooming and perpetual, very hardy and fragrant, and which might probably well replace Souvenir du Baron de Rothschild. Among the Noisettes, again, Triomphe de Rennes in most localities is too tender and not free enough to be valuable, and is not wanted with Caroline Kuster; while no mention is made of the unique and delightful Ophirie, nor of Rêve d'Or.

To be able to describe Pierre Gnilot as a "vigorous-growing Rose," "Rosa" must have an easy conscience or an extraordinary climate; and Madame Etienne Levet has such little sparse foliage, and its flowers, although bright in colour, are so constantly malformed, that it is of little value. Moreover, to include Her Majesty among the hybrid Teas is unnecessary and confusing; and W. F. Bennett is absolutely useless out-of-doors.

Of Belle de Bordeaux it may be said that it lacks brightness, freedom, and fragrance; Adam is generally better under glass than outside, and might well be replaced by Madame Lambard; and if a "dash of crimson among the Teas" be wanted, there should be grown Souvenir de Thérèse Levet and Princesse de Sagan rather than Duchess of Edinburgh, which, though very pretty, is hardly more than an improved pink China. Alba rosea (which should be called Madame Bravy) may be objected to as ineffective, on account of its pendulous flowers, Devonensis as lacking vigour and freedom, Etoile de Lyon as in many localities refusing to expand, Letty Coles as lacking vigour, freedom, and refinement; Marie Sisley is a charming Rose, but not very free or effective in the garden, any more than Souvenir de David. Madame Lalort is not very well or generally known; perhaps "Rosa" will kindly describe it, and give its date and raiser.

Of the above, Devonensis might be replaced by the Hon. Edith Gifford, Etoile de Lyon by Perle des Jardins, Marie Sisley by Souvenir de Gabrielle Drevet, with the addition of Jean Ducher and Francisca Krüger.

Of white hybrid perpetuals, Madame Lacharme is not easy to do well, and is in many seasons impossible; but for effect in the garden Gloire Lyonnaise replaces it to admiration, and Violette Bouyer is the best of all white hybrid perpetuals, and is not Merveille de Lyon worth growing?

Beauty of Waltham lacks brightness, and its somewhat pendulous habit is against it; Crimson Bedder is useless, being a poor grower, getting smothered with mildew, and its flat flowers lacking all form and refinement; John Bright is brilliant enough, but, like his namesake, is far too retired, and is practically never seen in autumn; while Star of Waltham, a magnificent Rose at its best, is neither free growing enough nor sufficiently constant to make a reliable and effective group in the garden. Duc de Cazes has long been worthless; Duke of Wellington, though exquisite, lacks vigour; and

Felix Genero has in its flowers about as much "dark crimson" as an ordinary roofing slate, being, in fact, with its rotund blossoms, of a dingy muddy greyish-pink colour—about as ugly a Rose as the world has ever yet seen.

Boieldieu, though fine at its best, is none too free, does not always get sunshine enough to open it, and is sometimes coarse; Madame Charles Crapelet is a lovely Rose, but lacking in vigour and hardiness, as may be said of Victor Verdier; and Penelope Mayo is too small and neither sufficiently vigorous nor distinct to be worth growing. "Rosa's" arrangement of colours is a little puzzling, but the omission of Ulrich Brunner, the most magnificent Rose of its colour, of the indispensable General Jacqueminot, and of Glory of Cheshunt, appears quite unaccountable.

The Rev. J. B. M. Camm is a pretty Rose, but lacking vigour, endurance, and distinctness of colour, and it might well be replaced by the ever-blooming Grace Darling. Abel Grand should give way to the peerless Madame Gabriel Luizet; and Anna Alexieff, Anna de Diesbach, Julie Tonvay, Heinrich Schultheis, Henri Ledechaux, not to mention Charles Lamb and Garden Favourite, would all of them eclipse five of the other rose-coloured Roses recommended by "Rosa." Of the blush Roses, the objection to Comtesse de Serenye is that it is rarely fit to see until late autumn; Mrs. Rivers is an insignificant little Rose, lacking vigour, size, and freshness; Madame Vidot, though beautiful when obtainable, is entirely lacking in constitution; and Thyra Hammerich is of no value where Baroness Rothschild can be grown.

There are two groups of Roses not referred to at all by "Rosa," namely, the miniature but prolific Polyaantha Roses and the Austrian Briars; yet the former afford the most splendid masses of bloom throughout the whole season, two of the best varieties being the pink Mignonette and the pure white Pâquerette; while the Austrian Briars, though not autumnal, are so unique and striking in colour whether the single or the double forms be employed, that they constitute some of the most valuable material available in the massing of Roses. *Theta.*

ROSE MADAME FRANÇOIS JANIN

is a general favourite with every one who has had the pleasure of seeing it at Lord Brassey's, Normanhurst, Battle, growing on the back wall of the Rose-house, where it has been growing for the last twelve years, covering a space about 16 feet by 12 feet high, with a crop of nearly 2000 buds of a lovely apricot colour, the bulk of which are produced in trusses of fours and fives, as you will see from the enclosed, which Mr. Allen cut on Wednesday morning, April 4. As I have witnessed this Rose for several years it seems to produce the same abundant crop every year, and seems in every way superior to Wm. Allen Richardson, both of which are growing side by side in the same border, the latter only producing flowers singly, and not so rich in colour. *J. D.* [This note was accompanied by a specimen cut on Wednesday, but which, from various circumstances, did not reach us till the Saturday night following, when it was taken out and put into water, and shortly recovered itself so as to make us able to endorse all that our correspondent says in its praise. Since this was written we have received fresh specimens of this lovely free-flowering Tea Rose direct from Mr. Allen. It was sent out by Levet in 1872, and has pale orange-apricot flowers, beautiful alike in bud and when full-blown. We hope to hear from Mr. Allen some particulars as to his method of culture, which is evidently so successful. *Ed.*]

NEW HYBRID ROSE, MADAME G. BRUANT.

Having informed the raiser of the above-named new Rose of the doubts expressed as to its being really a hybrid at all, or anything else but a seedling white Tea Rose, expressed by your correspondent "Wild Rose," in a note appearing on p. 310 of your issue for March 10, he writes me that he thinks your correspondent cannot have seen the growing plant or

its vigorous and extremely thorny wood, or he would have no doubt of its being a hybrid, and partaking largely of the nature and appearance of its maternal parent—*Rosa rugosa*. In further proof of its being a true hybrid Monsieur Bruant states that his new Rose is invariably sterile, as very many hybrids usually are; and also that the flower, though closely resembling that of a Tea Rose, is not exactly similar to anything known to him. It is to be hoped that when this interesting novelty blooms during the coming summer—as it may be expected to do in the gardens of many readers and correspondents of the *Gardeners' Chronicle*—that these doubts and uncertainties will be set completely at rest. *W. E. G.*

NEGLECTED ROSES.

I have read with much interest the remarks of "Wild Rose" and other correspondents on the subject of Roses, whether they are or are not neglected, as the matter carries me back to bygone days and to varieties which then used to figure in the winning stands at Rose shows, some of them helping to gain honours for myself. I have looked out for one which has not been mentioned, viz., Souvenir de Monceau, which, although a good Rose, is not to be found in catalogues [It is in the *Dictionnaire des Roses*], unless under some other name. It is H.P. in the strictest sense of the word, being about the first to begin to bloom and the last to finish, and in favourable seasons I have cut fine buds at nearly the end of the year. If "Wild Rose" can give me any information on this point it will be very acceptable. The plant has smooth wood, and in style and colour the bloom resembles Alfred Colomb or Senateur Vaisse, but is not so bright. The scent is, to my mind, such as a good Rose ought to possess, but which many are deficient in. I first saw the Rose about 1860, as nearly as I can recollect; at that time it was thought to be a grand Rose. I have grown it ever since, and I still have the original plant. *W. Divers, The Gardens, Wierton Place, Maidstone.*

While it is very desirable that Roses which have the merits of hardness, vigour, freedom of bloom, and brightness of colour, should not be neglected because they lack the perfect form of modern varieties, it is equally desirable that Roses should not be recommended merely because they are old. Nevertheless, "F. P." in endeavouring to supplement (on p. 362) "Wild Rose's" carefully selected list of neglected Roses, hardly seems to have borne this in mind, for it is neither possible nor desirable to re-instate in public favour a Rose like Géant des Batailles, for instance, which, though of immense historical interest to the rosarian, is of no value nowadays to the general grower, on account of its being the reverse of vigorous, a perfect victim to mildew, not very bright or distinct in colour, and lacking form and freedom. Most of the same objections apply to Mrs. Rivers, which has small round flowers of a dingy slaty-white colour. Neither Pio Nono nor William Griffiths would be likely to find much favour with rosarians who had grown the modern varieties that have superseded them in their respective colours; and Duchess of Norfolk, though fresh-coloured, is neither very double nor free; Bourbon Queen can hardly be called "neglected," while the Boursault approaches more nearly to dreary insipidity than any other Rose.

It is inconceivable that any of "F. P.'s" selection should be planted in a collection that was to consist of not more than fifty plants; and probably, as far as ninety-nine out of every hundred Rose growers are concerned, not one but all the varieties enumerated, with two or three exceptions, "might cut" if only they would never "come again." *Theta.*

[We quite endorse our correspondent's views. *Ed.*]

ROSE SHOWS IN 1888.—In addition to those announced at pp. 306, 330, there are the following, kindly sent by Mr. Edward Mawley:—July 4, Hitchin; Tuesday, July 10, Tunbridge Wells; Thursday, July 12, Birmingham, Carlton-in-Work-sop, and Oxford; Saturday, July 14, Gloucester (the date of this show is not yet definitely fixed); Monday, July 16, Newcastle-under-Lyne; Tuesday, July 24, Tibshelf.

EUCALYPTUS URNIGERA.*

From time to time we have published in these columns illustrations of those Eucalypti which may be considered fairly hardy in this country; we have now the pleasure, thanks to the kindness of Mr. J. Garret, the gardener, Whittinghame, Prestonkirk, East Lothian, Scotland, of figuring a species which we think may fairly claim to be the hardiest of any. It is a species which, in its immature state, has been confounded with *E. Gunnii*, but differs from it in the form of the fruit. *E. urnigera* is a native of the summits of the Tasmanian mountains, where, according to Sir Joseph Hooker, it forms a small tree 15–20 feet in height.

The specimens forwarded to us have slender twiggy branchlets spreading at an angle of about 50°, covered with smooth olive-green bark. The alternate leaves measure about 3 inches in length by three-quarters of an inch in breadth, and are uniform, coriaceous, narrow, lanceolate, somewhat curved, dull green on both surfaces, with a prominent midrib, and faintly crenulate margins. The leaf-stalks are about 1-inch long, slender and compressed. The flower-stalks are less than half an inch long, and bear a three-flowered cyme, or (by abortion) only a single flower raised on a short pedicel. The buds are pyriform, with a small conical peaked calyx. The fruit measures about half an inch in length, is cylindric, narrowed at the neck, slightly expanded at the top.

We suspect the tree now figured (fig. 65) is the one alluded to by Rev. D. Landsborough in the *Trans. Bot. Edinburgh*, 1887, p. 21, under the name of *E. Gunnii*, which he says is now more than 60 feet high in spite of having been cut to the ground by frost in 1860. Seedlings from this tree have been raised in the Edinburgh Botanic Garden by Mr. Lindsay.

Of *E. urnigera* Baron von Mueller says:—"It is particularly hardy, and may become of sanitary importance to colder countries in malarial regions, the foliage being much imbued with antiseptic oil; greatest height 150 feet, circumference 18 feet."

The figure in the *Flora Tasmania* is so similar to our present plant that it might have been taken from the same specimen. The leaves, however, in the native state are variable in character, ranging from broadly ovate to linear, and with a small deciduous spine at the apex; and those who know most about the plants in question are the most chary in giving an opinion as to their identity. Baron von Mueller even speaks of specimens which form a transition between this and the very different looking *E. cordata*.

FLOWERS AT PANSHANGER.

BEAUMONTIA GRANDIFLORA.—This beautiful plant is in great beauty on the roof of the Banana-house in the gardens of the Right Hon. Earl Cowper, where, under the skilful management of Mr. R. Ruffett, it has caused an increasing amount of attraction for the last five years or so, and at present forms one of the most charming of floral displays with its upwards of 5000 flowers, like immense white Gloxinias. The flowers are borne on stout woody lateral growths, and in clusters of from fifty to 150 together, each cluster forming, as it were, a bouquet which is kept fresh for a considerable time by constant successions of flowers from buds on the truss. It is a sight well worth a journey to Panshanger. [In our issue for May 8, 1886, a full page illustration, taken from this plant, was published. Ed.] Other climbers on the roof or round the sides of this house (which may be called a warm greenhouse), now in bloom are *Passiflora racemosa* with long racemes of red flowers, *Stigmaphyllon ciliatum*, whose flowers at a distance much resemble those of a yellow *Oncidium*; *Combretum purpureum*, one of the finest of climbers, with dense heads of blood-red flowers; the favourite blue and white *Thunbergia Harrisoni*, the white

Dipladenia boliviana and other *Dipladenias*: *Clerodendron Balfourianum*, &c., the whole making a fine effect. There were also the scarlet *Euphorbia Jacquiniflora*, the Gardenia-like *Tabernaemontana*,

Cut flowers here, as in most other large places now, are much worked for, and the well-filled and orderly-kept houses give ample testimony that Mr. R. Ruffett is an adept at the work. Among the Orchids in bloom are *Vanda suavis*, *Dendrobium Dalhousianum*, *D. chrysotoxum*, *D. fimbriatum*, *D. f. oculatum*, and several species of *Oncidium* and *Cypripedium*. The Azalea-house, too, is well furnished with flowers, and made all the more attractive in that the white, pink, and red colours of *A. indica* are varied by the exquisite yellow, buff, and copper-coloured tints of *A. mollis*.

A well-bloomed batch of *Amaryllis* contains many good varieties, but they only serve to show up the excellence of *Empress of India* (Veitch), the largest specimen of which has eight flowers, massive, dark scarlet, with a white star in the centre. Other bulbous plants in bloom are some fine pots of the pretty *Veltheimia viridifolia*, of *Freesia refracta* and *alba*, *Sprekelia formosissima*, *Eucharis Sanderiana*, and the usual bulbs grown for flower at this season. Among the other good batches in flower or bud are some excellent *Cliveas*, *Crassula jasminae*, *Cape* and other *Pelargoniums*, &c. Ferns are also well represented, and the walls of the Pine pits, which are densely clad with *Adiantum Capillus-veneris* show our old friend in its most charming aspect.

Decorative plants in thumb-pots are a noteworthy feature with Mr. Ruffett, who grows for indoor decoration all kinds of suitable plants in the smallest pots, a constant succession being kept up, so that each may be thrown away when once used. For this purpose *Crotons*, *Fittonias*, *Cyrtodeiras*, *Dracanas*, *Ferns*, *Acalyphas*, *Coleus*, *Panicum variegatum*, and many others are employed, and it is found much easier to maintain a supply of young stock than to trouble with the plants which have been damaged by use. Outdoors things here are as elsewhere backward, but yet there is a pleasing show of colour with *Crocuses*, *Chionodoxa Lucilia*, *Scilla bifolia*, *S. sibirica*, *Erythroniums*, &c., and many other hardy flowers, which only await more genial weather to burst into bloom. J. O'B.

FOREIGN CORRESPONDENCE.

TERRACE PLANTING ON THE GENOESE RIVIERA.

THE ROOT RESPIRATION OF PLANTS AND TREES.—I have been carrying out horticultural experiments for the last quarter of a century, in winter, in my rock garden near Mentone, and have only recently discovered that I have all along been making a great mistake. I have spent hundreds of pounds in making masonry walls to support the mountain terraces, to contain the soil laboriously collected behind them, not recognising the fact that these masonry walls interfere with the respiration of the plants and trees by their roots. Thus, they arrest and stunt their growth, instead of favouring it. This important fact finds its appliance, I believe, at home, as well as on the shores of the Mediterranean. Are not plants and trees planted in conservatory borders surrounded with cemented walls like plants in glazed pots, placed in unfavourable vital conditions? [Yes, decidedly.]

In every region of the Mediterranean the rocks and mountains are terraced by walls built of rough stones, without mortar or cement. The Olive trees, and all other trees and shrubs, are planted in a sparse soil behind these rubble walls, where they thrive. The Olive trees more especially form cartloads of ligneous roots behind these dry walls. After the heavy rains of autumn and spring, above all, if the terraces behind them have been deeply trenched, these rubble walls frequently fall, and thus put the owners to great expense. This has often occurred to me because I trenched my rocky terraces as deeply as I could. So I early determined to put a stop to such dilapidations by replacing every rubble wall that fell by a strong thick masonry one. I merely made drainage holes at the bottom, and sometimes not even that, trusting to the rock crevices for drainage. As years have passed on I have discovered that the



FIG. 64.—EUCALYPTUS URNIGERA FROM WHITTINGHAME, SCOTLAND: REAL SIZE: FLOWERS PALE YELLOW.

and different varieties of *Begonia nitida*; a fine bush of *Psychotria jasminiflora*, covered with white flowers, and some magnificently grown *Eucharis amazonica*, which, with other flowering and foliage plants occupying the body of the house, complete the display.

* *Eucalyptus urnigera*, Hook. fil., *Lond. Journ. of Botany*, vi., 477; *Flor. Tasmaniae*, i., p. 134; Baron von Mueller, *Eucalyptographia* (*E. Interleptophloia*).

trees and shrubs planted behind these walls attain a certain development, and then cease to grow. This arrest in development takes place often, if not generally, although they are apparently in the most favourable condition. They have more soil and more moisture than others planted in more unfavourable conditions in but little soil, behind crumbling broken walls, scorched and dried by the sun. Yet these latter thrive best. This observation forced itself upon me in every part of my seven-acre mountain domain.

What is the reason? Once the observation

morial, quite independently of the cost question. I have a Palm, a *Phoenix dactylifera*, planted twenty years ago which has become a large tree, with a trunk 6 feet in circumference, and which bears farinaceous Dates that ripen every year. It is one in a row of ten planted the same week, not one of which is one-tenth of the size. I was long perplexed at the extraordinary difference, until one day my gardener found the Palm roots in the tank of a conservatory 15 feet below, on the other side of a masonry wall 3 feet thick. The roots had forced a passage underneath the wall, and entered the reser-

No doubt the exuberant vitality and great size of trees planted on the slopes of mountains in all parts of the world is greatly due to this cause—to the roots being able to breathe, owing to their exposure to the air. I have lately had a very interesting illustration of the way the roots of trees planted on the level, and that usually keep near to the surface, develop themselves if they can reach the air. I have made a rockery over a bank about 10 feet high on a slight slope, beginning at the edge of a terrace planted with Orange and Lemon trees. I had occasion to remove a Lemon tree planted above the rockery from this terrace, and also to remake the rockery. I found the Lemon tree had passed roots 10 feet long or deep in the soil immediately behind the rockery. Lemon and Oranges planted here on the level do not descend more than 2 or 3 feet from the surface. But finding air to breathe behind the rockery the roots had gradually descended to the water level. Consequently the tree was most flourishing.

At this present moment my gardeners are manuring the Lemon and Orange trees according to the traditions of the country, and in a way that strongly corroborates this view. A trench is dug about 1 foot deep and 2 or 3 feet broad at a distance of 1, 2, or 3 feet from the trunk of the tree according to age and size, dividing the surface-roots only. In this trench is placed the manure: the best for these trees is considered to be horse-hoof parings. From 8 to 12 lb. are given to each tree according to age and size, say, 10 lb. to a twenty-year-old tree. To this is added stable-manure. The hoof-parings are first spread out in the trench, the stable-manure spread over, and the earth is then thrown in, and firmly pressed down. A good watering follows. In summer a saucer is made round the foot of the tree during the time of artificial irrigation. Before this saucer is made, the depth of soil over the manure is not more than 10 or 12 inches when the saucer is made there is not more than 6 or 8 inches. Thus the new roots are enticed up to the surface and breathe freely, on the level, just as mountain plants breathe on the sloping precipitous surface. Enlightened by experience and reflection I mean to break up most of my masonry walls, and riddle them with breathing holes.

I may remark that this Southern mode of treating fruit trees admits of application everywhere, especially in poor sandy soils. At my Weybridge garden (Bagshot sand), I had many Pear and other fruit trees perfectly healthy, that flowered every year but without any result. The fruit either did not set, or fell. I adopted the Riviera Lemon tree plan, and had a good crop of fruit the first year. I found the roots straggling about in all directions in the sandy soil far beyond the reach of the manure applied in the usual way.

At Weybridge I had an orchard-house, 50 by 30 feet, for Grapes and Peaches, with a large central bed, and side beds all round—I found, as I believe every one else does, that the Vines did best planted out in Vine borders, and introduced into the house. The Vines planted in the beds inside never did well, or at least never produced such good Grapes, or in abundance, as did those planted outside. The Peach trees also planted out in these inside beds did not satisfy me; the quality was good, but the quantity generally deficient. May not the cause have been deficient root-respiration owing to the beds being confined in cemented brick walls? May not this be an universal error in the formation of beds and border inside conservatories and orchard-houses? Ought not these beds to be built at least 2 feet from the surface, with rubble or with corks, so disposed as to leave large orifices, one-half or one-third of the area, for root respiration?

I have here, at Grimaldi, a conservatory with a large central bed, meant for choice Roses, intended to flower between the middle of February and the end of March—one short season with Roses, but they have never succeeded. May not the cause be the masonry walls, Roman cemented, that contain the border, and entirely prevent the deeper roots breath-

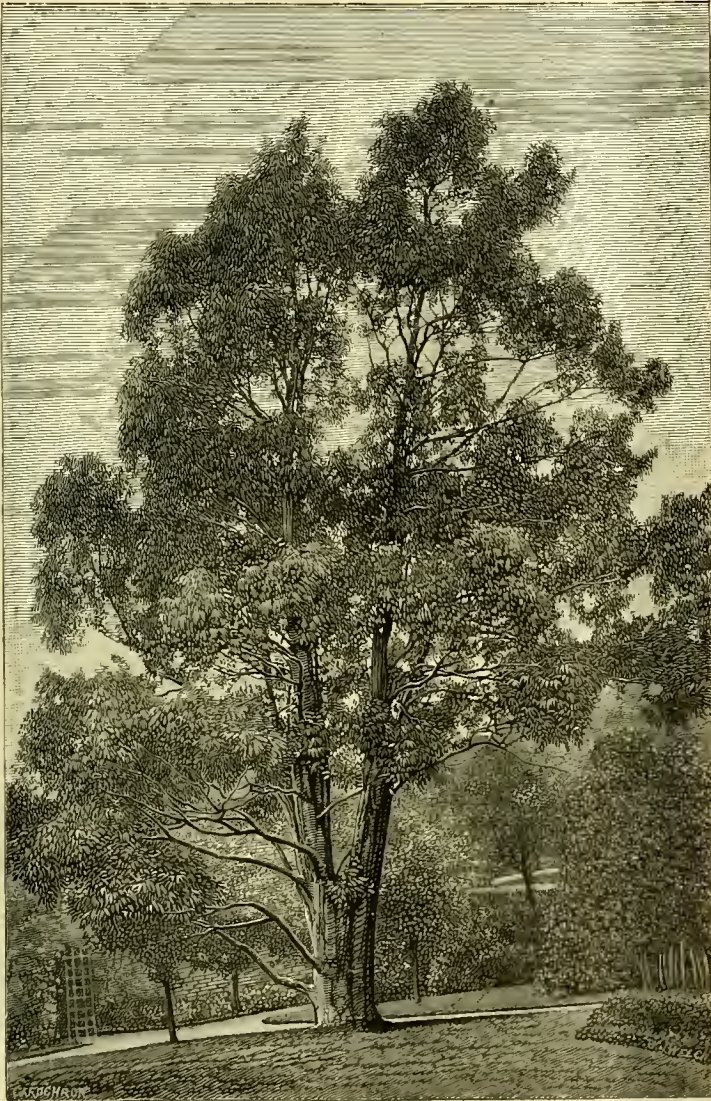


FIG. 65.—EUCALYPTUS URNIGERA AT WHITTINGHAME GARDENS, PRESTONKIRK. (SEE P. 460.)

made I had only to look round me to find the explanation, and I am very angry with myself for not having seen the physiological facts of the case sooner.

In all mountain regions, and wherever mountains or rocks are terraced for the planting of trees and shrubs, the roots have free access to the atmosphere in their entire extent. They no doubt breathe by their roots on the slopes of the mountain sides, or through the large crevices in the rubble walls. The natives of these regions never seem to plant behind masonry walls. I thought that it was principally on account of the heavy expense; but I now believe that it is a cultural tradition, brought down from time imme-

voir, thus getting water *ad libitum*, and, I doubt not, air also. The Arabs say that for a Palm to flourish it must have its roots in the water and its head in the flames. This saying is verified in my case, for the summer sun is very hot at Mentone, and the Palm has his roots in the water. Several of my neighbours, inspired by this proof of the correctness of the Arab proverb, have made artificial lakes or ponds, and planted Palms on the margin, with a marvellous result; their growth has been nearly if not quite as rapid as it would have been in the West Indies. The *Phoenix canariensis* more especially seems to do well in our climate under these conditions, making a wonderfully rapid growth.

ing? Does not too deep planting act in this way? I am having this wall taken down to a depth of 2 feet, and replaced by a brick wall fenestrated, so as to leave nearly one-half the area open. I mean water to trickle down the sides from these openings when the bed is watered, and thus to let air enter everywhere and permeate the earth, as on the mountain side. If I succeed, and my Roses grow fast, it will be to me, and perhaps to many others, a new light in conservatory building and treatment. *Henry Bennet, M.D., Torre di Grimaldi, Ventimiglia, March 20.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT BURFORD LODGE.

NOTWITHSTANDING that Sir Trevor Lawrence's grand collection includes almost everything that is new, beautiful, or curious, and consequently embraces many plants of whose culture little is known, as well as many whose deportment under cultivation has gained for them the name of bad doers, the Burford Orchids, perhaps, never looked better of late years than they do at the present time. Many new or rare species are now in bloom—indeed, it is not easy to visit the collection when such is not the case; and among the most striking is *Lissochilus giganteus*, a new plant of noble habit, and well deserving its specific name. Its leaves are entire and plicate, like those of a *Curculigo*, and its flower-spike, which is as thick as one's finger, is about 8 feet in height, bearing on the upper portion some fifteen large rose-pink flowers of great beauty; roughly speaking, they bear a resemblance to large flowers of *Cattleya Harrisonia*, and have the same firm, wax-like texture. The plant appears to be a good grower, and that adds much to its value. Round it are grouped other species of *Lissochilus*, *Eulophia*, *Spathoglottis*, and plants of a similar nature, among which a fine head of flowers of *Spathoglottis Kimballiana*, which looks like a bright yellow *Phalaenopsis*, is prominent; *S. plicata* is also flowering, and *Phaius Blumei* and a fine many-spiked plant of *P. Wallichii*, which is a noble object when well bloomed. *Catasetum* are also represented in this house by *C. medium*, with about three dozen flowers in a spike. It has a beautifully white-fringed labelum, and comes near to *C. cristatum*; and *C. Gnomus*, a most weird-looking object, and beautiful withal. *Bulbophyllum* and *Cirrhopetalum* are here in force too, the pretty *B. auricomum* and *Cirrhopetalum picturatum* being in bloom, as well as *Scuticaria Hadweni* and the rare and curious *Trichoglottis fasciata*.

The *Cypripediums* and *Selenipediums* are specialties here, where many new cross-bred varieties, raised there and not yet bloomed, are being nursed, as well as most of the rarer kinds, such as *C. Stonei platytanum*, the hybrids of *C. venustum*, which were spoken of slightly by many when they first flowered, here exhibit beauties which tell of good culture; *C. Measuriesianum* is a grand flower, *C. Williamsianum* is a fine large light-coloured variety; *C. politum*, and other *venustum* crosses very attractive, all having a peculiar shiny Indian-yellow tinge over them. Fine examples of *C. vexillarium*, *C. venixium*, *C. Swanianum superbum*, *C. Bullenianum*, *C. Druryi*, *C. hirsutissimum*, *C. grande*, *C. Dayanum*, *C. barbatum biflorum* (with fifteen flowers), *C. Argus*, *C. levigatum*, *C. ciliolare*, *C. callosum*, and *C. niveum* are in bloom, as well as several of the *Sedeniform Selenipediums*, the most chaste and beautiful of which is the fine *S. leucorrhodum*, with its delicate pearl or blush flowers; indeed, it is difficult to imagine anything more beautiful in its section.

In the warm-houses are some rare *Angraecums* and *Aërides*, *Calanthe nivalis*, *Vanda coerulescens*, *Phalenopsis Luddemanniana*, a fine batch of *Odontoglossum Roezlii*, some fine masses of *Dendrobium Jenkinsonii*, *D. aggregatum majus*, *D. Smilliae*, *D. chrysotoxum*, *D. fimbriatum oculatum*, *D. crassinode superbum*, *D. Veitchianum*, *D. superbum*, *D.*

luteolum, *D. crepidatum*, and *D. Findlayanum*; and among the *Epidendrums*, which are well looked after, and prove worthy of it, are the perennial-flowering and handsome *E. Wallisii*, *E. pseudopendulum*, *E. arachnoglossum*, *E. Stamfordianum*, *E. cnemidrophorum*, *E. nocturnum*, *Schomburgkia tibicinis*, and *S. marginata*.

Other noteworthy plants in the intermediate-houses were a finely flowered specimen of *Arpophyllum giganteum*, several of the beautiful old *Lycaste Harrisonia*, *L. fulvescens*, several good *L. Skinneri*, a fine specimen of *Trichopilia suavis alba*, a nice batch of *Dendrobium Jamesianum*, *Cattleya maxima*, *C. Lawrenceana*, *C. Mossii* delicate, *Lælia cinnabarina*, *L. elegans*, some *Cœlogynes* and *Cymbidiums*, and the pretty fragrant *Maxillaria Turneri*, with scores of white and yellow flowers.

The cool-houses are beginning their show of *Odontoglossums*, and with others the rare *O. miniatum* is in bloom, as well as some fine hybrids of the *Andersonianum* type; and the *Masdevallias* are making a good show with the varieties of *M. Harryana*, *M. Lindeni*, *M. ignea*, *M. Chelsooi* ×, *M. Fraseri* ×, and *M. Veitchii*, the variety *gigantea* of the last-named being very ornate. The *Chimera* section, too, which are here so well grown, suspended overhead, present numbers of their quaint flowers on *M. chimara*, *M. Bella*, *M. nyctericina*, *M. radiosa*, *M. Chestertoni*, and others of that section; while the smaller-growing species have many pretty and curious things in bloom, and notably the rare *M. pulvinaria*, *M. racemosa*, *M. ludibunda*, *M. Wageneri*, *M. xanthina*, and that prettiest of all small-growing *Masdevallias*, *M. Shuttleworthii*. Several specimens of the now rare *Oncidium bifolium* are also in bloom, *Pleione humilis tricolor*, many *Odontoglossum Rossi majus* and *Cervantesi*, *O. nebulosum pardinum*, *O. ramossissimum*, *O. pulchellum majus*, *O. Edwardii*, *Ada aurantiaca*, and some *Sophranitis*, *Stelis muscifera*, a very curious plant; *Oncidium incurvum*, with over fifty spikes; *O. leucociliolum*, &c.; and among *Orchid* associates the handsome blue *Utricularia longifolia*, *U. montana*, and the rosy *Pinguicula cordata*.

In one of the cool intermediate houses it is worthy of remark that the *Miltonias*, which puzzle so many to grow successfully, are doing well on rafts with a little peat and sphagnum, and placed horizontally on pots on the side stages. Mr. Bickerstaffe says they have improved rapidly since they have been so grown, and some of the lesser *Cœlogynes*, and especially *C. Schilleriana*, also like that mode of culture. In the other houses are the fine display of all the scarlet *Anthuriums*. The elegant arrangement of white and rose varieties of *Begonia nitida*, with crimson *Impatiens Hawkeri*, and the other attractive displays which the culture at Burford Lodge has now led us to expect there in their season.

CŒLOGYNE CRISTATA, MOUNTAIN FORM.

In January of 1886 Mr. Duthie, of Saharunpore, sent to Kew some plants of a *Cœlogyne* which had been found by his head gardener "on some rocks above our new hill garden at Arnigadh. The elevation is a little over 5000 feet. My gardener suggests that it should be kept in a dry greenhouse during winter. It will stand a few degrees of frost. In the summer it would require warm greenhouse temperature and plenty of water." The plants arrived at Kew in good health, and were compact masses of pseudobulbs, varying in size from half an inch to 1½ inch in length. The leaves were in pairs, 4 inches long by three-eighths of an inch wide. We had nothing like these plants at Kew, and certainly we did not imagine them to be *C. cristata*. However, they flowered for the first time from bulbs 2 inches long, egg-shaped, and leaves 9 inches long by three-quarters of an inch wide. It seems likely that, under the same treatment as is given to ordinary *C. cristata*, these mountain plants will revert to the ordinary form in respect of bulbs and leaves. But there is a difference in the flowers, too—those of the mountain plants having broad plain (not crisped or curled) sepals and petals, and the colour of the keels in the lip is almost orange-yellow; the substance of the flowers, too, is better than in the ordinary

form. It is difficult to convey an idea of the difference in words, but a comparison of the two shows it at once. Is this new one the variety known as *C. cristata* var. *major* or *maxima*? *W. Watson, Kew.*

ANTHURIUM CHAMBERLAINI.*

A short time since Mr. Cooper, gr. to the Right Hon. J. Chamberlain, M.P., of Highbury, Birmingham, was good enough to forward us specimens of a magnificent Aroid, with huge heart-shaped leaves and sumptuously coloured boat-shaped flower-sheath (spathe) and flower-spike (spadix) (fig. 67). The plant in question grows on the rocks in the fernery at Highbury in a temperature averaging 55°, and is one of the greatest ornaments of the house. The roots, according to Mr. Cooper, are "about the thickness of the little finger, and run about over the rocks." The plant was introduced with some imported *Cattleya Gaskelliana*—a circumstance which leads to the inference that the Aroid is of Venezuelan nativity. In any case it is one of the noblest species in a genus already rich in superb species, and is handsome alike in foliage and in flower. After consultation with Mr. N. E. Brown, who has a special knowledge of these plants, both in a cultivated form and as herbarium specimens, we have arrived at the conclusion that the species is a hitherto undescribed one. Under the circumstances, it is appropriate to dedicate it to the eminent statesman of whose establishment it forms so conspicuous an ornament. As a species it is near to *A. formosum* of Schott, and to *A. bogotense* of the same botanist, but is imply distinct from either. Its technical characters may be noted as follows:—

The huge leaves are borne on stalks as thick as the little finger, about 48 inches long, slightly channelled on the upper surface above, elsewhere cylindrical. At the top of the stalk is a swelling or "geniculus," about 2½ inches long, and which is no doubt concerned in the movements of the leaf according to the direction of the sun. The blade of the leaf is coriaceous, glabrous, shining green above, paler beneath, some 3 feet in length by 2 feet in width, cordiform, ovate-lanceolate, the two basal lobes rounded, widely separated one from the other by a sinus or interspace about 8 inches in depth, and 6 inches across. The larger ribs are prominent on both surfaces, and comprise a midrib, from either side of which are given off at intervals of about 2 inches more or less, seven to eight pairs of ribs which curve out gradually till they reach nearly to the margin, where they bend sharply towards the point of the leaf, running parallel with the margin for some distance, and then uniting and becoming continuous with other ribs, so as to form one continuous intra-marginal rib. From either side of the base of the midrib diverge two ribs, which occupy the centre of the blade of the leaf between the midrib and the margin. On the outside of these are the basal nerve proper, nine or ten in number, curving round into the basal lobes, and arranged in a pedate or sympodial fashion, the base of the curved synpode having no lamioar tissue on its concavity next the sinus, but only on the convex side. All these larger ribs communicate directly or indirectly with the intra-marginal rib above mentioned, and the interspaces are filled in with a somewhat obscure mesh of rather large polygonal net-like spathes.

The peduncle is a foot or more long, terete,

* *Anthurium Chamberlaini*, Mast., n. sp. (fig. 67, p. 465).—Folius longe petiolatis pergrandibus, petiolis 1.22 cm. basi tantum parum sulcatis, apice geniculo crasso 6.7 cm. longo instructo, laminis sub-metralibus, diametro 62 cm. coriaceis glabris, superne nitentibus pallide virentibus, late cordato-ovatis acutis, lobis rotundatis sinu lato profundo separatis, costis prominentibus, costa mediana utrinque 16–18 pinnatis divisa, costis secundariis remotiusculis, costis basalibus 9–10 longe divergentibus curvat s pedatis sympodium efformantibus, sympodium curvato latere concavo nudo, i.e. lamina destituta, costis primariis omnibus arcuatis versus marginem in costam intra marginalem confluentibus; pedunculo tereti; spathe 20 cm. long. 10 cm. lat. coriacea scapiformi basi aperta apice marginibus parum involutis cuspidata, extus pallide punicea intus nitide intesque coccinea; spadice basi stipite eburneo tereti 1–2 cm. long. e, spathe libero, sublevato, 15 cm. long. 3 cm. lat. tereti-fusiformi obtuso arcuato, intense velutino-purpureo; floribus generis.—Patr. Venezuela? In hort. honoratissimi Josephi Chamberlain, in rebus publicis scientissimis, nec non orchidearum cultoris egregii, primum detecta.

glabrous, as thick as a swan-quill, and bears at its summit a thick boat-shaped spathe, about 8–9 inches long and 4 in width. It is open at the base, and free from the spadix, convolute for a short distance beneath the pointed apex, of a pale dull puce colour externally, shining and rich deep crimson coloured internally, bordered by a very narrow line of ivory-white, edged in its turn by a narrow margin of yellow. A number of curved parallel but not very conspicuous nerves traverse the spathe from base to apex, and the inner surface is studded with minute whitish scales, hardly conspicuous, but which, no doubt, enhance the effect of the rich crimson colouring. The spadix is raised above the base of the spathe by a short ($\frac{1}{2}$ inch) ivory-white stalk, and is about 6 inches long, $\frac{3}{4}$ inch wide, cylindrical or fusiform, curved, dull reddish-velvety-purple in colour, and densely covered from base to apex with flowers of the usual structure of the genus *Anthurium*. The richly-coloured spathe and spadix act, no doubt, as invitations to insects, by whose means the flowers are fertilised. The white stigmas projecting beyond the purple segments of the flower are matured before the anthers (proterogynous), and hence cross-fertilisation is imperative. *M. T. M.*

THE FLOWER GARDEN.

DOUBLE-FLOWERED PYRETHRUMS.—These deservedly popular flowers are second to none of the occupants of the herbaceous borders in usefulness as cut blooms, possessing, as they do, the property of lasting fresh for a long time. The colours are very varied, ranging from the purest white to purple and maroon. Unlike most other herbaceous plants, they will not bear division and transplanting in the autumn months, and more failures to grow them may be attributed to this cause than to any other; but the present time of the year, just as they are starting into growth, is found to be the best. Although they are well adapted for mixed borders, and are very effective there, I would advise their being grown in beds by themselves. They delight in a rich, well-drained soil, which, in making new beds, should be dug to a depth of from 12 to 15 inches, incorporating a liberal dressing of manure and leaf-mould, if the staple is at all inclined to be poor, as the work proceeds, and in shallow soils the bottom spit should not be brought to the surface. The beds may be made of a width of 4 feet to 5 feet, which will afford space for three rows of plants at 2 feet in the rows and 18 inches between them. Old established roots of three or four years' growth may be lifted and cut into pieces of about 6 inches square; plants in pots at all root-bound should have the roots disentangled previous to planting. In planting, press or tread down the soil quite firmly about the plants, and finish off with a top-dressing of decayed manure. Treated thus they will flower fairly well the ensuing summer, and by the following year the blooms will be more abundant, and of good quality, approaching in size and substance well-grown *Pæony*-flowered *Asters*. Old beds should be replanted every third or fourth year.

Flower Beds.—During the next two or three weeks beds occupied by spring flowering plants will be at their best, and the time will be appropriate for taking notes and arriving at definite conclusions regarding planting arrangements for another year. Changes are always welcome, providing they are well thought out beforehand, and are not too fanciful or opposed to good taste, and possess some element of originality in their conception. When two or more species are grown in the same bed, and a mass of bloom is wished for at a given time, care must be taken to select subjects which flower simultaneously; for instance, *Snowdrops* will go very well with *Scilla sibirica* or *Chionodoxa Lucilia*, *Wallflowers* with *Violas*, *Arabis* with *Polyanthus*, &c. Use the Dutch hoe and rake on the surface of the beds of *Wallflowers*, hand-weed others that may require it, and all beds laid out on grass should from this time onwards be edged with the shears as often as occasion demands, and rolling and mowing the grass when necessary.

Hardy Annuals.—The general collection of these may now be sown, covering the seed slightly. In mixed borders the seed may be sown in drills about a foot across, the presence of each to be indicated by a stick. Do not be too sparing with the seed, but make due allowance for losses by small birds and slugs, not forgetting in the absence of these enemies to thin out the young plants when large enough.

Make a successional sowing of these seeds towards the end of the month.

Lawns.—Although grass is backward in growth this season mowing must soon be commenced, and machines and scythes be got in readiness without delay. Lawns, which received a winter's dressing of manure should have all refuse that may yet remain on them cleared off, and rolled afterwards. It is always advisable to have the first cutting done with the scythe, previous to which objectionable weeds should be picked up. Well kept lawns are, as is generally acknowledged, features of great attraction in a garden, so that no pains should be spared to keep them in condition. There are some old gardens where, through the force of circumstances, high keeping cannot be followed out, and the best advice in those cases is, to keep in good order that which is in the immediate vicinity of the mansions and flower-beds, allowing the remainder to grow uncut until the end of June, and make hay of it.

Tigridias should now be planted out. A light loamy soil with leaf-mould suits them well. If they are to be grown in beds by themselves, plant the bulbs 6 inches apart; and in mixed borders half a dozen in clumps at intervals of a few yards. These pretty Mexican bulbs ought to be grown in all gardens where climate and soil are suitable. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

PEACHES AND NECTARINES.—The early trees will now have finished stoning, and the fruit will increase in size with rapidity after this date; there is therefore no longer danger of fruit dropping, and where the latter stand too thickly the final thinning may be given. The temperature may range from 60° to 65° from 10 P.M. to 6 A.M., the trees being syringed in the morning, and at shutting-up time, when 80° to 85° may be maintained for a short time. Towards the end of the month the fruit will begin to change colour. Whenever this becomes discernible, give abundance of air night and day, but less moisture. Syringing must also be discontinued, and the roots be kept in a fairly moist state. Old trees, and those which are carrying heavy crops, will be benefited by copious doses of weak manure-water.

Succession-houses.—Trees in these must have timely attention in disbudding, pinching, and tying, leaving no more shoots than are requisite for the crop next season. Endeavour to get all large stems protected by tying young shoots over them, as the sun has an injurious effect when allowed to shine with full force upon them. Keep the temperature at about 55° until the fruit is stoned, and syringe the trees twice a week with clear soot-water. Trees in late houses will benefit from the use of a little fire-heat, and take care that cold air currents do not reach the tender foliage and fruits. When all the trees have set their fruits, give them two syringings daily. Keep a sharp look-out for greenfly, fumigating on its earliest appearance. When it is intended to fumigate, see that the foliage is perfectly dry, otherwise the leaves are liable to get scorched. Frequently examine the borders to see that they are in a sufficiently moist state.

Figs.—Some of the earlier fruits will now exhibit a disposition to grow, showing that fertilisation is completed, and maturity will speedily be reached. Less syringing and a drier atmosphere are, therefore, indispensable to obtain high flavour and good finish, and without which green Figs are the most insipid of fruits. In bright weather a warmth of 75° to 80° may be afforded, and 90° after shutting up the house in the afternoon, allowing a gradual fall to 65° by the morning. Stop the stronger shoots on succession trees at the fifth or sixth leaf, and remove all weakly shoots not required for furnishing the trees. Apply warm, weak manure-water frequently, and syringe twice daily in bright weather, which will tend to keep down red-spider. Let the temperature be 55° to 60°, and 10° higher by day with sun-heat, until the trees have passed the blooming stage. The latest started house should be assisted with a little fire-heat, but if that cannot be done, shut up early in the afternoon so as to secure as much sun-heat as possible, and syringe on the mornings of fine days only.

Cherries will now be stoned, but the temperature must not be allowed to run too high, 50° to 55° being sufficient for the night, and 65° to 70° may be allowed in the day with bright sun and a sufficient amount of moisture. Keep a sharp outlook for weevils, for these pests do much damage to both fruit and foliage in a short time. The only method

of getting rid of them is hand-picking, and noting that whenever a curled leaf or web is observable there some enemy is lying. Black aphid is also very troublesome, and sometimes the green and brown. The fumes of tobacco have little effect on the first and third, and a weak solution of tobacco-water must be applied, care being taken to keep clear of the fruit: dipping the shoots is best where it can be done, but however applied it must be syringed off before it dries. Two or three fumigations between the stoning and colouring periods are advisable, as it is not good to do so after the fruit is coloured, the flavour being liable to be affected by the fumes. Cherries will hang a considerable time after they are ripe, provided the atmosphere be kept cool and dry. Measures must also be taken against the entrance of birds at the ventilators. *W. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

PEACH AND NECTARINE TREES.—As the buds of these are now ready to burst into bloom, protection must at once be given. The protection curtains may consist of Frigi Domo, scrim, tiffany, hexagonal netting, fish nets doubled and trebled, or the rougher mode of using branches of Spruce Fir. Whatever be used, the materials should, if possible, be fastened up during the day, otherwise great tenderness will be induced in flower and shoot, and fertilisation not be so perfect or so general; and should Spruce Fir branches be employed, they must be so placed that light is in but a very small degree excluded from the trees.

Apricots.—These are now in full bloom, and the bees busy among them, so that there is a prospect of a good crop setting. A careful look-out must be kept to prevent the blossoms getting wet with rain towards evening, for then, should frost occur during the night or early morning, many of the blooms would be destroyed. If, on the contrary, the blooms are protected from rain by coping boards and Frigi Domo, slight frost will have no bad effect on them.

Fig trees.—These, where protection has been employed during winter, may be partially uncovered, admitting a little more light, which will have the effect of preserving the small embryo Figs from the ill effects of growing in the dark, and thus becoming drawn. The rest of the covering may be wholly removed when more genial weather sets in. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

GENERAL WORK.—Globe Artichokes should be uncovered and the weak shoots cut away, leaving five or six of the strongest: the ground should then be well manured and dug over with a fork (it is as well to destroy a few of the oldest stools and to plant a few more each season, the best of the shoots removed being reserved for this purpose). To get good large heads the soil should be deeply dug and made rich. Asparagus will now be ready for removing to form new beds. The roots should be carefully dug up with a fork and replanted as soon as possible in shallow trenches about 6 inches deep, the ground having been prepared as previously advised. Early sown Celery should be transplanted into light rich soil in cold frames, and the lights kept close for a time. Canflowers that have been gradually hardened off should now be planted out during damp weather on ground that has been heavily manured; and in order to preserve as many roots as possible they should be copiously watered previous to lifting and again as soon as they are planted. Those in handlights may now be reduced to five in each, and these will be much benefited if a quantity of well rotted dung be laid on the soil over the roots, removing some and putting it on the manure. Box edgings should be clipped when there is no longer danger from frost; filling up gaps and replanting where necessary, but the latter work may be deferred till the autumn unless the garden soil is naturally very moist. Marjoram and Basil sown in heat should have plenty of air, and as the latter is very apt to rot off at the collar, it is a good plan to dust some dry sand among the plants and ventilate a little day and night. Seeds of both may now be sowed outside. Bush Basil is a hardier plant than Sweet Basil and quite as serviceable. *W. H. Divers, Ketton Hall, Stamford.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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

GARDENERS' CHRONICLE OFFICE TELEGRAMS.

NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, APRIL 19—Linnean Society.

SHOWS.

SUNDAY, APRIL 15—Ghent Quinquennial opens.

WEDNESDAY, APRIL 18 { Royal Botanic.
Durham and Newcastle.

SALES.

TUESDAY, APRIL 17 { Carotions, Picotees, Roses, &c., at
The City Auction Rooms, by Protheroe & Morris.
WEDNESDAY, APRIL 18 { Collection of Orchids formed by A.
G. Wallis, Esq., of Balham, at
Stevens' Rooms.
10,000 Liliun auratum, Roses, English-grown Lilies, &c., at Protheroe & Morris' Rooms.
THURSDAY, APRIL 19 { Imported Orchids from Mr. F.
Sander, at Stevens' Rooms.
FRIDAY, APRIL 20 { Imported and Established Orchids,
at Protheroe & Morris' Rooms.
SATURDAY, APRIL 21 { Carnations, Picotees, Lilies, &c., at
Protheroe & Morris' Rooms.

THE centre of attraction for professional horticulturists in the coming week will be situate in the city of Ghent. Thither at the close of the present week a large contingent of our horticulturists will wend their way to meet, not only their Belgian friends, but those from the uttermost parts of Europe also. Ghent itself is a city of 190,000 inhabitants—a busy, prosperous, manufacturing city—full of attractions for the lover of mediæval antiquities as also for sympathisers with the busier but far less picturesque industry of the nineteenth century. Of course that last phrase applies to cotton mills and such-like, not to the 273 nurseries and the 2000 plant-houses whose treasures will be displayed before the admiring guests on Sunday next! Nearly 200 jurymen have been summoned to adjudicate upon the flowers and other products, and their labours will extend over 417 classes—from new plants to flower-pot saucers, and will occupy the greater part of the day on Saturday. In the evening a "Raout" will be offered in the old Town Hall to the visitors. On Sunday the official opening, and the banquet to the jurors will take place. On Monday there will be an "international meeting," presided over by Count KERCHOVE DE DENTERGHEM, the President of the Royal Society of Agriculture and Botany, when matters of great importance to commercial horticulture will be discussed. On Tuesday a banquet will be given by the members of the Belgian horticultural Press, headed by the genial and eloquent Count DE KERCHOVE, to their colleagues of other nations. On Wednesday an official visit will be paid to the Royal

Gardens at Laeken. Besides these public functions there will be the 273 nurseries to visit (!), the numerous "monuments de la ville," the Zoological and Botanic Gardens, the University, to say nothing of the profuse private hospitality offered on this as on other occasions. To those who have the requisite leisure to inspect them the old Flemish capital abounds in objects of beauty and interest unconnected with horticulture. Antwerp, Bruges, and Brussels are near at hand, and the new installation of M. LINDEN (L'Horticulture International) at Brussels will doubtless attract many visitors. The London, Chatham and Dover Railway Company affords facilities for visiting various Belgian and Dutch cities, including a peep at the Hyacinths at Haarlem, though these, we fear, are much retarded by the ungenial spring.

The Royal Horticultural Society.

THINGS so far are progressing favourably with the old Society, as indeed they ought to do, for a very large amount of zealous work has been done, not only by the Council, but by the well-wishers to the Society. The meeting on Tuesday



FIG. 68.—ANTHURIUM CHAMBERLAINII, TO SHOW HABIT.

last at the Drill Hall, James Street, Westminster, was a very good one, well attended by the fraternity, though the visitors were but few. A general meeting was held in the afternoon at the new offices, 111, Victoria Street, near to the Drill Hall, which enabled the Fellows to judge for themselves of the great convenience which will be afforded by the Lindley Library and reading-room. The arrangements for these are rapidly approaching completion. At the meeting in question 166 new Guinea Fellows were elected, thirty-one at two guineas, and two Associates at 10s. 6d.—pretty good evidence of the sympathy that is felt for the Society.

At the meeting in question, it was announced by the President that a show will be held in the Temple Gardens on May 17, when, as we believe, the exhibition will be visited by the LORD MAYOR, who, about that time, will be hospitably entertaining a large number of Burgomasters and other Belgian magnates. In the last week of September a fruit show will be held in the Corn Exchange, while a display of Chrysanthemums and fruit in the late autumn at Chiswick is likely to prove a very attractive feature. It was also announced by the President that a letter had been received from the Marquis

of SALISBURY to the effect that the interests of horticulture (and forestry?) will be recognised in the proposed new Ministerial Department of Agriculture—a feature we venture to think that may become of great importance in the future. At any rate it is the first time that any similar recognition of the claims of horticulture as a national industry, as important in its way as agriculture, has been accorded. Subsequently a portion of the new bye-laws were submitted to the meeting and confirmed, so as to render legal the election of Guinea Fellows. The remainder of the bye-laws will have to be considered at another general meeting, previous to which it is to be hoped that they will be submitted to consideration by the Fellows' Committee which was appointed for that express purpose. By some inadvertence this was not done on the present occasion.

It will thus be seen that a large amount of useful work has already been got through, but much more remains to be done ere the Society can be thoroughly reorganised and made to assume its rightful position as the national representative of all phases of horticulture, and not, as heretofore, of one or two only. Patience and the continued earnest co-operation of all classes are needed, while every legitimate step must be taken to increase the income of the Society.

RAILWAY FARES TO GHENT.—Mr. HENRY PEARSON writes:—"The Continental Manager of the London, Chatham, and Dover Railway Company writes me to-day (April 9), that through tickets will be issued for Ghent show from London via Dover, Ostend, Ghent, Brussels, and Rotterdam to Haarlem, returning via Flushing, Queenborough, to London, at £3 18s., first class and £2 15s., second class. No rates are given for return tickets to Ghent only."

PARIS INTERNATIONAL EXHIBITION, 1889: AGRICULTURAL EXHIBITS.—All classes of agricultural machinery and products will be arranged, by national groups, in a special building erected upon the Quai d'Orsay, and forming a connecting link between the two main sites of the Exhibition—the Esplanade des Invalides and the Champ de Mars. It is the intention of the French Executive to cover the Esplanade des Invalides with exhibits of a specially interesting character, so that this large area will form one of the principal attractions of the Exhibition; and the direct route thence to the Champ de Mars will be through the Agricultural Palace. A space of about 40,000 square feet has been reserved at the eastern end of the building (i.e., the end nearest to Paris) for English agricultural exhibits, and it will be seen that this is a specially favourable situation, when it is remembered that the British section will occupy that part first visited in passing from the Esplanades des Invalides to the Champ des Mars.

NEW RECREATION GROUND AT ACTON.—The Acton Local Board, having invited plans and tenders for laying out and planting their new recreation ground, the plans submitted by Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, have been accepted, the contract price being £1997. The new ground is on the east of Acton, and is bounded on the south by the Uxbridge Road; it is 25 acres in extent, and will comprise a cricket-ground, tennis lawns, bowling-green, summer-houses, band-stand, arbours, rustic bridges, and a number of ornamental beds and plantations. Acton is deficient in open spaces near its centre, and it is believed this new recreation ground will not only prove a great boon to the locality, but also assist in developing the district.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The quarterly meeting of the above Society was held on Monday evening last, April 9, at the Caledonian Hotel, Robert Street,



FIG. 67.—ANTHURIUM CHAMBERLAINI: LEAVES REDUCED: SPATHE, ETC., REAL SIZE, DEEPEST CRIMSON: FLORAL DETAILS MAGNIFIED. (SEE P. 462.)

Adelphi Terrace, Strand, Mr. E. Benny, in the chair. The committee are glad to say that the number of members still continues to increase, twenty-four new members having been elected during the quarter, making a total of 250 benefit and thirty honorary members, including two life members. The committee earnestly hope that many more gardeners and persons connected with horticulture generally will avail themselves of the opportunity of joining this excellent Society. A copy of the rules will be sent to any address for six stamps, on application to the Secretary, W. COLLINS, 5, Martinhoe Terrace, Martindale Road, Balham, S.W.

ENTERTAINMENT TO THE EMPLOYÉS OF THE ROYAL HORTICULTURAL SOCIETY.—This was set on foot by a few of the frequenters of the Society's gardens and exhibitions, as an acknowledgement of the courtesy and willingness to oblige, shown by the members of the staff of the Society, and to mark the inauguration of the new régime. It was held at the Bolton Hotel, Chiswick, on the 6th inst., Mr. HARRY J. VEITCH presiding, having on his right Mr. A. F. BARRON, and on his left Mr. J. DOUGLAS DICK. In a very genial address the Chairman gave the toast of the *employés* of the Society, and in the course of his remarks, said that his first visit was paid to Chiswick in 1851, on the occasion of one of the great shows, when he saw Mrs. LAWRENCE, and was introduced to Dr. LINDLEY. Mr. A. F. BARRON responded to the toast. The health of the Chairman was proposed by Mr. SHIRLEY HUBBARD, and in speaking to it, Mr. VEITCH gave some interesting details bearing upon the rise and progress of the Chelsea firm. In addition to the supper, the labourers and young men other than the students each received a sum of money, and they were all emphatic in their appreciation of the kindness and liberality with which they had been treated.

FINE VICOMTESSE HERICART DE THURY STRAW-BERRIES.—A boxful of this variety was on Monday last exposed for sale in Mr. WEBBER'S shop, Central Row, Covent Garden, of which thirty-six fruits weighed 18½ oz. The fruits were as fine as could be seen on plants much later in the season, well coloured, and thoroughly ripe. They were grown by Mr. ALLAN, Gunton Park Gardens, Norwich. As is pretty generally acknowledged by growers, this variety stands at the head of the list as a forcing Strawberry, being a heavy bearer, of good colour and size, and packing well.

"BOTANICAL MAGAZINE."—The April number contains figures of the following plants:—

Nymphaea Kewensis ×, t. 6988.—This is a cross between the white-flowered *N. Lotus* and the red *N. devoniensis* ×. The flowers are of a beautiful rose-colour, and remain open in the afternoon—a period when most of the *Lotos* section are closed. This cross was raised at Kew by Mr. WATSON.

Brodiea Howellii, t. 6989.—A species native of Washington Territory, with a globose bulb invested by a fibrous coat, and sending up a pair of narrow, linear, strap-shaped leaves and a central flower-stalk bearing a terminal umbel of pale lilac flowers, each about three-quarters of an inch long, with a bell-shaped tube, and a six-lobed spreading limb—the lobes ovate acute, about half the length of the tube. The figure was taken from a plant flowered near Cork by Mr. GUMBLETON.

Cattleya lutea, t. 6991.—A common Himalayan plant allied to *Hedychium*, with lanceolate, acuminate leaves and erect spikes of yellow, six-lobed flowers. The globose capsule bursts into three valves, which become reflexed and expose the seeds, which are retained by the fleshy placenta.

Abies Nordmanniana, t. 6992.—A species often recommended in these columns as one of the hardiest and stameliest of Conifers, and one likely to be very serviceable as a timber tree.

Masdevallia gibberosa, t. 6990.—A very extraordinary species, described in our columns in 1876, vol. v., p. 8, by Professor REICHENBACH. From a

slender trailing rhizome are sent up at intervals oblong spatulate leaves, and a slender erect terminal flower-stalk bent zig-zag fashion, studded with prominent warts, and bearing at the summit a raceme of three or four flowers. Each flower is about 2½ inches across, the calyx cup-shaped, the dorsal sepal boat-shaped, dull red with greenish ribs, and ending in a thread-like tail five times as long as the lamina. The lateral sepals are spreading, oblong, yellowish with red spots, and also prolonged into long tails; petals minute; lip small, oblong ovate, serrulate, its lateral lobes narrow, the terminal one small, obcordate, serrulate; column slender. Introduced by WALLIS from New Granada to Messrs. VEITCH.

COVENT GARDEN LIFE-BOAT FUND.—A grand entertainment, in aid of the Covent Garden Life-boat Fund, will take place on Thursday, April 19, at the Prince's Hall, Piccadilly, to commence at 8 o'clock. The Stewards of the Fund have the satisfaction of announcing that the "Covent Garden Life-boat" was again the means of saving sixteen more lives from a watery grave during the day of the 15th ultimo, the boat being out for thirteen hours. The "Covent Garden Life-boat," stationed at Caister, near Great Yarmouth, was sent there in 1883, the previous boat, bearing the same name, having literally worn itself out in the performance of its mission of mercy. Since 1878, when Covent Garden was first identified with the Caister life-boat station, its life-boats have happily been the means of saving no fewer than 258 lives, besides helping to rescue eighteen vessels from destruction. During the past thirty years the two large and small life-boats at Caister, belonging to the Royal National Life-boat Institution, have been instrumental in saving more lives than any other life-boat station can lay claim to, their grand total representing 1085 lives saved, and seventy-one vessels assisted to a place of safety. The committee hope that these facts will be a great inducement for all their friends to again assist in contributing a handsome sum towards the annual support of their boat, which has done such noble service. Mr. J. WEBBER, Covent Garden, is the Hon. Secretary.

ROYAL HORTICULTURAL GARDENS.—That portion of the whilom gardens of the Royal Horticultural Society at South Kensington not required for the Imperial Institute, will be utilised for the Anglo-Danish Exhibition, which will be opened by the Princess of WALES on May 14 next. The conservatory will naturally form a most attractive adjunct to that exhibition. The Princess of WALES has desired that the surplus arising from the Exhibition shall be devoted to the benefit of the British Home for Incurables at Clapham, the first Institution in the country to receive her patronage, and which was extended to it shortly after the marriage of their Royal Highnesses.

M. PLANCHON, whose death at the age of sixty-five we announced in our last issue, was well known in botanical and horticultural circles in this country, from the circumstances that in his early life he acted as Curator of Sir WILLIAM HOOKER'S herbarium while it was still in the possession of that botanist. The herbarium contains numerous notes and observations showing the keenness of M. PLANCHON'S observation, his practised eye, and his excellent memory. In later years PLANCHON was connected with VAN HOUTTE in the publication of the *Flore des Serres*, where his peculiar talents were likewise manifested. PLANCHON was one of the earliest to recognise the true nature and habits of the Vine-louse (*Phylloxera*), and was deputed by the French Government to visit the United States, where, thanks to the co-operation of RILEY and ENGELMANN, he amassed a vast amount of information, not only concerning the *Phylloxera*, but also relating to the species of *Vitis*. It was to a large extent through his investigations that the practice of grafting Vines on American stocks, which are much less seriously injured by the insect than the European

varieties are, was brought into use—a practice now generally recognised as on the whole the best plan for regenerating the devastated vineyards. M. PLANCHON was a constant attendant at the several Congresses held on the Continent for the promotion of botany and horticulture, and was everywhere received with the respect due to his knowledge and general qualities. M. PLANCHON was the author of numerous monographs, one of his earliest being one on the distinction between the arillus and the aril-lode—a cardinal point of morphology overlooked till his time; his latest was a monograph on the order Ampelideæ, in Dr CANDOLLE'S series of monographs.

A MONSTER BOUQUET.—On the occasion of the visit of the Prime Minister (the Marquis of SALISBURY) to North Wales during the present week, we read from the accounts of the proceedings reported, "The Countess DE GALVE presented the noble Marquis with a monster bouquet, over 3 feet in diameter, composed entirely of Primroses and Violets. This elegant bouquet was designed and furnished by Messrs F. & A. DICKSON & SONS, The Queen's Nurserymen, Chester."

NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY.—The monthly meeting of the Society will be held at the Mechanics' Institute Nottingham (Room No. 71), on Wednesday, April 11, at 7.30 P.M., when papers will be read on Orchids and other spring flowers. The annual general meeting of the members will be held on Tuesday, April 17, at the Mechanics' Institute, Nottingham at 7.30 P.M., for the purpose of passing the balance-sheet, electing the officers, and other general business of the Society.

PRESENTATION TO A NURSERY EMPLOYÉ.—Mr. JAMES COLE, nursery manager for the last seven and a half years to Messrs. IRELAND & THOMSON, was on the 31st ult. entertained, on the eve of his leaving Edinburgh, at supper in Phillpott's Hotel, Newhaven, by a number of his friends. Mr. A. MCKENZIE, Warriston Nurseries, presided, and Mr. D. MITCHELL acted as Chairman. Mr. COLE was presented with an aneroid barometer in ebony, and Mrs. COLE with a gold ring set in brilliants.

DR. BODDAERT'S ORCHIDS.—We understand that this rich collection has passed into the hands of L'Horticulture Internationale of Brussels.

PLANTS AND THEIR CULTURE.

TUBEROUS-ROOTED PLANTS.—Gloxinias, Caladiums, Achimenes, and tuberous Begonias, are subjects of great beauty generally, and which by judicious management may be enjoyed from April to November, when the first sown seedlings of Gloxinias and Begonias will bloom. The bulk of the resting stock of these plants should now be potted in a free and rich compost of about equal parts of light fibrous loam, leaf-mould, and well-decayed manure, with enough sharp sand to keep it open. Plant the tubers firmly, but slightly, under the surface, so that they are just covered with the soil. After potting, guard against the soil getting too wet, for should this occur before the roots have permeated the soil, the compost becomes sour, and the plants do not thrive. Watering will seldom become necessary if due attention is paid to moisten the shelves or benches on which the pots and pans stand, and to wetting the sides of the pots with the syringe. With the due use of shadings no further watering will be necessary till the plants have made some considerable advance in growth. Gloxinias like a position near the glass in a close pit where a temperature from 60°—65° is maintained, which degree of warmth is very suitable if the plants are intended for use in furnishing; but a higher temperature may be allowed if they are to remain in a warm house to flower. During growth keep the atmosphere thoroughly moist, but avoid much syringing overhead, this being apt to cause weak growth. Caladiums, after they have fairly started to grow, require abundance of water, and will succeed better if placed in a higher temperature than that suitable for the

Gloxinia: 70° – 75° suits them well. Being tall growing plants they are well adapted for roomy structures, but if they are placed at a great distance from the glass as much light should be afforded them as possible, otherwise the leaf-stalks become too weak to sustain the weight of the leaf. Moreover, full exposure to the sun brings out well the markings and colours of the leaves; but if no shading be used the watering must receive close attention, and this will be much lessened if the pots can be partially plunged in a tan bed. Although there have been many hybrid forms introduced of late years, yet there are some few of the old sorts which are quite as good as the new-comers, and well worthy of cultivation. Such are *Chantini*, *bicolor*, and the beautiful little *argyrites*, so very useful in many ways. The size of the pots will be regulated according to the purposes for which the plants are required; but if large specimens are desired liberal potting should be afforded.

Achimenes.—Whilst these will succeed under similar conditions to *Gloxinias*, they are suitable for growing in baskets. Large shallow wire baskets are the best, and these should be well filled with light fibry material, and thickly planted, which operation is best done when the young plants are a few inches high. If carefully shaded and kept in a moist temperature for a short time after planting, they will soon establish themselves. Pans and shallow pots suit the plants admirably. As the plants come into flower they may be drafted into the conservatory, where they will be conspicuous objects for some weeks. Some of the sorts succeed well in a greenhouse temperature—notably *coccinea* and *Dazzle*.

Begonias—unless with seedlings in the earlier stages—require very little fire-heat; indeed heat, if not well balanced with light and air, soon spoils the plants by causing a weak and comparatively flowerless growth, whereas plenty of light and cool airy treatment, favour a sturdy and floriferous habit. A cool pit or frame suits them well, using no more shading than is actually necessary. Pot on young plants of these and *Gloxinias* before they get pot-bound, and sow more seeds for succession, treating them as recommended at p. 143, February 4. *F. Ross, Pendell Court.*

NOTICES OF BOOKS.

THE ANNALS OF BOTANY.

The February number of this journal, edited by Professor Balfour, with sundry collaborators, and which concludes the first volume, shows a marked advance upon its predecessors, and this we may say without in the least detracting from the value of the earlier numbers.

Professor Green writes on the tuber of the Jerusalem Artichoke, which contains inulin instead of starch. When required for use by the growing plant the inulin is nected on by a peculiar ferment, which converts it into sugar. This ferment is not actually present prior to the commencement of the sprouting of the tuber. Mr. F. W. Oliver details the curious anatomical structure of the sensitive labellum of *Masdevallia muscosa*, as originally described in our columns by Mr. W. Bean. The object is to secure the removal of the pollinia by an insect, which, alighting on the lip, is immediately entrapped without power of escape until he has effected Nature's purpose. Protoplasmic continuity is demonstrated in some of the cells of the lip—another illustration of the great significance of this discovery, for which we have largely to thank an English physiologist, Mr. Gardiner, of Cambridge.

Professor Bower pursues his researches into the life-history of Ferns, showing the importance of studying the prothallus or oophyte of *Trichomanes* and its allies, not only for physiological reasons, but for purposes of classification. Professor Marshall Ward supplies a very useful and opportune article on the sources whence plants obtain their nitrogen, the great difficulty being experienced with reference to the Leguminosæ. Professor Ward summarises the observations of Frank on the association or "symbiosis" of fungal threads with the roots of many plants—a fact familiar enough to all who have to do with nursery work, though no one till lately ventured to think that the fungus was

anything but injurious. Another instance of the same kind is afforded by the peculiar tubercles on the roots of Leguminosæ, often made the subject of inquiry, but now shown by Professor Ward to afford an "exquisite example of symbiosis between a fungus and a root." The fungus stimulates the root, causing it to swell, and in the swelling to store up large quantities of food-material, the stimulating action of the fungus enabling the root to acquire relatively larger amounts of nitrogen from the soil than it would do without the assistance of the fungus.

Several short notes are added, as well as an obituary record for the year, in which the leading facts in the life-history of deceased botanists are very briefly summarised, and a list of their principal publications appended. To this succeeds a record of current literature, containing the titles of the principal botanical memoirs and books published within the year. Periodical literature is treated in the same way, but we are surprised to find that our own pages have not been drawn upon when the contents of some foreign gardening publications and many homologous English periodicals have been duly noted.

The volume now completed is creditable to British and American science, and may take its place side by side with the best of the German publications of similar character.

PFLANZENLEBEN. Von Anton Kerner von Marilaun. Leipzig: Verlag des Bibliographischen Instituts, 1877. (Plant-Life.)

This is one of those books which makes us envy the German public—if not despair of our own. We fear no English publisher could be induced to publish for popular use so expensive a work as this. It comprises a general sketch of vegetable life, including both anatomy and physiology, and is beautifully illustrated with more than 520 woodcuts and twenty coloured plates. The illustrations are admirable, mostly original, and presenting a marked contrast with the hackneyed copies found in most English books. The information given is of the most complete and recent character, much beyond what is considered good enough for English readers of the same class. One drawback it has for English eyes in the fact that it is printed in the old German character, which might well be allowed to become obsolete. Moreover, it has no index.

AMARYLLIS AS WINTER BLOOMERS.

Of all the plants which may be cultivated specially for winter blooming, none are so gorgeous and striking as the members of the *Amaryllid* genus; and considering the ease with which they may be grown, the certainty of their flowering, and the length of time the flowers last in a cut state, it is surprising they are not grown very largely. Exception is sometimes taken to plants flowering without foliage. This is, I consider, of small moment, as it is a simple matter to introduce the pots without foliage amongst Orchids, *Gardenias*, *Encharis*, or Ferns, and many other things. The foliage of *Richardia* *ethiopica* will set off the cut flowers to perfection. It is not my intention to deal with *Amaryllids* as a specialty, and as they are grown in some of our leading nursery establishments, but as regards their adaptability as winter bloomers in ordinary gardens. During the dreary months of winter they are more welcome, when there is so little of brilliant colour in our houses.

For the last twenty years I have cultivated *Amaryllids* of the older type, such as *A. grandis*, *A. Ackermani*, *A. Johnsoni*, &c., for winter bloom, year after year, with the best results, without injury to the bulbs, and have had them more or less in flower from September to April.

To have the plants entirely under control, it is best to grow them in small pots—those of 4, 5, 6, and 7 inches in diameter are the most suitable; and

in these sizes they may be successfully bloomed for some years without being disturbed in any way, unless it be to examine the drainage. There is, in fact, a disadvantage in potting, there being less certainty of the bulbs maturing early, and the plants become inclined to prolong their season of growth unduly. Those, however, will bloom with certainty later. When they are not potted for several years there is little else but roots in the pots, and it becomes necessary when they are making their growth to give them frequent waterings with weak cow-dung water.

As soon as the foliage commences to push, the pots should be placed on a shelf close to the glass, to prevent the foliage getting drawn. A temperature of 60° to 65° should be maintained until they have finished growing, and the foliage must be kept clean and uninjured. A stick should be inserted in each pot, and each leaf slung up separately. Prepare a cold pit or frame by making a porous floor of coal-ashes. On this stand the pots as they mature their growth, affording each plant space sufficient for the foliage to stand clear; and the space between the pots will be the better for being filled with cocoa-fibre. As the foliage ripens gradually withhold water, and when it withers and falls off give no more; remove the lights unless during rain, and let the plants have full benefit of sun and air.

By the beginning of September some of the earlier matured bulbs will commence to show flower, and as these appear remove to an intermediate-house, and place them on a shelf close to the glass. By the beginning of October the whole stock may be placed in the same quarters, and watered with tepid water. *Amaryllis* are liable to be attacked by red-spider and thrips, but these may easily be kept under by syringing with water at 85° mixed with a small quantity of petroleum. *Wm. M. Baillie.*

NURSERY NOTES.

MESSRS. J. VEITCH & SONS, CHELSEA.

THE house of *Amaryllis* is just now the chief point of attraction for those who are not Orchidophiles, and here may be found numerous examples of Mr. Heale's triumphs as a hybridiser of this genus. It may be said in passing that the flowers were brilliant and large, but the newest and less new alike showed signs of having passed through a trying winter season in their lessened vigour and shorter flower-stalks. Fogs, cloudy skies, and a long-continued low temperature will always tell injuriously on some of the inmates of the greenhouse, stove, and other plant-houses, as all gardeners employed in large towns know too well.

Of new varieties the following were noted:—*Chevalier*, crimson; *Acquisition*, bright scarlet, banded with white; *Alberta*, a small flower, ground colour scarlet, having white bands running down each petal; *Pinette*, a very large flower, white; *Hazeldon*, of a new shade of carmine, the petals tipped with white. There have been seen flowers of a similar hue, but this one is a distinct advance in size of flower and form; *Chieftain* has very large flowers, scarlet, prettily reticulated with lines of a slightly darker tint. Of older varieties we may mention *Her Majesty*, still one of the finest of its colour; *Sir Walter Scott*, *Fabiola*, a cherry-red with green band in the centre of each petal; and *Landseer*, crimson (1887), is very fine this season. The collection is of much interest, and should be seen by all who are partial to these gorgeous plants.

The show will endure for some weeks yet, numerous succession plants having been noted in the side beds of the show house.

The so-called "Flower House" was gay with flowering plants of a hardy or semi-hardy nature, the highest note of colour being struck by the Ghent and mollis section of hardy *Azaleas*. The *Hyacinths* many of which have been seen at metropolitan exhibitions recently; *Lilac* of foreign growth, dwarf and full of flower. *Lachenalia bicolor*, grown in baskets

of wire; *Spiræa confusa*, a very free-flowering species, of twiggy upright habit, the flowers white, in corymbs of an inch in diameter; *Staphylea colchica*, *Deutzia gracilis*, *Genistas*, *Rhododendron Early Gem*, *Roses*, &c., formed the bulk of the flowering stuff. In the warm *Rhododendron*-house, *R. balsamiflorum* album, a small plant, was found in flower. If this should prove a good grower and free to flower there will be a great demand for it, as the flower is the ideal of a bouquet or a button-hole flower.

In the *Odontoglossum*-houses plants were found in flower of *O. pulchellum* and its yellow variety *O. Cervantesi*, *O. triumphans*, *O. Andersoniæ*, *O. Alexandræ*, and a nice piece of *Angræcum sesquipedale*, with six fresh flowers; *A. citratum*, *Miltonia Roezli* alba, *Oncidium ampliatum*, and many others. The *Cattleya*-house was, as usual, well filled with the finest flowering specimens. *Cymbidium Lowianum*, *Cattleya intermedia*—many—but one large specimen was bearing sixteen spikes of bloom. Of *C. Mossiæ* and *Lælia purpurata* there are hundreds which will shortly be in gorgeous flower. *C. elegans* and *C. Lawrenceana* were in bloom. The healthiness and blooming capabilities of the various Orchids in this large house cannot be excelled by any others. In the houses set apart for the *Cypripedia* much of interest was to be observed in old and new species and hybrids. Adjoining houses contained, amongst other Orchids in flower, *Lycaste Harrisoni*, *Aërides rubrum*, a rosy-lilac flower; *A. Houletti*, an elegant thing, buff, with rose-coloured lip; *Dendrobium nobile album*, a small plant; *D. Goldianum*, rosy-purple—a nice spike; *D. Brymerianum* and *D. albosanguineum*. *Maxillaria Sanderiana* will be in flower shortly.

TREES AND SHRUB.

RETINOSPORAS.

I ENCLOSE herewith two small branches cut to-day from a plant 3½ feet high of *Retinospora plumosa*, Hort. The smaller is *plumosa*, the larger is typical *pisifera*, and is merely a portion of a primary branch some 16 inches long, proportionately feathered, that originated directly from the stem at a point about 2 feet above the surface of the ground. The *pisiferoid* branch was not only much the largest on the plant, but had also a more vigorous look about it than the other branches, and, unlike them, took a directly horizontal direction, as in the typical *pisifera*. The interest in the dimorphism of the plant is increased to the morphologist and physiologist by the fact that the *pisiferoid* branch only was fertile. *G. Syme*.

[We are indebted to our correspondent for this interesting specimen, which affords one more illustration that *plumosa* is only a juvenile, and usually transient form of *Thuja pisifera*. We have similar specimens from Mr. Maurice Young, and also a shoot of *pisifera aurea*, produced from *T. plumosa aurea*. Ep.]

JAPANESE MAPLES.

Acer polymorphum and its Varieties.—These beautiful deciduous hard-wooded shrubs we strongly recommend for growing in pots or tubs for greenhouse or conservatory decoration, and especially in the young state, as being most graceful for table ornamentation. They are particularly useful as affording contrast with other plants either in the spring and early summer time for their delicate tints, or in the autumn during the ripening period, when their gorgeous foliage assumes the hue of the Virginian Creeper.

Amongst the varieties exhibited we find the earliest kinds brought to this country—viz., *Acer polymorphum sanguineum* and *atropurpureum*; these two varieties are amongst the hardiest, and are therefore suitable to plant in cold countries. Another variety, *Acer polymorphum palmatifidum*, possess a beautiful green colour, and is very serviceable, changing in autumn its lovely tints. A very light and graceful kind of this, called *laciniatum*, has

reddish-coloured points to the shoots dying off in light colours, *A. polymorphum dissectum* has a similar habit, with crimson foliage.

In striking contrast to these, we have the newest varieties, conspicuous amongst which is *A. Itaya*, with large emerald-green fan-shaped leaves, very picturesque; *A. Benni Shidare*, a most quaint and handsome Fern-leaved variety; *A. Atho Ba*, with bright green leaves, which are bronzy-red in their young growth; *A. nomina*, deeply serrated crimson leaves, veined with scarlet; *A. Choshio*, intense scarlet deeply serrated leaves; *A. Shikara mama*, green and white leaves; *A. Taimen Nishiki*, deeply dissected purple-bronze leaves—a Fern-like and beautifully distinct variety. Also a few unique specimens of Japanese art inarched with several of the most distinct varieties on one plant. In addition to the above we can strongly recommend the following:—*Aho Shidare*, *Fiure nis nige*, *Hiatsu Yuki*, *Kagiri*, *Oridora Nishiki*, *Toi mire nige*. The above fine selection of Japanese Maples were exhibited by the Lawson Seed and Nursery Co. at the Royal Caledonian show, Edinburgh, April 4 and 5 last. [Did the Company provide an interpreter? We have great respect for legitimate priority of nomenclature, but we are sure the Company would have been forgiven had they attached English names to these variations. Ep.]

PRUNING SHRUBS.

This important operation is often performed in an unintelligent way. We may presume that nearly every shrub has its own peculiar habit of growth, and this habit should always be regarded—as it is—as one of its chief beauties, and therefore, in our interferences with these every attention must be directed, but particularly in pruning, to preserve that peculiarity of habit. By all means remove straggling or ungainly branches where such occur, at the same time avoid pruning all shrubs into the same shape, else by so doing their individual identity is destroyed, and with it half their beauty. Pruning is often performed in early spring—all shrubs being treated alike—and yet it is utter folly to prune a *Deutzia*, a *Forsythia*, a *Mock Orange*, and hundreds of others at such a time, for by so doing their flowering shoots are destroyed; but prune these in June after they have finished blooming, and you induce the growth of young wood which is to bear flowers the following season. How seldom this advice, which we have before recorded in these pages, is acted upon—not in one garden in every hundred. A *Spiræa*, a *Lilac*, or a *Honeysuckle* may, with perfect success, be trimmed during winter or early spring; but a good general rule is this—that in the majority of cases, pruning can be best effected, and with least damage to the flower-bearing shoots, by having this performed immediately after the blooming season is past.

ZENOBIA SPECIOSA.

This is a pretty, and, at the same time, rarely seen North American shrub, with a profusion of pure white Lily-of-the-Valley-like flowers when it is well grown. Swampy land is the favourite haunt of the *Zenobia* at home, and it makes little satisfactory progress when planted in dry soils of any kind, and therefore to grow the plant well a damp peaty loam, such as *Rhododendrons* favour must be selected. A yard or so high it may usually be seen, of rather neat habit of growth, and, if in good health, thickly studded with white bell-shaped flowers.

ZENOBIA, OR ANDROMEDA FLORIBUNDA,

is a pretty well known plant, and, like the one just mentioned, it is somewhat difficult to manage, requiring a cool, moist soil—such as every one does not possess in his garden—and a shady situation; but the latter, we have noticed, is not of great moment where ample but not stagnant moisture is secured.

It is a shrub of usually a yard in height, and as much through, when well developed, and when in good health amply furnished with foliage. The pretty little creamy-white flowers are borne in great profusion, and being of good substance, remain on the plant for a considerable length of time. *A. D. Webster*.

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

ROYAL HORTICULTURAL SOCIETY.—I trust that the new grade of Associate of the Royal Horticultural Society will become popular with gardeners. The Associateship I hope to see become the Gardeners' Guild, and should be worth at least £5 a year to the possessor. I look forward to the time when every gardener will from necessity be obliged to be enrolled. I think the Society should grant certificates or diplomas to gardeners on election. Owners of gardens will not be slow in recognising the value of men who hold these certificates, and they will feel some confidence in entrusting the charge of their gardens to men who have some recognised authority to be called gardeners, and thus it will raise their social and professional position. How many gentlemen have had, at some time or other, in their employ men who could talk a dog's hind leg off, but who were entirely dependent on their subordinates for the welfare of the plants entrusted to their charge? This class of men are a positive injury to young men who have ability, and they too frequently occupy places of trust when they themselves are only fit for employment as garden labourers. I therefore think that the Council has done wisely in requiring that candidates for Associateship should be recommended by two Fellows who can speak of their professional ability from personal knowledge. [One only is thought sufficient.] I hope the day is not far distant when the Council will require candidates to give satisfactory proof that they are worthy of election. Associates will be eligible to serve on the Fruit and Floral Committees, and, of course, they will have the right to vote on those committees. At present there are members of these committees who are neither Fellows nor Associates; I, therefore, proposed to the Council that in the new byelaws it should be stated that no person should be eligible to serve unless he was either an Associate or Fellow, but the Council considered that it would be better to postpone the consideration of this question, and that it should be taken in conjunction with the whole question of the duties and mode of election of committees, which subject they hope to discuss at an early date. I trust that societies which hereafter may become affiliated with the Royal Horticultural Society will only employ such gardeners to act as judges at local shows who hold the Associateship certificate. I do not think that 10s. 6d. is an excessive charge to ask for the privileges and benefits which I expect will result to gardeners on becoming Associates. We want true and good men to join, but we must take care to exclude unsuitable persons. *A. H. Snee*.

I think Mr. D. T. Fish may expect a few lines from me after his remarks on the reconstruction of the Royal Horticultural Society at p. 403. I have the greater pleasure in sending them from having a lively recollection of how Mr. Fish worked for the success of the Society's show at Bury St. Edmunds, and also of the beauty of Lady Cullum's garden, especially the landscape effects which he showed to me, and which were, I believe, owing to his taste and judgment. I will begin by thanking him for his good wishes for 500 guinea Fellows. These, I am happy to say, are coming in most satisfactorily. I thought, and think, that guinea subscriptions are the lowest rates which will support a society, Fellows' subscriptions are not all profit, each new Fellow causing expenses now, and when the Society gets stronger and therefore more active, these expenses will be considerably increased. I was not against the 10s. 6d. Associates, as the expenses which their privileges involved were not proposed to be great. Why I appealed to owners of gardens is that I think that they would subscribe to the Society if they could only be made to feel how the produce of their gardens has been, and is being, improved in quality by the work of the Society's committees and Chiswick garden; and besides this, other members of Council have more influence than I have with "practical gardeners," and to make the Society the success it ought to be each one must work on his own ground for the common good. I do fear that a guinea, and even half a guinea, with the attendant travelling expenses, is more than many really good gardeners

can properly afford to subscribe; but I am happy to say that gardeners in general understand why I especially address my own class, and do not consider themselves in any way slighted, as is shown by their giving their names for the 500 not only by letter, but at the Tuesday meeting in the Drill Hall three first-class gardeners asked me to propose them as guinea Fellows. I have seen a great deal of the high class gardeners who serve on the committees; I know them and they know me, and I have no fear that they will misunderstand anything that I write. I think I have now said all that is required, but perhaps I should add, that while I have spoken of 500 guinea subscribers to be brought in within a year, I have long believed (see note in *Times*, October 10, 1876) that 5000 guinea Fellows could be got without difficulty by united work, with prospects of an increase in numbers. *George F. Wilson.*

Your insertion of my note on guinea Fellows for the Royal Horticultural Society has had the effect of bringing in some first-class names of candidates for guinea Fellowship. Will you allow me now to say that the Council has decided to make the personal admission, given to guinea Fellows, transferable? This will meet two difficulties; one pointed out by an influential friend, an energetic believer in "the guineas," who gave me one day sixteen names of candidates. He found that some of his leading City friends desired to become Fellows, but, as they were too busy to attend the "fortnightly shows," they could not use the tickets, while they wished that their wives should be able to do so. The transferable ticket will admit of this. Again, friends of the Society living in distant parts of the country and never coming to London, feel that if they became Fellows, they ought to be allowed to send the tickets to a friend who could attend the shows. This was strongly urged long ago by my old friend the late Mr. Isaac Anderson-Henry, of Edinburgh. They will now be able to do this, and the result will be, that we shall have exactly the right sort of visitors to the fortnightly shows. It was often a grief to many of us at South Kensington to see really beautiful and most interesting little fortnightly shows, when by far the greater number of those present to benefit by them, consisted of gardeners, nurserymen, and amateurs, who had served upon the committees, and who were looking at each other's exhibits, and at the same time to know that there were numbers of ladies and gentlemen within easy reach of the shows, with a real love of flowers and plants, who would delight in seeing shows, which, though small, contained the pick of the plants of the most celebrated growers of each class; and new, little known, and interesting plants, fruits, and vegetables, sent up for judgment to the committees from all parts of the country. Now that the Society will consist mainly of Fellows who join the Society to advance gardening, and not to have the use of a London garden for their children to exercise in, it may be expected that these fortnightly shows will be popular to an extent they have never been—at least, since I have known the Society—more than twenty years. Judging from the first most beautiful and interesting show in the new quarters, the London Scottish Drill Hall, on the 25th, the London leaders of the trade, and some of the greatest amateurs, mean to make the fortnightly exhibitions most attractive ones. The natural effect will be that, before long, they will be attended by numerous visitors. This will induce still greater exertions on the part of the exhibitors, followed by a greater number of visitors, and so onwards. Several friends whom I have asked to join as guinea Fellows have answered by applying to be made two-guinea Fellows. I should hope that the much larger privileges given to the four-guinea and two-guinea Fellows will have the effect of causing many ladies and gentlemen able to be pretty constant visitors to the fortnightly shows to subscribe at the higher rates, and that some will become four-guinea Fellows mainly to give a helping hand to the Society in its new and purely horticultural start of life; but I feel sure that the great bulk of the Society will, like the Royal Agricultural Society and the National Rifle Society, consist of guinea subscribers; and I believe that a Society mainly supported by a very large number of guinea subscribers will be stronger and more lasting than one dependent on a smaller number of subscribers at higher rates. *George F. Wilson.*

BEGONIAS.—Your correspondent, "Boliviensis" (p. 393 of your issue of March 31 last), writes about the progress and improvement of the Begonia in Scotland. I fancy he must have been in Bolivia for the

last ten years or he would have been better acquainted with the very great advance and improvement the plant has made in Scotland, both for indoor decoration and for outdoor bedding, during that period. Mr. Thomson, Drumlanrig Gardens, and Mr. Robb, Drummond Castle Gardens, were the pioneers of Begonia culture in Scotland, more especially as outdoor bedding plants; and both these eminent gardeners have been most successful in proving long since that the plant is well adapted for flower garden decoration; yet it is surprising how slow the gardeners in Scotland have been in taking to their culture. Now, however, "Boliviensis" will find them bedded out as far North as Ross and Inverness and other shires, and they are becoming more and more appreciated. *Alpha.*

LETHORION.—I have given this new insecticide a fair trial in the Peach, Cucumber, Melon, and plant-houses here, and can speak of it in high terms. It is a sure and sudden death to all kinds of fly and thrips, without causing the slightest injury to the tenderest frosts of a Maidenhair Fern. I look on these "vapour cones" as a boon to gardeners, particularly for smoking-pits and frames. Ladies will be able to fumigate their greenhouses themselves; in fact, a child of six can light them without the slightest danger. They should be set alight with a taper, and care should be taken to have every aperture in the house or pit properly closed. Should it be possible for the inventors (Messrs. Corry, Soper, Fowler & Co.) to send it out at a lower price, I have no hesitation in saying that "Lethorion" would be immensely popular. *W. G. Pragnell, Sherborne Castle, Dorset.*

WEeping LARCH.—I would ask if the Weeping Larch at the Godalming Nurseries is the weeping variety of the common Larch? (mentioned by London), or the American, Larix pendula, the Swamp Larch or "Hackmatack"? The drawing you give of it is much more like this last tree in the form which it assumes when grown upon a dry soil than any form of the European Larch that I have seen. *C. W. Strickland.* [We believe it is *L. Europæa*, but Mr. Young will kindly explain. *En*]

COPYRIGHT OF FRUITS.—Under this heading Mr. T. F. Rivers comes to a conclusion that is rather illogical and perhaps a little remote from the point at issue. He mentions a philosophic belief—purely theoretical of course—that our excessive civilisation may eventually end in man becoming once more that hairy quadruped yclept monkey or perhaps ape. In such case, says Mr. Rivers, the creature will have some better diet in the fruits left by man and produced also by civilised methods, than were the primeval hips and nuts. But if this odd form of reversion is to follow upon excessive civilisation, is man to be the only sufferer? Logically, will not all animal and vegetable life produced by civilisation revert to natural forms in the same way? Surely the present wonderful fruits which now enrich our gardens are as much civilised products of original and remotely inferior species as man is a civilised product of the antediluvian ape. We cannot hope that fruits will do other than revert to hips and haws in those dark days when man shall once more become monkey. As to the question of the quantity of copyright to fruits or indeed to anything else vegetable, the desire may be natural but the realisation is impossible, and because impossible it is useless further to argue the question. Mr. Rivers may maintain an absolute right over fruits of his own raising as long as he retains the stocks in his possession, but with disposal of stock goes all further claim, and no power on earth could or would give him or any other raiser further claim upon what was thus parted with. *A. D.*

LIME FOR STONE FRUIT TREES.—It may interest your readers, after the communications in your issues of February 25, to inform them that Mr. Rivers, in the *Orchard House*, 1879 edition, states:—"I have for some time suspected that which I now know, viz., the necessity of calcareous matter in all composts used in the cultivation of stone fruits. On a careful examination of the soil, particularly the loam used in potting fruit trees, I found it to be, like all the soils of this district, full of finely comminuted chalk, and to this large preponderance in our sands and loams is owing a part of the great success which attends the cultivation of orchard-house fruits here. I believe the addition of chalk to compost not calcareous and to loams of a ferruginous nature to be quite necessary in the culture of stone

fruits, and if not necessary, still most beneficial to all kinds of fruit trees." In a letter to myself, which is quoted in my pamphlet, Mr. Rivers writes:—"Boulder clay with patches of sand, gravel, and London clay all lie above the chalk in this district. The chalk exists in the boulder clay, and, in fact, permeates the entire system of gravel, sand, and boulder clay, and gives strength and fertility to the trees, and flavour to the fruits and vegetables." Dr. Haviland, in the *Lancet* of February 25 and March 3, states that the carbonate of lime of which chalk is composed cannot fail to have a neutralising effect on the sourness of soil, and that chalk and other absorbent rocks which he mentions when underlying clays sufficiently near to the surface of the clay, cannot fail to exert a beneficial influence in neutralising sourness and effecting drainage. *The Author of "A Guide to the Choice of a Site."*

THE CINERARIA.—Lovers of this plant will find a rare treat before them if they care just now to get so far as Woodside, Farnham Royal, Slough, and there inspect Mr. James' large and well-grown plants. Some few have been favoured to see plants of the strain at one or other of the early gatherings of the London societies, but select as these were in quality and refinement, yet they fail to produce that sense of surprise which arises on looking over the hundreds of plants, all in luxuriant and very fine bloom. The bulk of the plants are grouped as far as possible into colours. *A. D.*

STACHYS TUBERIFERA.—This novelty in vegetables, which you figured on January 7 last, and which is likely to be of value as a culinary tuber and also for salads, forces well. My treatment was as follows:—Sets were planted in 12-inch pots in December, the temperature maintained being 50° to 55°. I have also grown it in cold frames, with good result, having as many as 100 tubers on one plant. I have also planted a number of the tubers in the open ground this year, as I find it is almost hardy, and comes in as a change at the dinner-table. The tubers which were lifted in September and October last have kept well until now. *J. Claydon, Gay's House, Holport, Maidenhead.*

MULCHING.—Planters are often afraid to use manure about trees and shrubs, but for many years we have used half-rotten manure immediately above the soil placed next the roots, and in every case with the most satisfactory results. Last year, when planting an avenue of Austrian Firs and large breadths of tall Poplars, Planes, and other trees, we used good mulching, packed all over the soil, which had been placed firmly over the roots. There were months in which scarcely any rain fell, and having no water at hand the trees had to take their chance. All lived, and made a little healthy growth, and are now able to hold their own. Many hundreds of shrubs were planted last April, and well mulched; they, too, are in a satisfactory condition. While lifting and transplanting large numbers of choice Rhododendrons, Yews, Lilacs, Briers, Thorns, Hollies, Retinosporas, and many kinds of Conifers lately from poor gravelly soil, I noticed that they were well rooted. These, when planted during April and May, four years ago, had been liberally supplied over the surface of the roots with rotted cow manure mixed with loam, and all well trodden down, with clean soil thrown over. If a little liberal mulching were practised when planting on poor soils, there would be fewer reports of failures and losses. *Scot.*

TOO MANY DAFFODIL NAMES.—Some of the most beautiful of the Daffodils are now in flower at Temple Hill, all being subjects collected in a wild state, but developing their special charms under suitable cultivation, viz., shallow planting, excluding all manures, for they detest it, but using coarse sea sand and fresh cut turfy loam. As a distant member of the Narcissus Committee, I would suggest that we make a start in some way with selections from collected bulbs, and that next season, some one or two growers, favourably situated as regards soil and climate, should take large numbers to the Daffodil Committee from the sections *Narcissus pallidus* *præcox*, *N. nobilis*, and *N. variflorus*, so that each member at the sitting could have a supply to take away and compare with what he had growing in his garden. In this manner a start would be effected, and simple registry by numbers might be adopted. I have varieties of *N. pallidus præcox* with broad bluish-green toxifolius-like leaves, and the blooms the counterparts of those of *N. Emperor* and *N. maximus*, but straw-coloured; while in *N. nobilis* and *N.*

variformis there are some wonderful bicolors. Indeed the two coloured flowers of the Conference, list of 1884 should by this have become absorbed or lost sight of, and probably now hide their diminished beauties before *N. nobilis* bicolor in particular. Away, then, with the rubbish which has had its day before the flood, and let us start afresh and number the introductions from the Pyrenees. Why should we be always having this misleading cry of too many names constantly brought by the committee, when we take into account that though there are fifty-three such names in the "major class" of the Conference list of 1884, and some forty in the "bicolor" and lorifolius sections, which, to my mind, will never see the light, whilst the wild beauties, Nature's children, are crowding in on them and coming to the front in thousands, why must the latter be only approached as "wildlings" because the art of man had no part in their production? May not many of the varieties now in commerce, for aught we know, be only chance seedlings—escapes from gardens, distinguished though they be by the B. L. at the bar of criticism. *W. B. Hartland, Temple Hill, Cork.*

MEDINILLA MAGNIFICA.—This is a noble plant, surpassing all other flowering stove plants in the spring and early summer, in the beauty of its pendulous racemes and its striking foliage. We have a plant measuring 8 feet in diameter, bearing upwards of sixty-eight racemes of bloom. The terminal ones are very fine, and some of the buds (twenty-five) breaking from the old wood are almost as good, some few are rather smaller. In the *Gardeners' Chronicle* of July 3, 1875, is a note of a plant in Lord Falmouth's garden, which bore fifty-seven spikes. *N. Blandford.*

STRIKING AUCUBA CUTTINGS.—Having met with considerable success in the propagation of Aucuba cuttings, a few notes may be useful to those persons who wish to increase their stock of this valuable shrub. Take the cuttings in the early part of October, choosing stout shoots of the current year's growth about 4 inches long and taken off with a heel. Prepare a sufficient number of 7-inch pots, crocking them freely and filling them with sandy soil, on the top of which place a layer of sharp silver-sand; water the soil to make it firm. Dibble ten cuttings into each pot, making them firm in the soil by again watering them lightly. Plunge the pots up to the rims in coal-ashes in a cold frame having a southern aspect. In this position they should remain until the middle of the following March. During this time they will require very little water or air—just enough of the former to keep the soil moist and a sufficiency of the latter on fine days to keep all sweet and clean. In March the pots should be plunged in a gentle bottom-heat (a partly spent hot-bed answers well), when roots will quickly be formed; and about the end of April the plants should be carefully separated, to prevent breakage of the roots, planting them in good soil on a border facing north, in rows one foot apart and 10 inches from plant to plant. In this position the plants should remain until the following April, when they can be transplanted to other quarters, or they may remain where they are for another season. Should any of the plants show a tendency to run up with one single stem instead of branching out, the point of each should be cut out, to induce the growth of side branches. A heavy retentive soil is what Aucubas enjoy. *S.*

HOP FARMERS.—"It is stated on the authority of a Kentish land agent, who is himself a farmer, that agricultural depression throughout that county is becoming more severe than ever. In the Weald a great deal of land is being laid down to grass, and the population of more than one village has decreased by some hundreds. In the neighbourhood of Frittenden and Marden there are at least twelve farms, each about 100 acres in extent, to be let, owing to the tenants giving notice to leave. Rents have been generally reduced to the extent of one-third of the former amount, but nearly every landlord has farms on hand. Hop growers have an enormous quantity of Hops on their hands, being unable to find purchasers even at ruinously low prices. One large grower in East Kent holds no fewer than 2000 pockets of the best Hops, and cannot get a single offer for any portion of them." In your issue of September 26, 1885, you inserted a communication of mine to Messrs. Hooper & Co., of Covent Garden, about Hop shoots. If things are still as bad in the Hop districts of Kent as they are painted in the above extract from the *Standard*, I think it high time that the British Hop farmers

should wake up to the necessity of attending to any suggestions for their benefit made by others. I have just returned from Maidstone, and do not think it is too late to save the present crop of Hop shoots for the London and Brussels markets. British farmers can ill afford to cut them to waste. *E. Belleruche.*

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, APRIL 10.—The meeting of the Committee took place at the Drill Hall, James Street, Victoria Street, Westminster, S.W., on the date above mentioned. Exhibits occupied the entire circuit of the walls, and a long table in the middle of the hall. Trade collections of Narcissi, Cinerarias, and Ferns occupied much of the space, and the miscellaneous exhibits the centre table. The scene was relatively bright, and the plants of much interest horticulturally; but the beholders other than those connected with the Society and the Press were but few.

Scientific Committee.

Dr. M. T. Masters, F.R.S., in the chair. Present: Messrs. MacLachlan, Michael, O'Brien, Ridley, Professor Scott, and Rev. G. Henslow.

Narcissus, fringed.—Professor Scott reported upon his examination of this monstrosity (figured at p. 405), and found that the orientation of the fibro-vascular cords was the same in the outgrowths from the corona as in the perianth leaves, but contrary to the arrangement in the corona itself—i.e., they are normal, with the phloem, or bark, on the lower side, and the xylem, or woody portion, on the upper; the fringes alternated with the perianth leaves, giving the impression that they constituted another whorl, so that the tubular parts below the perianth leaves was probably of the nature of a receptacular tube.

Cyclamen, fringed.—Dr. Scott had also examined the specimens exhibited at the last meeting. The petals were not reflexed as in the usual state, but have crowded outgrowths on the inner surface. The cords were reversed on the outgrowths, the orientation of the tracheæ and phloem being, therefore, just as they are in the corona of Narcissus. There was, however, no great regularity, the tracheæ very frequently being quite central.

Dr. Masters observed that similar appendages occur on the outside of Gloxinias, and in them the colour becomes reversed as well. Mr. Henslow called attention to the description of fibro-vascular cords as given by M. P. van Tieghem as being too diagrammatic; that where that author laid stress on the reversal of orientation in the anatomy of pistils it was more general to find the tracheæ central, or else surrounded by phloem in an irregular manner. This often occurs with the placental cords which supply the ovules.

Cattleya Trianae.—Mr. Smee exhibited a monstrous form, which was referred to Mr. Ridley for examination and report.

Hazel Catkins.—Dr. Masters exhibited specimens from M. Syme bearing small female flowers at the base of the male, as well as in the usual terminal position.

Cyclamen with lacinate petals.—Mr. O'Brien exhibited a flower with petals cleft into several lobes, a result, probably, of some degree of impoverishment.

Quercus Skinneri, Acorns.—Mr. T. Christy sent specimens received from Mexico for tanning purposes. They are remarkably large, being from 1 to 1½ inch in length, and three-quarters of an inch in diameter. They were introduced originally about thirty years ago.

Citharexylon latum.—He also forwarded seeds of this plant—also from Mexico. The "nutlets" are oval, plano-convex, and deeply grooved within. They are used for a beverage, which is said to be intermediate in flavour between chocolate and coffee. Certain species of *Lantana*, of the same order, Verbenaceæ, are used for Tea; but whether either genus contains alkaloids allied to theobromine or caffeine, is not known.

Floral Committee.

Present: Rev. W. Wilks in the chair; and Messrs. W. Goldring, W. Wildsmith, B. Wynne, H. Herbst, J. Fraser, M. T. Masters, W. H. Lowe, G. Duffield, C. Drury, R. Dean, W. Norman, G. Paul, C. Noble, H. Ballantyne, J. Dominy, H. M. Pollett,

A. H. Lendy, J. O'Brien, E. Hill, Shirley Hibberd, and J. Walker.

Mr. F. Ross, gr. to Sir G. Macleay, Pendell Court, Bletchingley, exhibited flowering sprays of *Bignonia Tweediana*, very abundantly flowered; the flowers are funnel-shaped, on the outside light yellow, and inside of orange. This fine old greenhouse climber should be grown by everyone possessing the necessary accommodation. It will grow well enough in a greenhouse, but it then flowers later, and the flowers do not last so long as when the plant is got into bloom in the spring, by growing it in an intermediate temperature. Flowers of the brilliant-flowered stove shrub *Brownea coccinea* came from the same garden; the colour is crimson, not scarlet, and the flowers form a rather close fascicle.

Some handsome spikes of *Dendrobium nobile* were shown by Mr. W. Kirk, gr. to Lady Selborne, Blackmoor, Liss.

A bright rose-coloured *Mitonia vexillaria* Emperor Frederick came from W. Cobb, Esq., Silverdale, Sydenham (gr. Mr. Catt), who was awarded a Cultural Commendation. The plant was an example of careful culture.

Mr. T. Bunyard, nurseryman, Ashford, Kent, exhibited flowers of the same dark coloured *Chrysanthemum* which he sent for our inspection recently.

Quite a large collection of various plants well arranged were sent by Mr. B. S. Williams, Paradise Nursery, Upper Holloway. Conspicuous amongst them were two specimen *Adiantums*—*A. colpodes* and *A. æthiopicum* var. *elata*. The former is of an elegant slender habit of growth, with young fronds of a shade of buff—the latter is a tall grower of lax habit; the pinnae bluntly triangular, and the stripes tall black. *Selaginella cuspidata crispata* has an erect dense habit of growth and triangular fronds, arranged in such a way as to greatly resemble a Fern. *Cordyle australis variegata* is a form of a well known plant with longitudinal stripes of creamy-white. Many varieties of *Amaryllis* were found in the collection, the newest being Emperor Frederick, scarlet, with rounded segments, strongly reflexed. The pretty *Oenha multiflora*, a few species and varieties of Orchids, *Camellia reticulata*; *Yuccas*, *Ferns*, *Crotons*, &c., completed the exhibit. A Silver-gilt Banksian Medal was awarded.

Various heads of flowers of *Oliveria miniata*, raised from seeds gathered in South Africa, were shown by Mr. P. Davidson, gr. to Lord Wolverton, Iwerne Minster, Blandford. The colour of the flowers and their size, and that of the corymbs made them equal to the best strains artificially hybridised.

The contribution from Messrs. J. Veitch & Sons' nursery, Chelsea, consisted of *Amaryllis Finette*, A. Rodney, a crimson with white bands; A. Conqueror, deep crimson banded with green at the base of the petals; Miss Roberts, wherein the upper portion of the petals is crimson, and the lower white. The free flowering *Spiraea confusa*, a good-sized example, was shown, likewise *Chionanthus virginicus* (Fringe Tree), in well-flowered, dwarf, worked bushes. The singular-looking white flowers of this plant are something quite apart from the usual run of spring-flowering plants, and should make it to be much sought after by gardeners in search of novelties. Iris reticulata, a small collection of Daffodils, and the small form of *Narcissus nana*, completed the more prominent plants in this collection.

Messrs. Paul & Sons, The Old Nurseries, Chess-hunt, showed *Laburnum alpinum*, a tree in a pot, and densely flowered; *Rosa polyantha*, the single-flowered variety; R. p. Anna Maria de Montraval, floriferous, white, in racemes; *Rosa macrophylla*, or rubra plena; Rose Rivers' Musk, a semi-double flower, in colour pink, and very free; R. clinophylla plena, bud filbert-shaped, flesh coloured; a pretty flower. The *Rhododendron* Lady Alice Fitzwilliam, nicely flowered was also shown. (A Silver-gilt Banksian Medal.)

Another good group of Roses, which received a similar award, was shown by Messrs. H. Lane & Sons, Berkhamstead, similar to what they showed at the previous meeting. The plants were very well flowered, the best examples being Madame Charles Wood, Ulrich Brunner, Magna Charta, La Paquerette, Mignonette, Madame Marie Verdier, John Keynes, and Madame Lacharme.

A good group of plants was sent by Mr. J. Roberts, gr. to Messrs. Rothschild, Gunnersbury Park, W., the most observable feature of which was the six bushes in pots of *Rhododendron* Lady Alice Fitzwilliam, a white Indian form, heavily flowered. The bushes were very even and short, 2½ inches in diameter by 2 feet high. A silver-gilt Banksian Medal was awarded.

The Royal Gardens, Kew, contributed an interesting collection of plants, chiefly Primulas, of which we may mention *P. Clusiana*, *P. Porteschlagneri*, *P. Pacchini* (a capital plant), *P. marginata* and varieties, *P. pubescens* and varieties. Other plants included *Cistus Clusii*, *Mackaya bella*, and *Rhododendrons Falconeri*, *Campbelli*, and *cinnamomeum*; and *Cineraria cruenta*, interesting as being the original of the florists' *Cineraria*, of which latter a large group of plants, with large well-coloured flowers of good substance, was shown by Mr. J. James, Faraham Royal, Slough. One variety, named Marie, was certificated. It was dwarf and compact, rays white, of great substance and imbricated, violet disc. For the group a Silver-gilt Banksian Medal was awarded.

Mr. Halibart, gr. to W. Clay, Esq., Grove Road, Kingston, showed a group of *Cyclamen* of good quality and strong, but with rather small flowers. Bronze Banksian Medal. A like award was made to Mr. H. B. May, Dyson's Nursery, Edmonton, for a very pretty group of *Feras*, the effect of which was very striking. The various forms and shades of the foliage make these plants useful for grouping thus; *Pteris serrulata compacta*, *P. argyrea*, and various forms of *P. serrulata* and *P. cretica*, with *Adiantums* in great variety, formed the major part of the exhibit. Mignonette was also sent by Mr. May—very compact plants.

From H. M. Pollett, Esq., Fernside, Bickley (gr. Mr. Parks), there came a fine collection of *Odontoglossums* (all strong pieces) including several good vars. of *O. crispum*, *O. Ruckerianum*, *O. Andersonianum*, and *O. Wilckeanum*, for which a Silver Banksian Medal was awarded.

Carnations were shown by Mr. C. Turner, Slough. They were Mrs. W. H. Greenfell and Purple King, both of which were certificated by the committee. The flowers of Mrs. W. H. Greenfell are very full, rich flesh-pink; and those of the other variety a dull purple, and also full, with large petals.

Other minor exhibits were *Cattleya Blunty* (a good piece), from Mr. Ballantyne, The Dell, Egham, Surrey; *Mignonette*, with good large spikes, from Messrs. Parker & Sons, St. Michael's Hill Nursery, Bristol.

Messrs. H. Low & Co., Upper Clapton, showed *Boronia megastigma*, *B. m. major*, and *B. m. floribunda*; the last-named is very free in flowering, with flowers of a lighter colour than in the type.

Cypripedium Mastersianum was shown by F. G. Taatz, Esq. (gr. Mr. Cowley); the dorsal sepal is broader than it is long, green, fading to a yellowish hue along the margins; nerves brown; petals 1½ times as long as the dorsal sepal, nearly half an inch wide, red-brown, with black spots at the base; the superior margin has a strange twist just below the apex, making it appear as though a piece had been cut out; lip red-brown with darker markings.

Narcissi.—Daffodils were largely shown by Mr. T. S. Ware, Tottenham: *N. bicolor Horsfieldi* was specially good, and *N. b. Emperor* was represented by flowers measuring about 3½ to 4 inches in diameter; *N. incomparabilis sulphureus* and *N. Golden Spur* were other good examples. Silver-gilt Banksian Medal. The exhibitor also contributed *Anemone blanda*, the blue flowers of which are very pretty; *Iris stylosa var. alba*, white with a suspicion of lilac on the standards—a very desirable object: *Trillium grandiflorum*, *Primula viscosa nivalis*, hardy *Orchids*, &c. A Silver Banksian Medal was also awarded to Messrs. Barr & Son, Covent Garden, for a collection of cut Daffodils and various *Crocuses* in pots. Of the *Narcissi*, Sir Watkin and Barri conspicuus were well shown, and other noticeable forms were *N. cyclamineus*, *N. minor*, *N. cernuus plenus*, *N. Golden Spur*, &c. Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, London, S.E., also showed Daffodils, &c.; *N. pallidus præcox* and *N. obvallaris* were the most plentiful; *N. poeticus*, *N. princeps*, *N. telamonius plenus*, &c., were also shown. There were also a number of cut blooms of *Anemone fulgens*. (Silver Banksian Medal).

FIRST-CLASS CERTIFICATES.

To Messrs. Paul & Son, for *Rosa polyantha grandiflora*.

To Mr. C. Turner, for Carnation (tree) Mrs. W. H. Greenfell.

To Mr. C. Turner, for Carnation Purple King.

To Messrs. J. James & Son, for *Cineraria Marie*.

To Mr. B. S. Williams, for *Cordylone australis variegata*.

To Mr. B. S. Williams, for *Amaryllis Emperor Frederick*.

To Mr. B. S. Williams, for *Selaginella cuspidata crispata*.

To Mr. T. S. Ware, for *Iris stylosa alba*.

To Messrs. Veitch & Sons, for *Amaryllis Rodney*.

To Messrs. Veitch & Sons, for *Amaryllis Finette*.

To Messrs. Veitch & Sons, for *Amaryllis Conqueror*.

To Messrs. Veitch & Sons, for *Amaryllis Miss Roberts*.

To Mr. F. Ross, for *Bignonia Tweediana*.

Narcissus Committee.

A meeting of the committee was held in the Drill Hall, James Street, on Tuesday, April 10. The name of the variety registered as *Golden Prince* was altered to *Golden Plover* by request. Professor Foster showed *N. calathinus* from Brest and from Spain, drawing attention to the spathe of each; also *Tazetta nobilissima* and *Telamonius plenus* (as far as they could be judged) collected in Asia.

A number of selected forms of *Pseudo-Narcissus* were sent or brought from several sources, some claiming to be as early in bloom as *obvallaris*. They were deferred, in order to be tested at Kew; and other varieties received were considered and reported on.

It was stated in the account of the last meeting that *N. minor citrinus* was found to be identical with *pallidus præcox*; this was a mistake, for although the two were thought by some of those present to be very much alike, the question of determining the name was postponed until after those blooms of each should have been examined which are now growing side by side at Kew. *C. R. Scurie Dickens, Hon. Sec.*

LINNEAN.

APRIL 5.—W. Carruthers, F.R.S., President, in the chair. The following were admitted Fellows of the Society:—Messrs. D. Sharpe, J. B. Furner, and J. A. Voelcker. Mr. G. B. Sowerby was balloted for, and elected a Fellow. Amongst the exhibitions of the evening Mr. D. Morris, Kew, showed a curious native bracelet from Martinique. Although formed apparently of seeds, or beads of wood or bone, its real composition had puzzled both botanists and zoologists, and until microscopically examined could not be determined.

Mr. J. G. Baker, F.R.S., exhibited a series of specimens of *Adiantum Fergusoni* and *Capilluveneris*, and offered some remarks upon their specific and varietal characters. Mr. J. E. Harting exhibited a specimen of a rare British animal, the Pine martin, which had been trapped in Cumberland, and made some observations on the present distribution of the species in the British islands. Mr. Clement Reid exhibited a series of fruits and seeds obtained by Mr. J. Bennie from interglacial deposits near Edinburgh, affording evidence of a colder climate formerly than that now prevailing in the lowlands of Scotland. Mr. F. Crisp exhibited some fragmentary remains of a wild goose shot in Somersetshire, which has been reported as the lesser white-fronted goose, *Anser erythropus*, Linn., but which was apparently an immature specimen of *Anser albifrons*, Scopoli.

In the absence of the author a paper by Mr. A. W. Waters, "On some Ovicells of the Cyclostomatous *Bryozoa*" was read by the zoological Secretary, Mr. W. Percy Sladen, and after an interesting discussion the meeting adjourned to April 19.

Obituary.

JOHN HOLLINGWORTH.—The death of Mr. John Hollingworth, of Turkey Court, Maidstone, took place on Tuesday, the 3rd inst., at the good old age of eighty-two years. In conjunction with his brother Thomas he carried on the important Turkey paper-mills (Whatman's); and these two noble men—renowned for their support of every movement having for its object the good of the town, and for a long course of charitable benefactions carried on in the most unostentatious manner—were worthy successors of the brothers Cheerible. As an amateur rosarian Mr. John Hollingworth had made his mark. His flowers were famous throughout the Southern Counties, and he in his day took many prizes at South Kensington, the Crystal Palace, and elsewhere. For fifty years he had actively promoted the cause of horticulture in

Maidstone, and always took an active part in the work of the Maidstone Horticultural Society. The deceased was laid to rest amid the regrets of all classes, who mourn his loss as a public and private benefactor, and as a good and worthy man.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.			
	Above or below the Mean for the week ending April 9.	ACCUMULATED.		
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	4 below	9	37	— 63 + 184
1. SCOTLAND, E. ...	5 below	12	41	— 104 + 129
2. ENGLAND, N.E. ...	7 below	2	35	— 114 + 84
3. ENGLAND, E. ...	9 below	3	44	— 162 + 158
4. MIDLAND COS. ...	9 below	8	41	— 168 + 167
5. ENGLAND, S. ...	9 below	5	39	— 180 + 215
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	5 below	11	35	— 104 + 117
7. ENGLAND, N.W. ...	8 below	7	35	— 133 + 133
8. ENGLAND, S.W. ...	7 below	8	36	— 198 + 265
9. IRELAND, N. ...	5 below	14	30	— 120 + 78
10. IRELAND, S. ...	6 below	17	32	— 161 + 135
— CHANNEL ISLANDS	8 below	7	18	— 186 + 152

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Inch.		
0. SCOTLAND, N. ...	2 less	66	10.4	25	24
1. SCOTLAND, E. ...	3 less	58	7.1	39	23
2. ENGLAND, N.E. ...	3 less	52	5.9	30	23
3. ENGLAND, E. ...	2 less	55	5.4	43	22
4. MIDLAND COS. ...	4 less	45	4.7	31	21
5. ENGLAND, S. ...	4 less	48	5.9	36	19
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 less	43	8.8	42	29
7. ENGLAND, N.W. ...	4 less	52	5.0	31	25
8. ENGLAND, S.W. ...	6 less	50	7.4	48	30
9. IRELAND, N. ...	4 less	50	7.5	25	22
10. IRELAND, S. ...	5 less	44	7.9	41	30
— CHANNEL ISLANDS	4 less	64	7.6	51	28

THE PAST WEEK.

The following summary record of the weather for the week ending, April 9, is furnished from the Meteorological Office:—

"The weather has remained in a cold changeable state generally, with occasional showers of snow, hail, or cold rain, interspersed by intervals of bright sunshine. In Ireland and Scotland the showers have been somewhat less frequent than at the English stations.

"The temperature has been again below the mean generally, the deficit ranging from 4° or 5° in Scotland to as much as 9° in 'England, E.,' the 'Midland Counties,' and 'England, S.' The highest readings, which were registered on irregular dates, ranged from 58° in 'Scotland, E.' (locally at Ochertyre), 54° in 'England, S.W.,' and 53° in the 'Midland Counties,' to 49° in 'England, E.,' 'England, S.,' 'England, N.W.,' and the 'Channel Isles.' The lowest of the minima, which were recorded on varying dates, ranged from 22° in 'England, E.,' and 23° in 'Scotland, E.,' 'Midland Counties,' and 'Ireland, S.,' to 28° in 'England, N.E.,' and 34° in the Channel Isles.

"The rainfall has been considerably less than the mean in all districts, the amounts measured in 'Scotland, W.,' and 'England, N.W.,' being scarcely appreciable.

"Bright sunshine has been much more prevalent than it was last week, especially over the eastern and southern parts of the kingdom. The percentage of the possible amount has ranged from 25 in 'Scotland, W.,' and 'Ireland, W.,' to 43 in 'England, E.,' 46 in 'England, S.W.,' and 54 in the Channel Isles."

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING APRIL 20. (AVERAGE OF FORTY-FOUR YEARS).

April 15	48°·1	April 19	48°·7
" 18	48°·3	" 20	48°·3
" 17	48°·4	" 21	49°·0
" 18	48°·6	Mean for the week ...	48°·6

ENQUIRIES.

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

EUCALYPTUS COCCIFERA.—Will any of our correspondents inform B. H. Brooksbank where he can obtain plants or seeds of this tree?

NOTICES TO CORRESPONDENTS.

Books: *Handbook of Hardy Trees and Shrubs*. By W. B. Hemsley, is published by Longmans & Co. We do not remember the price.

BRITISH PLANTS, VARIEGATED: *A. B.* Undoubtedly they are not uncommon, but we do not know from experience whether the peculiarity is reproduced from seed. Probably a certain proportion would be.

CAMELLIA: *W. P. & Sons*. Your seedling is very fine, and greatly resembles *C. planipetala*. It is worthy of perpetuation.

CARNATION: *H. H.* Cuttings may be struck now in pots of sandy loam in a hothed. Do not keep the frame too close, but leave on a little air at night, and shade carefully till rooted. Do not leave the cuttings in the frame a day longer than is necessary. We cannot name the shrub from a leafed shoot only.

CHARLES DOWNING: *F. R.* He was a celebrated American nurseryman, born July 9, 1802, who started a nursery at his native place, Newburgh, New York county, in 1822. He devoted his energies to fruit growing and had one of the most complete fruit nurseries in the United States of America. He died recently, but we cannot now find the record of the event.

CARPET BEDS: *E. P. W.* Apply to Messrs. J. Carter & Co., High Holborn, London; or to Messrs. H. Cannell & Sons, Swanley, Kent.

CÆLOGYNE: *Fastidious*. Cælog-yne; or, more correctly, Kælog-yne.

CUCUMBER FOLIAGE: *Subscriber*. There is no disease, and we can detect no insects on the leaf and shoots; but these appear to suffer from want of air, and perhaps something deleterious perhaps too much sulphur on the pipes, or ammonia. Examine the roots for the Cucumber thread-worms.

EDGING FOR KITCHEN GARDEN WALKS: *New Hand*. You seem to favour Box for edging, but although it has a nice fresh look, it is the most expensive kind of edging you could employ, seeing that it must be clipped twice a year, mended every year, and relaid about once in six years, and, moreover,

forms a harbour for slugs and other creeping things which occasion loss of garden plants of various kinds. There are edgings now obtainable made in various coloured pottery, and of stone. A good one of the last-named is made of thin (1½ inch) slabs of a description of limestone found in the Isle of Purbeck, and which can be obtained from Swanage at a reasonable rate. It is everlasting, and the slabs being a foot or more in depth, cannot well be displaced if they are inserted five-sixths of their depth in hard soil. Box is suitable for pattern beds on gravel or sand, where the effect of diverse colours is made a point of.

ERRATUM.—In last week's number, p. 423, in "Rose Pruning," for April 1, 2, read March 20, 21.

FAIR MAIDS OF FRANCE: *J. H. S. W.* By this name *Ranunculus acronitifolius* is usually understood by Englishmen.

KEITH'S CHALLENGE BOILER: *A Subscriber*. We know nothing personally about this kind of boiler.

LABEL: *W. M. G.* The method is a very good one, but not so easily made by a gardener, as the original label.

NAMES OF FRUITS: *W. Rutley*. It is impossible to name the Apple sent; it is quite out of character now.—*A. Moore*. We are still unable to identify your Apple. It is not of much merit, being deficient in flavour.

NAMES OF PLANTS: *H. Munro*, *Maxillaria ochroleuca*.—*Constant Reader*, *Paisley*. *Arum triphyllum*.—*E. W.* *Allium neapolitanum*.—*E. G.* See next week.—*T. H.* Next week; it is not common.—*G. W. R.* *Odontoglossum odoratum*.—*T. D.* *Rhododendron grande*. The *Primula* is very curious, but examination must be deferred for the present. Many thanks.—*F. R.* *Oncidium sphacelatum*.—*Subscriber*. *Myrsiphyllum asparagoides*. *Mrs. Danielson*. *Camellia alba plena*.

SEEDLINGS OF TOMATOES: *J. Oake*. The loss of the plants appears to be due to the close nature of the compost—sea sand and loam—which, when dry, more especially, would form a hard impervious crust over the surface, excluding air from the roots, and possibly causing injury to the tender epidermis of the little plants by contraction following on drying. Cuttings of plants will often die off in exactly the same manner, and apparently from the same cause. The use of sea sand, if unwashed, is not to be recommended for any plants in pots. For Tomatoes in the youngest stage of growth the soil used should be light and moderately rich, and the drainage good.

SEEDS: *R. Lowe*. Apparently an *Atriplex*.

UMBELLATE PRIMROSE: *W. J. H.* An ordinary white *Polyanthus* of the fancy type of which there are now hundreds. The pedicels appear to be a little too long to make a symmetrical truss.

WILD PLANT: *T. R.* *Poterium sanguisorba*.

CATALOGUES RECEIVED.

ELLWANGER & BARRY, Mount Hope, Nurseries, Rochester, New York, U.S.A.—Fruit and Ornamental Trees, Roses, &c.

HARRISON & SONS, Leicester—Farm Seeds.

CHARLES TURNER, Royal Nurseries, Slough—General Spring Catalogue.

STANSFIELD BROTHERS, 97, St. Luke's Road, Southport—Alpine and Hardy Perennials, Supplementary List.

—BRUANT, Boulevard St. Cyprien, Poitiers, Vienne, France—General Plant Catalogue.

J. GARDEN, Bois Colombes, Seine, near Paris—Cypripediums.

THIDAUT & KETELEER, 107, Rue Houdan, Sceaux, Seine, France—Plant List.

HENRY BENNETT, Shepperton, Middlesex—New Roses.

WILLIAM PAUL & Co., Paisley, N.B.—Pansies, &c.

G. NEIGHBOUR & SONS, 127, High Holborn, W.C.—Beehives, &c.

A. LIETZKE, 644, Rio de Janeiro, Brazil—Caladiums, &c.

WENN & BRAND, Saffron Walden—Double Hollyhocks.

H. J. PONTING, Wood Norton Hall Gardens, East Dereham, Norfolk—Garden Plants, &c.

LIVERPOOL HORTICULTURAL COMPANY, Garston, Liverpool—Stove and Greenhouse Plants.

BRITISH BEE-KEEPERS' STORES, Fenchurch Street, London, E.C.—Hives, &c., with Appliances and Instructions.

COMMUNICATIONS RECEIVED.—J. C. M.—W. R. (send a specimen; but it is doubtful whether we could find room).—A. B.—L. S., Geneva.—E. J. B.—Sir T. L.—L. L.—A. M. J.—G. S. (many thanks; letter will follow shortly).—J. A., Kew.—D. P., Royal Botanic Garden, Calcutta (specimen received, and I shall have attention; many thanks).—J. R. J. A. Clapartede, Geneva.—J. S.—C. B. K.—K. D.—A. D.—W. J. M.—W. Brockbank.—J. D.—R. W. A.—James Carter & Co.—Sir C. W. Strickland.—W. T. Thistleton Dyer.—T. S.—R. L.—A. E., very fine flowers, the note will appear shortly.—C. Y. M.—A. D.—J. J. W.—P. Macowan.—J. W.—A. D. W.—H. E.—Thos. Christy.—J. H.—J. M.

DIED.—March 27, Mr. GEORGE WILLERS, of the Trumpington Nurseries, Cambridge, at the early age of forty-six years. Mr. Willers, who was well known in the district, was highly respected and esteemed by all who knew him.

MARKETS.

COVENT GARDEN, April 12

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

TRADE somewhat better, supplies remaining the same as last week. A few samples of new Grapes to hand, but unable to compete with old ones. Prices unaltered. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Adiantum</i> , doz.	6 0-18 0	<i>Evergreens</i> , in var.	s. d. s. d.
<i>Azalea</i> , per dozen	24 0-36 0	per dozen	6 0-24 0
<i>Bougainvillea</i> , per dozen	9 0-12 0	<i>Ferns</i> , in var.	4 0-18 0
<i>Cinerarias</i> , dozen	6 0-12 0	<i>Ficus elastica</i> , each	1 6-7 0
<i>Cyclamens</i> , per dozen	12 0-24 0	<i>Foliage plants</i> , vari	
<i>Cyperus</i> , per dozen	4 0-12 0	ous, each	2 0-10 0
<i>Daffodils</i> , dozen	9 0-12 0	<i>Geonias</i> , dozen	8 0-12 0
<i>Deutzias</i> , per dozen	6 0-12 0	<i>Hyacinths</i> , doz.	6 0-9 0
<i>Dracena terminalis</i> , per dozen	30 0-60 0	<i>Lily of the Valley</i> , 12 pots	12 0-18 0
—viridis, per doz.	12 0-24 0	<i>Marguerites</i> , doz.	9 0-12 0
<i>Dieffenbachia</i> , dozen	12 0-15 0	<i>Myrtles</i> , per dozen	6 0-12 0
<i>Epiphyllums</i> , doz.	12 0-24 0	<i>Palms</i> , in var., each	2 6-21 0
<i>Ericas</i> , various, per dozen	9 0-18 0	<i>Pelargoniums</i> , doz.	15 0-24 0
—ventricosa, doz.	18 0-30 0	<i>Primula sinensis</i> , per dozen	4 0-6 0
<i>Eucynthus</i> , in var., per dozen	6 0-18 0	<i>Solamums</i> , per dozen	9 0-12 0
		<i>Spiraeas</i> , dozen	9 0-15 0
		<i>Tulips</i> (pots of), doz.	6 0-6 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Acacia</i> , or <i>Mimosa</i> , per bunch	0 9-1 6	<i>Lily of Valley</i> , 12 spr.	0 6-1 0
<i>Anemone</i> , French, 12 bunches	1 6-4 0	<i>Marguerites</i> , 12 bun.	3 0-6 0
—fulgens, 12 bun.	3 0-6 0	<i>Mignonette</i> , 12 bun.	3 0-6 0
<i>Arum lilies</i> , 12 blms.	4 0-6 0	<i>Narcissus</i> , paperwhite, Fr., 12 bunches	2 0-4 0
<i>Azaleas</i> , 12 sprays	0 6-1 0	—various, 12 bun.	3 0-6 0
<i>Bougainvillea</i> , per bun.	0 6-1 0	<i>Pelargoniums</i> , 12 spr.	1 0-1 6
<i>Camellias</i> , 12 blms.	1 0-3 0	—scarlet, 12 spr.	0 6-9 0
<i>Carnations</i> , 12 blms.	1 6-3 0	<i>Primroses</i> , 12 bun.	1 0-2 0
<i>Cinerarias</i> , 12 bun.	6 0-12 0	<i>Primulas</i> , double, 12 sprays	1 0-1 6
<i>Cyclamens</i> , 12 blms.	4 0-6 0	—single, 12 bun.	4 0-8 0
<i>Daffodils</i> , double, 12 bunches	4 0-6 0	<i>Roses</i> , Tea, per doz.	1 0-6 0
—single, 12 bun.	4 0-9 0	—coloured, dozen.	2 0-4 0
—Leat Lily, 12 bun.	2 0-6 0	—red, per dozen	2 0-6 0
<i>Deutzia</i> , 12 bunches	4 0-9 0	—Saffron, dozen.	1 6-3 0
<i>Eucharis</i> , per dozen	4 0-8 0	<i>Snowdrops</i> , 12 bun.	1 0-4 0
<i>Gardenias</i> , 12 blms.	3 0-6 0	<i>Tuberose</i> , 12 blms.	1 6-2 0
<i>Heliotropes</i> , 12 spr.	0 6-1 0	<i>Tulips</i> , 12 blooms	0 6-1 0
<i>Hyacinths</i> , Roman, 12 sprays	0 6-1 0	<i>Violets</i> , 12 bunches	10 0-1 0
<i>Lilium longiflorum</i> , 12 blooms	4 0-6 0	—French, bunch.	1 6-2 0
		—Fr. Parme, bun.	2 0-3 0
		<i>White Lilac</i> , French, per bunch	3 6-6 0

*. Orchid bloom in great variety, but the demand not very good.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
<i>Artichokes</i> , p. doz.	8 0-10 0	<i>Mushrooms</i> , punnet	1 0-1 6
<i>Asparagus</i> , Fr., bund.	1 0-5 0	<i>Mustard and Cress</i> , punnet	0 4-0 0
—English, 100	12 0-18 0	<i>Onions</i> , per bushel	9 0-0 0
<i>Beans</i> , Kidney, lb.	2 0-6 0	<i>Parsley</i> , per bunch	0 6-0 0
<i>Beet</i> , red, per dozen	1 2 0-2 0	<i>Potatoes</i> , per cwt.	4 0-5 0
<i>Carrots</i> , per bunch	0 6-0 0	—kidney, per cwt.	4 0-5 0
<i>Cauliflowers</i> , each	0 3-0 0	<i>Rhubarb</i> , per bund.	0 4-0 0
<i>Celery</i> , per bundle	1 6-2 6	<i>Seakale</i> , punnet	2 0-2 6
<i>Cucumbers</i> , each	0 9-1 0	<i>Shallots</i> , per lb.	0 6-0 0
<i>Eddie</i> , per dozen	2 0-0 0	<i>Spinach</i> , per bushel	4 0-0 0
<i>Green Mint</i> , bunch	1 6-0 0	<i>Sprue</i> , per bundle	1 0-0 0
<i>Herbs</i> , per bunch	0 4-0 0	<i>Tomatoes</i> , per lb.	4 0-0 0
<i>Leeks</i> , per bunch	0 6-0 0	<i>Turnips</i> , per bunch	0 6-0 0
<i>Lettuce</i> , per dozen	1 6-0 0		

POTATOES.—Dunbar Regents and Magnum Bonums, 120s.; Lincoln Magnum Bonums, 80s. per ton. Other samples fished. Markets firm.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, 3-sieve	3 0	6 0	Pears, per dozen	3 0	6 0
Grapes, per lb.	3 0	6 0	Pine-apples, Eng. lb.	1 0	2 0
Kant Cobs, 100 lb.	40	0 45 0	—St. Michael, each	2 0	5 0
Lemons, per case	12	0 21 0	Strawberries, lb.	4 0	10 0
Peaches, dozen	12	0 42 0			

SEEDS.

LONDON: April 11.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that an active consumptive demand for farm seeds now prevails. Fine Alsikes are held for more money, whilst white Clover and Trefoil, being also in moderate supply, continue very firm indeed. No great quantity of these varieties will apparently be carried over. Italian Rye grass is hardening. Perennials remain unchanged. Red Clover seed also shows no variation, Timothy is dearer. Sanfoin is scarce, the never very large stocks having melted away. Spring Tares command an advance of 2s. per quarter. Hemp seed is likewise higher. Canary seed is dull. Feeding Linseed steady.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended April 7:—Wheat, 30s. 0d.; Barley, 31s. 0d.; Oats, 15s. 8d. For the corresponding week in 1887:—Wheat, 32s. 8d.; Barley, 23s. 11d.; Oats, 15s. 8d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: April 11.—Market firmer for best kinds of Potatoes, without advance in prices. A good general demand continues for vegetables at the following quotations:—Savoya, 6s. to 12s. per tally; Cauliflowers, 4s. to 10s. do.; Brussels Sprouts, 5s. to 6s. per bushel; Broccoli, 2s. to 3s. do.; Spinach, 1s. 6d. to 2s. per sieve; Turnip-tops, 1s. to 2s. 6d. per sack; Curley Kale, 2s. 6d. to 3s. per bushel; Greens, 4s. to 8s. per dozen bunches; Turnips, 3s. do.; Carrots, 2s. 3d. to 3s. do.; English Onions, 11s. to 13s. per cwt.; foreign do., 10s. to 11s. per bag of 110 lb.; Seakale, 1s. 6d. per punnet; forced Rhubarb, 2s. to 3s. per dozen bundles; natural do., 2s. to 3s. do.; Horseradish, 10d. to 1s. 6d. per bundle; Celery 8d. to 1s. 6d. do.; Parsnips, 9d. to 1s. per score; Cabbage Lettuces, 8d. to 1s. 6d. per dozen; Cos Lettuce, 2s. to 3s. do.; Endive, 2s. do.; Leeks, 2s. do.; Beetroots, 8d. to 1s. do.; English Apples, 4s. to 7s. per bushel; American Apples, 14s. to 22s. per barrel; Mustard and Cress, 2s. to 3s. per dozen baskets; Carrots, 35s. to 50s. per ton; Swedes, 22s. to 32s. do.; Mangel, 20s. to 22s. do.

STRATFORD: April 10.—Quotations:—Savoya, 10s. to 11s. per tally; Greens, 4s. 6d. to 4s. 9d. per cwt.; Carrots, household, 55s. to 60s. per ton; do., cattle feeding, 26s. to 27s. 6d. do.; Parsnips, 6d. to 9d. per score; Mangels, 20s. to 23s. per ton; Swedes, 22s. to 25s. do.; Onions, English, 11s. to 13s. per bag; do., Dutch, 12s. to 13s. per bag; Apples, English, 3s. to 7s. per bushel; do., American, 10s. to 25s. per barrel; Watercress, 6d. to 8d. per dozen; Salads 1s. 6d. to 2s. per dozen baskets; Rhubarb, 2s. to 3s. per dozen bunches; Carrots, 2s. 6d. to 3s. do.

POTATOS.

BOROUGH AND SPITALFIELDS: April 10.—A moderate demand prevails, principally for the better qualities, which about support late value. Supplies are rather increased. Quotations:—Regents, 50s. to 100s.; Magnum Bonums, 50s. to 105s.; Champions, 50s. to 110s.; Dutch Rocks, 50s. to 100s. per ton.

SPITALFIELDS AND COLUMBIA: April 11.—Quotations:—Imperators, 70s. to 80s.; Magnuma, 45s. to 90s.; Regents, 65s. to 90s.; Victorias, 50s. to 65s.; Champions, 50s. to 60s.; Beauty of Hebron, 120s. to 140s. per ton.

STRATFORD: April 10.—Quotations:—Scotch Regents, 75s. to 90s.; English do., 60s. to 80s.; do., Magnums, 58s. to 50s.; Fenland, 55s. to 60s. per ton.

Imports.—The imports into London during last week consisted of 2747 bags from Hamburg, 258 bags from Harlingen, 47 packages from Fluehing, and 20 tons from Malta.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 85s. to 98s.; inferior, 72s. to 82s.; hay, prime, 75s. to 97s.; inferior, 60s. to 82s. 6d.; and straw, 30s. to 44s. per load.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

JENSEN'S

Every grain fertilizes because the Guano is perfectly pure. It is most economical, one part of Manure to 100 parts of soil being ample for garden use.

FISH-POTASH

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GUANO.

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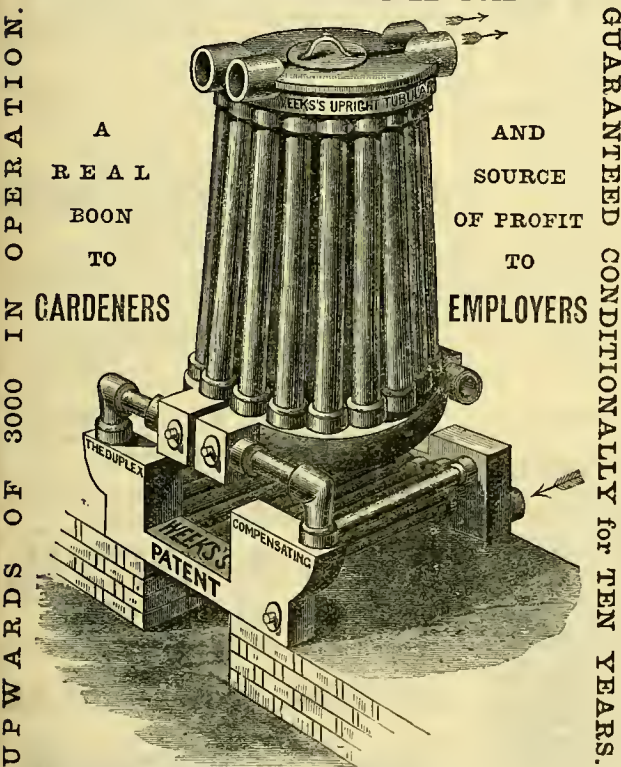
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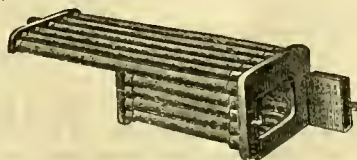
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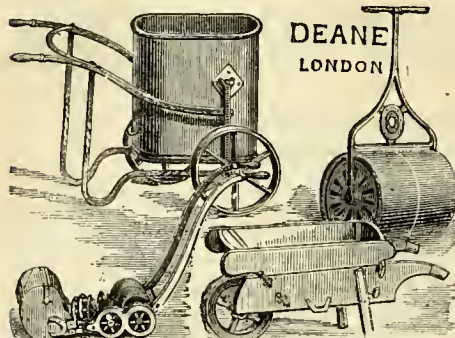


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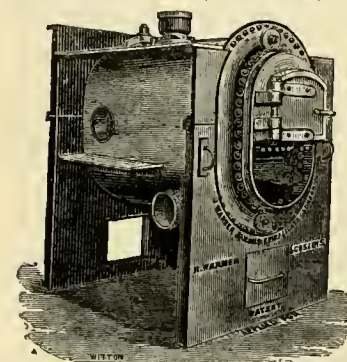


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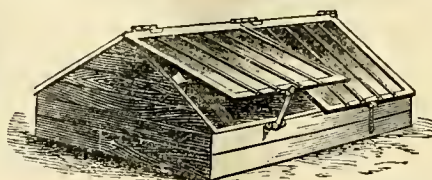


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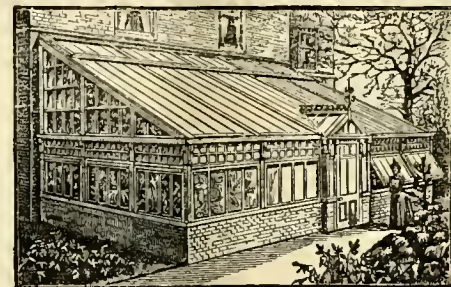
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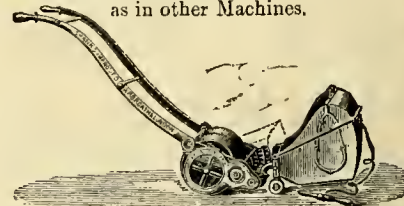
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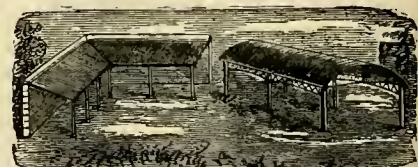
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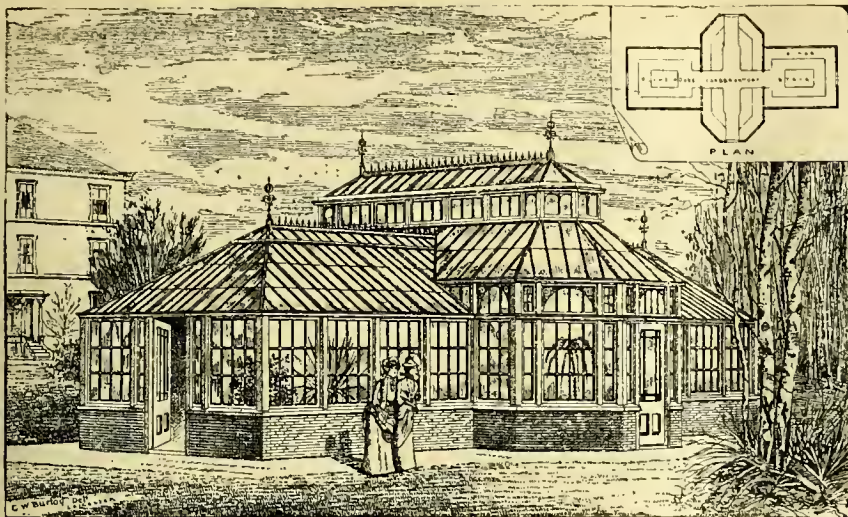


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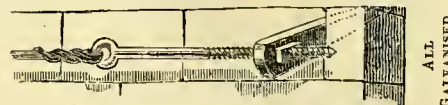
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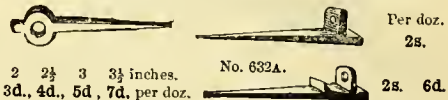
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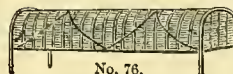
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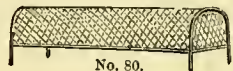
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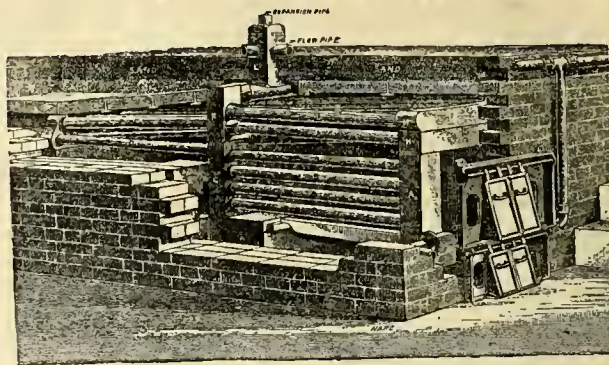
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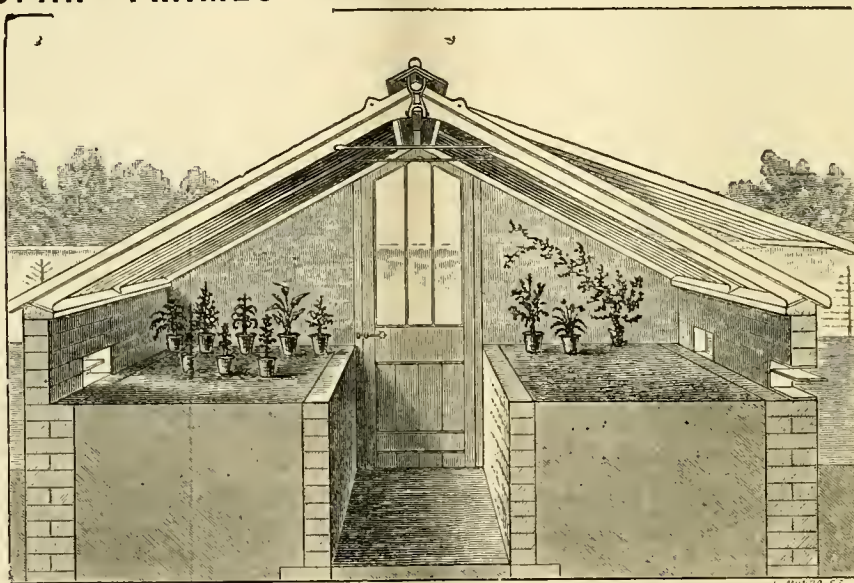
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36	× 10	27	5	0
40	× 10	30	0	0
44	× 10	32	18	0
48	× 10	35	15	0
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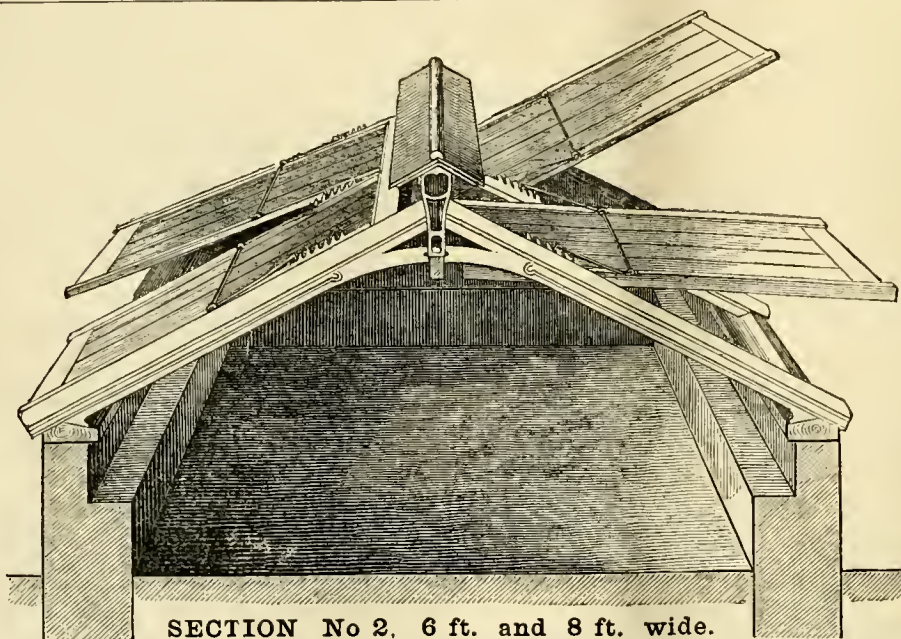


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32	× 12	31	5	0
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16	10	0	0	12	15	0	0
20	12	3	0	15	10	0	0
24	14	6	0	18	3	0	0
28	16	10	0	20	17	0	0
32	18	12	0	23	10	0	0
36	20	16	0	26	5	0	0
40	22	19	0	28	18	0	0
44	25	2	0	31	12	0	0
48	27	5	0	34	7	0	0
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.
No. 2469.

No. 69.—VOL. III. {THIRD
SERIES.}

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NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower
Market, Covent Garden, W.C., are open to RECEIVE
CONSIGNMENTS of Choice CUT FLOWERS in any quantity
for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

SQUELCH AND BARNHAM,
North Row, Covent Garden, W.C., are OPEN TO DIS-
POSE OF any quantity of MUSCATS and BLACK GRAPES,
TOMATOS, CUCUMBERS, FRENCH BEANS, STRAW-
BERRIES, CHOICE FLOWERS, &c. Highest Market Prices
obtained. Account Sales daily; Cheques weekly or as preferred
by Sender. Baskets and Labels supplied. References given.

Surplus Cut Flowers.

HOOPER AND CO. (Limited) Receive and
Dispose of any quantity of above at best Market Prices.
Boxes, &c., supplied.—Address, Commission Department,
HOOPER AND CO. (Limited), Covent Garden, London, W.C.

WANTED, LILY OF THE VALLEY, and
other CUT BLOOMS.

FREDERICK WISE, Flower Market, Covent Garden, W.C.

Wanted, Large Palms.

MESSRS. WILLS and SEGAR are now
OPEN TO PURCHASE for Cash, or would EXCHANGE
for OTHER PLANTS, large PALMS of the Fan-leaf type, such
as LATANIAS, CORYPHAS, CHAMEROPS; also ARECAS, KENTIAS, SEA-
FORTHIAS, &c.—Royal Exotic Nursery, Onslow Crescent, South
Kensington, S.W.

BULBS.—SNOWDROPS and DAFFODILS
WANTED. Send samples and quantities to RICHARD
BARKER AND CO., Bulb Growers, Frampton, Roston.

WANTED, Large Specimens of PALMS,
such as SEAFORTHIAS, KENTIAS, ARECAS, CORY-
PHAS, LATANIAS, PHENIX, &c. State lowest cash price to
W. WEEKS, Nurseryman, 440, Fulham Road, S.W.

WANTED, JERUSALEM ARTICHOKE.
Send price and quantity to SQUELCH AND BARNHAM,
Salesmen, Covent Garden Market, W.C.

The Best Present for a Gardener.
VINES and VINE CULTURE.

The most complete and exhaustive Treatise on
Grapes and their Culture ever published.

New Edition.
Price 5s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

Spring, 1888.

CHARLES TURNER'S General and
Descriptive CATALOGUE of New Florist Flowers, &c.,
is now ready, and can be had free on application.
The Royal Nurseries, Slough.

A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate
disposal.—Lantania borbonica, Scaevola elegans,
Chamærops excelsa, and Phoenix reclinata—from 10s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

TREES and SHRUBS suitable for Towns and
Smoky Districts. CATALOGUE Free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

ABIES DOUGLASSII, 10 to 15 inches, 6s.
per 100; 15 to 18 inches, 10s. per 100; 1½ to 2 feet, 16s.
per 100; 2 to 3 feet, 30s. per 100; 3 to 4 feet, 35s. per 100; 4 to
5 feet, 45s. per 100; 6 feet, 60s. per 100.
GARLIES MITCHELL, Nurseryman, Stranraer.

Prize Fancies.

JOHN DOWNIE (of the late firm of Downie
& Laird) is now sending out his NEW PANSIES and
VIOLAS for 1888. For beauty of form and novelty of colour
they surpass anything hitherto sent out. CATALOGUES on
application.
Beechhill Nursery, Murrayfield, Edinburgh.

SAMUEL SMITH, Tansley Nurseries, Mat-
lock, offers:—RHODODENDRON PONTICUM and
mixed Hybrids, 4 to 6 inches, 35s.; 6 to 9 inches, 55s.; 9 to 12
inches, 75s. POPLAR, Black Italian, 2 to 3 feet, 12s.; 3 to 4
feet, 15s. GORSE, 2-yr., 2s. 6d. Flowering SHRUBS, in
variety, 1½ to 2½ feet, 50s. All net per 1000.

BEGONIAS.—Splendid tubers, Davis's
Gigantea erecta superba, crimson or mixed, for pots or
bedding, 4s., 5s., and 6s. per dozen; from 25s. per 100. Superb
Seedlings, splendid varieties, 4s. and 5s. per dozen, 25s. and
30s. per 100. Choicest named varieties, Single and Double.
See List, Free.

GERANIUMS, CALCEOLARIAS, and other Bedding Plants,
in quantity. Special Offer on application.
B. R. DAVIS, Yeovil Nurseries, Yeovil.

GRAPE VINES, most excellent Canes, best
varieties, 3s. 6d., 5s., 7s. 6d. Descriptive LIST Free.
RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.

GRAPE VINES, Foster's Seedling and other
varieties, in superb Fruiting Canes; ROSES in pot,
SEAKALE, ASPARAGUS, STRAWBERRIES, Broad-leaved
FRUIT.
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

ASPARAGUS.—Plant now. Thousands of
excellent plants. Special prices on application.
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

LETTUCE, CAULIFLOWER, TRIPOLI
ONION, strong plants.—Autumn-sown Bath Cos, Giant
Brown Cos, Hicks' Hardy White Cos, Wheeler's Tom Thumb
LETTUCE; Giant Rocca, White Globe Tripoli ONION, 4s. 6d.
per 1000; 10,000 and upwards, 4s. per 1000. CAULIFLOWER
PLANTS, 5s. per 100, on rail. Cash with order. List of plants
in small quantities, carriage paid, and testimonials.
EDWARD LEIGH, Ivy Hall, Cranleigh, Surrey.

NEW POTATO, "THE COBBLER," or
"CREGLE." Received First-class Certificate, 6d. per
pound. Per peck or cwt. on application.
J. METHVEN AND SONS, 15, Princes Street, Edinburgh.

W. H. LASCELLES AND CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement, April 7, page 423.

SALES BY AUCTION.

Wednesday Next.—(Sale No. 7670.)

5000 Grand Bulbs of *LILIU AURATUM*, from Japan.
MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 25.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7670.)

CYPRIPEDIUMS.—Highly Important Sale
 CYPRIPEDIUM HIRSUSSIMUM, and other grand species.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 25, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., the finest lot hitherto offered of the rare and lovely CYPRIPEDIUM HIRSUSSIMUM, equal in condition to the best plants in established collections, amongst them grand specimens, and one marvellous mass with forty-five growths, and measuring 3 feet by 3 feet; also several hundred masses of a grand CYPRIPEDIUM, many with flower-buds and leaves as finely marked as those of *Ephlopisis Schilleriana*, some 10 inches long by 2½ inches wide. Collector writes, it is very much like *C. Godefroye*, but believes it is a far better species; flower when stretched out about 4 inches across, the whole flower profusely spotted, on dorsal sepal as much as on the petals and lip. Cypridium in the way of *C. Regnierii*, splendid masses; *Angoula Clowesii*, *Aërides crassifolium*, the King of the *Aërides*; *Calanthes from Siam*, *Dendrobium signatum* from Siam, producing flowers as large as those of *D. aureum*, four on a spike from top to bottom of bulbs, 4 feet in length; *D. Bensonie*, *D. Devonianum* (the Bhamo variety), *D. suavisimum*, the finest specimens ever offered; *Saccolabium celeste*, very fine specimens; *Vanda carulescens*, *V. cornelia*, *V. Parishii*, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7671.)

At 38, King Street, Covent Garden, W.C.
 EXTRAORDINARY MASSES OF CYPRIPEDIUM
 GODEFROYE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, April 26, by order of Mr. F. Sander, specially selected by Collector, Grand Masses (probably many of them new) of CYPRIPEDIUM GODEFROYE, and a Cypridium with enormous green leaves, found in quite another part, and far away from Godefroye: these look very distinct and fine.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7671.)

At 38, King Street, Covent Garden, W.C.
 RADIATUM and other extraordinary varieties of ODONTOGLOSSUM VEXILLARIUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 26, by order of Mr. F. Sander, a fine lot of ODONTOGLOSSUM VEXILLARIUM, consisting of the finest possible forms.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26.

At 38, King Street, Covent Garden, W.C.
 DENDROBIUM NOBILE SANDERIANUM, Rehb. f.
 This is undoubtedly one of the very finest Dendrobiums in existence, and a close rival to *Dendrobium nobile nobilissimum*, which it much resembles. It is as large and finer in form, and has a far finer and larger bulb centre. See drawing of this wonderful Dendrobe.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, the entire stock (excepting bulbs kept for propagating) of DENDROBIUM NOBILE, Sander's variety. For beauty and grandeur there are few Orchids in existence to rival this Dendrobe.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26

At 38, King Street, Covent Garden, W.C.
 A New Species of LADY'S SLIPPER, from New Guinea.
 CYPRIPEDIUM ROTHSCCHILDII, Rehb. f.
 Now in flower at the St. Albans Orchard Establishment, and pronounced by those who have seen it, one of the very finest Cyprids ever introduced.

MR. J. C. STEVENS has been instructed by Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, the entire stock of CYPRIPEDIUM ROTHSCCHILDII.

On view morning of Sale, and Catalogues had.

Sale, Thursday, April 26,

At 38, King Street, Covent Garden, W.C.
 CATTLEYA AUREA.

Very Grand Importation.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, a specially grand lot of CATTLEYA AUREA, just to hand in most superb order. This will be found to be the finest importation ever come to the hammer.

On view morning of Sale, and Catalogues had.

Sale, Thursday, April 26,

At 38, King Street, Covent Garden, W.C.
 2,000 ODONTOGLOSSUM HARRYANUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, a most wonderful importation of ODONTOGLOSSUM HARRYANUM, and undoubtedly the grandest lot that could possibly be brought to this country; the masses are superbly leaved, and marvellous varieties may be looked for. The plants were brought home under the special care of Collector, who describes this lot as containing flowers of enormous size and brilliant colouring; we are sure that nothing like them has previously reached this country.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26,

At 38, King Street, Covent Garden, W.C.

Specially rare and fine ONCIDIUM

ONCIDIUM BIFOLIUM MAJUS.

Only once this so beautiful Oncidium has been imported, and the locality in its native country was lost for many years. We have succeeded in rediscovering this fine Orchid, and **MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, by direction of Mr. F. Sander, a specially grand importation, in unusually fine order, of ONCIDIUM BIFOLIUM MAJUS. This handsome Orchid has often been eulogised by the Press, and by all to whom it is known. It is, however, so rare, that only one or two old collections of Orchids contain it. The flowers are very elegant, and produced on drooping spikes, large, and sepals and petals are chocolate, marked with yellow, and lip deep golden yellow. It is a plant of most easy culture, and it gives us special pleasure to be enabled to offer such a fine and so rare an Orchid.

On view morning of Sale, and Catalogues had.

Sale Thursday, April 26.

At 38, King Street, Covent Garden, W.C.

Very rare and fine ONCIDIUM.—ONCIDIUM SPLENDIDUM.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 26, a splendid importation of ONCIDIUM SPLENDIDUM. For many years past we have tried to discover the habitat of this most important Oncidium, and have now succeeded. The flowers are 4 inches long, similar to *Oncidium tigrinum*, but more lovely. For full description see Catalogue, which may be had in due time of the Auctioneers.

On view morning of Sale.

Thursday, May 3.

Valuable ESTABLISHED ORCHIDS, from a well known private collection.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 3, at half-past 12 o'clock precisely, a fine lot of choice ESTABLISHED ORCHIDS, comprising splendid plants of

Cypripedium Sedeni	Corycne cristata, 4 feet across
" Spicerianum	Vanda tricolor, 12 spikes
" levigatum	Cattleya exoniensis
Cattleya gigas Normanii,	Oncidium naeranthum
part of original plant	" serratum
Masdevallia Chelsoi	Lelia purpurata, 18 in pan
Veitchii	

Masdevallia bella, and a number of Mr. Harryana, including several splendid specimens in 12 and 16-inch pans, and comprising the very finest varieties.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the late John Day, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire Collection of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest. Amongst other varieties will be found a grand collection of the rarest and choicest CYPRIPIDS, in the finest health.

The First Portion of this Collection will be SOLD on WEDNESDAY and THURSDAY, May 9 and 10.

N.B.—For fuller particulars, see *Gardeners' Chronicle*, March 24.

Sale Thursday, May 24, Without Reserve.

At 38, King Street, Covent Garden, W.C.

CATTLEYA LAWRECEANA, specially large and fine flowered variety. See dried flowers.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 24, by order of Mr. F. Sander, a specially large and grand importation of CATTLEYA LAWRECEANA. This consignment has been collected in a quite different district, from whence no Cattleya Lawrenceana have ever been introduced. There is as much difference between this and the ordinary *C. Lawrenceana* as there is between the starchy variety of *Odontoglossum crispum* and the broad petalled forms. The dried flowers on view will give some idea of the magnificence of this variety.

On view morning of Sale, and Catalogues had.

Special Sale on Monday Next, April 23.

CATTLEYA LAWRECEANA.

A wonderful importation collected and brought home by Mr. J. D. Osmer, now in the very best possible condition, scarcely a plant having lost a single leaf on the journey.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 23, at half-past 12 o'clock precisely, without reserve, a magnificent importation of the beautiful CATTLEYA LAWRECEANA consisting of about 600 plants. They were collected at the proper time when in flower by Mr. J. D. Osmer, and brought over under his special care. The whole will be found to be in the very best possible health and condition with perfectly sound and dormant eyes and full of green leaves. Amongst the importations will be found numerous splendid masses and very fine varieties, one being specially marked as having very light rose coloured flowers. The Sale will also include about 150 lots of well-grown ESTABLISHED ORCHIDS and a small importation of various ORCHIDS received direct from the Brazils.

On view morning of Sale, and Catalogues had.

Tuesday Next.

CARNATIONS and PICOTEES.—First-class collection of the best varieties; 500 Standard and Dwarf ROSES, selected FRUIT TREES, Hardy EVERGREENS, RHODODENDRONS, HERBACEOUS PLANTS, CLIMBERS, and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 33 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, April 24, at half-past 12 o'clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Tuesday Next.—Orchids in Flower.—Special Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., TUESDAY NEXT, April 24, at half-past 12 o'clock precisely, about 300 lots of ORCHIDS in flower, from various collections, amongst which will be found the following:—
 Cattleya Mendelii, very fine specimen and variety
 Cattleya Mossie, grand specimen
 Odontoglossum Wilckeanum
 also very fine varieties of *Odontoglossum Alexandre*, *O. Rossi majus* and *O. vexillarium*, *Cattleya Lawrenceana*, *Laelia purpurata* Russelliana, and many others.

On view morning of Sale, and Catalogues had.

Wednesday Next.

10,000 LILIU AURATUM, splendid Bulbs, from Japan.

An importation of

25,000 FRESIA REFRACATA ALBA,
 VALOTTA PURPUREA, true; DISA GRANDIFLORA (tubers),
 BRUNSVIGIA, VELTHEIMIAS, and other CAPE BULBS;
 20 specimen SEAFORTHIA ELEGANS, COCOS WEDDELLIANA, and other PALMS, very suitable for decorative purposes.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, at their Rooms, on WEDNESDAY NEXT, April 25, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIU AURATUM from Japan, Collection of the beautiful Japanese MAPLES, a choice assortment of English-grown LILIES, including most of the best varieties in cultivation; GLADIOLI, GREENHOUSE PLANTS, in variety; Standard and Dwarf ROSES, HERBACEOUS PLANTS, CARNATION, PICOTEES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 25, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

SALE OF STOVE and GREENHOUSE PLANTS, &c., from SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 25, at half-past 12 o'clock precisely, a large quantity of GREENHOUSE PLANTS, from sample—1600 *Deutzia gracilis*, 200 *Escallonia Ingrami*, 200 *Garrya elliptica*, 100 single white *Maertrix* Roses, 300 *Pinks*, *Mrs. Sinkins*; 500 *Cloves*, *Carnations*, *White Perfection*; 500 *Hollyhocks*, fine named sorts; named *Carnations* and *Picotees*, *Herbaceous Calceolarias*, &c.
 Samples will be on view on the morning of Sale. Catalogues forwarded on application to the Auctioneers, 67 and 68, Cheapside, E.C.

Kingston-on-Thames.—Without Reserve.

Important to Exhibitors, Gentlemen, Florists, and others. The whole of the well-known collection of Specimen Exhibition STOVE and GREENHOUSE PLANTS, which have taken so many Prizes at the leading Metropolitan and Provincial Shows, by order of Messrs. T. Jackson & Son, who have given up exhibiting.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Nurseries, Kingston-on-Thames, adjoining the Railway Station, on THURSDAY, April 26, at 12 o'clock punctually, without reserve, the above valuable COLLECTION of EXHIBITION PLANTS, amongst which will be found numerous very fine specimen and half-specimen *Azaleas*, specimen and half-specimen *Ericas* in great variety, *Greenhouse Rhododendrons*, *Ixoras*, *Anthurium Scherzerianum*, *Lapagerias*, specimen *Hardy Ferns*, specimen *Palms*, and other Decorative Plants.
 May be viewed three days prior to the Sale. Catalogues obtainable on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C., and Leytonstone, E.

Friday, April 27.—Established Orchids.

A portion of the well-known collection of ESTABLISHED ORCHIDS, by order of C. Dorman, Esq., of The Firs, Laurie Park, Sydenham, who is making alterations to his Greenhouses, necessitating the disposal of some of the Plants.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from C. Dorman, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 27, at half-past 12 o'clock precisely, a portion of his well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following valuable plants:—

<i>Laelia purpurata</i> , magnificent plant, 142 bulbs, 22 leading growths, 12 sheaths	<i>Cymbidium pendulum atropurpureum</i> , very fine plant (rare)
<i>Cattleya exoniensis</i> , good plant	<i>Vanda Sanderiana</i> , splendid plant, good variety, 4 leads
" <i>Reineckiana superba</i> , true	<i>Cymbidium insignis Wallacei</i>
" <i>Wagnerii</i>	<i>Dendrobium Leechianum</i>
<i>Laelia euspatha</i> [plant]	<i>Dendrobium nobile Cooksoni</i>
<i>Cymbidium Parishii</i> , good	

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE, at their Rooms, on FRIDAY NEXT, April 27, by order of Mr. F. Sander, a large quantity of Imported ORCHIDS, including *Cattleya Mossie*, *Odontoglossum Phalaenopsis*, *Angraecum Sanderianum*, *Vanda teres*, also, another property, a few well established plants of *Phalaenopsis Brassia* species, and *Dendrobium thyrsiflorum*.

On view morning of Sale, and Catalogues had.

Sales by Auction continued on p. 484.

SPECIAL SALE ON MONDAY NEXT, APRIL 23.

CATTLEYA LAWRENCEANA.

A wonderful Importation, collected and brought home by Mr. J. D. Osmer, now in the very best possible condition, scarcely a plant having lost a single leaf on the journey.

MESSRS. PROTHEROE & MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 23, at half-past 12 o'clock precisely, without reserve, a magnificent importation of the beautiful

CATTLEYA LAWRENCEANA, consisting of about 600 plants.

They were collected at the proper time, when in flower, by Mr. J. D. Osmer, and brought over under his special care. The whole will be found to be in the very best possible health and condition, with perfectly sound and dormant eyes, and full of green leaves. Amongst the importation will be found numerous splendid masses, and very fine varieties, one being specially marked as having very light rose-coloured flowers.

The Sale will also include about 150 lots of well-grown ESTABLISHED ORCHIDS, and a small importation of various ORCHIDS received direct from the Brazils.

On view morning of Sale, and Catalogues had.

THE LAWSON SEED AND NURSERY CO., LIMITED (IN LIQUIDATION), BANGHOLM NURSERIES.

The FOURTH and MOST IMPORTANT of the Great CLEARANCE SALES

WILL TAKE PLACE ON

THURSDAY, FRIDAY, and SATURDAY, April 26, 27, and 28, at 11 o'clock Forenoon each day.

MR. DAVID MITCHELL, HORTICULTURAL AUCTIONEER, has been favoured with instructions from the Liquidators to SELL by PUBLIC AUCTION, a further portion of the VALUABLE NURSERY STOCK belonging to the above Company, at the BANGHOLM NURSERIES, FERRY ROAD, and INVERLEITH ROW, EDINBURGH.

The Stock to be offered for Sale comprises a fine lot of ORNAMENTAL EVERGREEN and DECIDUOUS TREES and SHRUBS of all sizes, for Park and Villa decoration; and at this Sale will be specially offered MANY THOUSAND HOLLIES of all the well-known varieties, comprising Golden Queen, Silver Queen, Gold and Silver Variegated, Moonshine, Nobilis, Hodgensi, Donningtonensis, &c., &c. The Hollies are in sizes suitable for immediate effect in many times transplanted Specimens, and also in all sizes from young Nursery Plants upwards. There will also be offered Fine Coniferæ, Golden Yews, Abies Douglasii, Picea nobilis, Picea Nordmanniana, and some fine plants of QUERCUS PANNONICA, &c., &c., &c.

This Nursery has for nearly half-a-century been famed for Hollies, and the attention of Purchasers is particularly drawn to this stock, which is in the finest possible condition for transplanting, the present time being eminently suitable for the purpose.

On the Second Day of the Sale there will be offered the whole stock of the splendid New Golden Variegated HODGENS HOLLY, which originated in the Bangholm Nursery, consisting of Twenty-four Plants together with the original plant of Ilex Hodgensi from which the first grafts were taken. This lot comprises the whole stock, which is therefore unique, and will be a valuable acquisition to any Nursery.

Descriptive CATALOGUES are in preparation, and may be had on application to Mr. W. E. DIXON, the Manager, Bangholm Nurseries; or to the Auctioneer, 6, Comely Bank, Edinburgh. Cars pass the Nursery every ten minutes.

67, George Street, Edinburgh, April 17, 1888.

GEO. TODD CHENE, C.A., } Liquidators,
JOHN SCOTT TAIT, C.A., }

The Final Sale will take Place on May 3, 4, and 5.

Sales by Auction continued.

Harlesden.

Ten minutes' walk from Willesden Junction Station. Tibble's new pure white PELARGONIUM, not yet sent out, and acknowledged to be the finest white in cultivation. From its vigorous and profuse flowering habit, it is invaluable to all Market Growers, Florists, and others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. H. Miller to **SELL** by AUCTION, on the Premises, the Harlesden Park Nursery, St. Mary's Road, Harlesden, N.W., on **TUESDAY, May 1**, at 1 o'clock precisely, a large quantity of well-grown GREENHOUSE PLANTS, and other FERNS, PALMS, GARDENIAS, EUCARIS, and also a large quantity of Tibble's new prime white PELARGONIUM, not yet sent out.

On view the day prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Tuesday and Wednesday, May 1 and 2.

The **BRENTHAM PARK COLLECTION OF ORCHIDS**. Important two days' unreserved sale of this celebrated collection of **ESTABLISHED ORCHIDS**, by order of Robert Smith, Esq., who is giving up their cultivation.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from R. Smith, Esq., to **SELL** by AUCTION, at their Central Sale Room, 67 and 68, Cheapside, London, E.C., on **TUESDAY AND WEDNESDAY, May 1 and 2**, at half-past 12 o'clock precisely, without Reserve, the whole of his well-known collection of **ESTABLISHED ORCHIDS**, amongst which will be found the following and other rare species:—

Cattleya Bluntii.	Lælia anceps Sanderiana.
" exoniensis superba.	Oncidium cruihorrhycum album.
" Skioneri alba.	Odontoglossum Jencingsianum paraguayatum.
" labiata (autumn flower- ing var.).	Coleogyne Massangeana.
Lycaste Skioeri alba.	
Lælia anceps Dawsoni.	

And many other Plants. Also "Warner's Select Orchidaceous Plants," two series in 1 Vol., and nine Parts unbound; and "Bateman's Second Century of Orchidaceous Plants."

The whole of the plants will be found to be in excellent health, and none will be sold privately prior to the Sale.

On view morning of Sale. Catalogues are now ready, and may be obtained of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

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FOR SALE an excellent old-established GENERAL NURSERY BUSINESS, in consequence of ill-health. Nearly 30 Acres of Ground, numerous Greenhouses and Buildings. Rare opportunity.

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FOR SALE, a NURSERY, as a going concern. A well appointed Nursery, on the Bromley Road, at Beckenham, Kent. The Nursery is situated in an excellent neighbourhood, and a good Jobbing Trade may be made. A large Business has been done in Cut Flowers in past years. The Houses and Stock are in first-class order, and may be inspected.

For further particulars apply to Mr. E. ELLIS, Solicitor, 23, Birch Lane, London, E.C.; or, to Messrs. JOHN LAING AND SONS, Nurserymen, Forest Hill, S.E.

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TO BE SOLD, a NURSERY and SEED BUSINESS.—The Premises consist of Four large Houses, Pits, and Frames, and Six-roomed House adjoining. A splendid opportunity for two pushing young men. There is a good business now being done, and every prospect of increasing this offers itself to any one knowing the trade.

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Chance seldom met with.

FOR SALE, in a best leading North-west Suburb, an OLD BUSINESS, of nearly 50 years standing, comprising large Nursery Grounds covered with Glasshouses and valuable Plants, &c. Connected therewith are separate Shop Premises, both properties producing an annual turn over of about £2300. Principals only.

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Choice ROSE BLOOMS in variety, 18s. per 100, cash.

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Further information can be obtained on application to the SECRETARIES, 2, Walbrook (Mansion House), E.C.

SMALL SHRUBS and CONIFERÆ.—

Araucaria imbricata, 8 to 9 inches, 40s. per 100. Abies orientalis, 8 to 9 inch, 12s. per 100. American Arbor-vitæ, 10 to 12 inches, 50s. per 1000. Cupressus Lawsoni, 12 to 15 inches, 60s. per 1000. Cupressus erecta viridis, 5 to 8 inches, 40s. per 1000; ditto, 1½ foot, extra, 12s. per 100. Cupressus stricta, 6 to 8 inches, 40s. per 1000; ditto, 1½ foot, 14s. per 100. Pinus insignis, 1 year, 4s. per 100. Pinus Combra, 2 years, 10s. per 1000. Pinus excelsa, 1 year, 4s. per 100. Pinus canariensis, 1 year, 6s. per 100. Retinospora plumosa, 10 to 12 inches, 10s. per 100. Retinospora aquarosa, 6 to 8 inches, 4s. per 100; ditto, 10 inches, 8s. per 100. Thuia Lobbi, 10 to 15 inches, 40s. per 1000. Thuia dolabrata, 6 to 8 inches, 4s. per 100; ditto, 12 inches, fine, 12s. per 100. Yew, English, 8 to 9 inches, 6s. per 100. Laurel, Portugal, 8 to 9 inches, 6s. per 100. Common Laurel, 12 to 14 inches, 30s. per 1000. Rhododendron ponticum, 4 to 6 inches, 50s. per 1000; ditto, 2 to 3 inches, 30s. per 1000.

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Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, chalcid, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strains. The best and cheapest combined procurable. CATALOGUES gratis.

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Star of Fire, West Brighton Gem, John Gibbons, Cleopatra (pink, best), Crystal Palace Gem, Maréchal McMahon, Miss Kingsbury, Bijon; solid balls of roots in moss, well hardened, 20s. per 100. Also ECHEVERIA SECUNDA CLAUCA, 15s. per 100; and other HARDY CARPET BEDDING PLANTS in variety, cheap.—JOHN ROBERTS, The Gardeos, Tan-y-Bwlch, Merionethshire, North Wales.

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intending planting Shrubs and Trees, &c., this Autumn.

ROBERT NEAL begs respectfully to call attention to his large and varied stock of the above, more especially to those varieties most suitable for Town Planting, of which he holds a large collection, such as PLANES, LIMES, ELMS, CHESTNUTS, EUONYMUS, AUCUBAS, and HOLLIES, and others too numerous to mention. Free delivery within a radius of 10 miles, on all Orders amounting to £5 and upwards. An inspection solicited. CATALOGUES free on application.

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EUONYMUS.—20,000: all nice bushy well

grown specimens, 9 to 30 inches, 15s. to £7 per 100; about 150 large ones, 3s. 6d. to 5s. each.

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100 PACKETS OF FLOWER SEEDS

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The extraordinary cheapness will at once cause the reader to say "They must be rubbish," but they are guaranteed to be really good and fresh. The packets of course are small, but they contain enough seed to grow a nice little clump of each kind, and every packet is different and named. They are giving most unqualified satisfaction, as indeed they cannot fail to do. Prepayment not necessary if references are sent.

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LILY OF THE VALLEY CROWNS

for Early and Late Forcing. Delivery in November next.

The Advertiser is in a position to compete for the above with any respectable House in the Trade, either at home or abroad, as to price and quality. Particulars on application. Early Orders respectfully solicited.

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For the best Vegetables, Potatoes, and Flowers, see the new edition of this popular work; beautifully illustrated, and containing exhaustive articles, entitled—"A Year's Work in the Vegetable Garden," "The Culture of Mushrooms in the Open Air," &c., post-free, or Gratis to Customers ordering goods value 20s. and upwards.

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

WEDNESDAY NEXT.—Sale No. 7670.

CYPRIPEDIUMS.—HIGHLY IMPORTANT SALE.

CYPRIPEDIUM HIRSUTISSIMUM and other grand species.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 25, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., the finest lot hitherto offered of the rare and lovely CYPRIPEDIUM HIRSUTISSIMUM, equal in condition to the best plants in established collections, amongst them grand specimens, and one marvellous mass with forty-five growths, and measuring 3 feet by 3 feet; also several hundred masses of a GRAND CYPRIPEDIUM, many with flower-buds, and leaves as finely marked as those of *Phalænopsis Schilleriana*, some 10 inches long by 2½ inches wide. Collector writes it is very much like *C. Godefroyæ*, but believes it is a far better species; flower when stretched out about 4 inches across, the whole flower profusely spotted, on dorsal sepal as much as on the petals and lip. CYPRIPEDIUM in the way of *C. Regnieri*, splendid masses; *ANGULOA CLOWESI*, *AERIDES CRASSIFOLIUM*, the King of the *Aerides*; *CALANTHES* from Siam, *DENDROBIUM SIGNATUM* from Siam, producing flowers as large as those of *D. aureum*, four on a spike, from top to bottom of Bulbs, 4 feet in length; *D. BENSONIÆ*, *D. DEVONIANUM* (the Bhamo variety), *D. SUAVISSIMUM*, the finest specimens ever offered; *SACCOLABIUM CÆLESTE*, very fine specimens; *VANDA CÆRULESCENS*, *V. CÆRULEA*, *V. PARISHI*, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Without Reserve.—Sale Thursday Next. April 26.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 26, at half-past 12 o'Clock precisely :—

THE NEW CYPRIPEDIUM ROTHSCHILDIANUM, RCHB. F.

THE NEW DENDROBIUM NOBILE SANDERIANUM, RCHB. F.

SPLENDID RADIATED VARS. OF ODONTOGLOSSUM VEXILLARIUM.

THE VERY RARE ONCIDIUM SPLENDIDUM.

THE MAGNIFICENT ODONTOGLOSSUM HARRYANUM.

THE NEWLY RE-INTRODUCED ONCIDIUM BIFOLIUM MAJUS.

Also specially selected masses of ODONTOGLOSSUM BLANDUM, *O. PESCATOREI*, *O. GRANDE*, &c., together with a grand lot of *CATTLEYA AUREA* and other Magnificent ORCHIDS.

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PEONIES	5 "
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APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NEC-
 TARINES, APRICOTS, and other FRUIT TREES, as
 Standards, Dwarfs, Pyramids, Bushes, Cordon, and Trained
 Trees, in great variety.

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Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100;
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Plants are strong and healthy, and ready for delivery.

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American Arbor-vita, 2 to 2½ feet, 16s. per 100; ditto,
 3 to 3½ feet, 20s. per 100. Aucuba japonica, 1½ to 2 feet, 30s. per
 100. Berberis aquifolia, 1 to 1½ foot, 50s. per 1000. Box Trees,
 2 feet, 20s. per 100. Griselinia littoralis, 1½ foot, 30s. per 100.
 Laurel, Common, 2 to 2½ feet, 10s. per 100. Laurel, Portugal,
 1½ to 2 feet, 30s. per 100. Laurel, Colchic, 2 to 3 feet, 16s.
 per 100; ditto, 3 to 4 feet, 20s. per 100. Laurel, caucasicum,
 2 to 3 feet, extra, 20s. per 100. Rhododendron ponticum,
 1 foot bushy, 20s. per 100; ditto, 1½ to 2 feet, 30s. per 100;
 ditto, 2 to 2½ feet, 40s. per 100; ditto, 3 to 3½ feet, 70s. per
 100. White and other colours, strong and bushy, 70s.
 per 100. English Yews, 2 feet, 26s. per 100. Araucaria
 imbricata, 1½ to 2 feet, 24s. per dozen; ditto, 2 to 2½ feet,
 36s. per dozen; ditto, 3 to 3½ feet, 50s. per dozen. Cupressus
 Lawsonii, 2 to 3 feet, 20s. per 100. Cupressus erecta viridia,
 2 feet, 30s. per 100. Pinus Nordmanni, 2 feet, 35s. per
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 1½ foot, 20s. per 100; ditto, 2 to 2½ feet, 30s. per 100. Retino-
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 feet, 12s. per dozen. Thuipis borealis, 2 to 2½ feet, 50s. per
 100. Thuia dolabrata, 1½ to 2 feet, 18s. per dozen; ditto, 2 to 3
 feet, 30s. per dozen.

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SPECIMEN CONIFERS, TREES for Avenues,
EVERGREENS and FOREST TREES in great variety.
CATALOGUES Free on application.

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SPECIMEN RHODODENDRONS,
 FOR IMMEDIATE EFFECT.

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Erectum, rosy-crimson, 5 feet high × 6 feet through, 60
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 Prince Albert, rich lake, 4 ft. × 4½ ft., 140 buds, 10s. 6d.
 " " rich lake, 4 ft. × 5 ft., 90 buds, 10s. 6d.
 King of Crimosa, rosy-crimson, 3½ ft. × 4½ ft., 140 buds, 15s.
 Concensum, rose, light centre, 4½ ft. × 5 ft., 60 buds, 15s.
 Bylseaum, white, edged with cerise, 4 ft. × 7 ft., 160 buds,
 Barclaynum, crimson, 4 ft. × 4 ft., 25 buds, 12s. 6d. [30s.]
 Vershaefelti, rosy-lilac, black spots, 4 ft. × 4½ ft., 110
 buds, 10s. 6d.

Refulgens, magenta, 3½ ft. × 3½ ft., 40 buds, 7s. 6d.

Towardianum, pink, 4 ft. × 3 ft., 20 buds, 7s.

Also large quantities of Choice Named Sorts of various sizes.

Descriptive LIST on application.

ISAAC DAVIES & SON,
NURSERYMEN, ORMSKIRK, LANCASHIRE.

well, although it had to fight for existence with the numerous "cormorant" roots of the Bamboos which latter usually starve or kill everything in their proximity in my garden. After hesitating two or three years it became firmly established, and then began to grow with amazing rapidity and strength. In fifteen years it clothed three sides of the tower, 66 feet in height, with a most luxurious vegetation, waving branchlets in the air in every direction.

It was a lovely sight, admired by all who saw it, and I was delighted with my African friend, whose presence and efforts to clothe my old tower I welcomed with enthusiasm. He grew and grew winter and summer, at all seasons, day and night. The more we cut him back the more vigorous he became. Three sides of the tower had disappeared in a covering of thick Ivy branchlets and foliage; indeed, all but the southern facing, which he seemed to avoid.

My enthusiasm received, however, a sudden and severe check. The inner walls of an annexed building, which he had also covered, above 2 feet thick, became damp; the mortar peeled off, and, lo and behold! the Ivy appeared inside, after having pierced through this thick wall in many places. This fact made me anxious. I examined the tower carefully, and found that my friend had taken possession of it, and was actually eating it up; numerous branches, not mere roots, had pierced it between the stones, and were living on the old mortar. I had given hospitality evidently to a terrible parasite, who was rewarding me by eating up my very vitals. With a sigh on leaving last spring I gave orders to have him cut at 20 feet from the ground, and rooted up. Underground we found roots as thick as a man's thigh, which appear to be usually the case with these luxuriant Southern climbers. He had beaten the Bamboo, invaded the garden in every direction, and was destroying the old tower, and that rapidly. I gave directions to my gardener to leave the upper 40 feet intact, to see what would take place.

On my return four months later, I found the upper 40 feet of the Ivy on the tower as flourishing as ever. It did not appear to have suffered in the least from the mutilation it had undergone, from having had both roots and trunk cut away. It was growing on, as green as ever, clearly living on the mortar of the tower by the roots it had sent into every jointure. This I had seen before. I had observed a small Ivy growing on a wall, alive and flourishing, in a sun-exposed situation, on a new wall, years after its roots and stem had been cut away.

This experience opened my eyes to the danger I was running. I had the Ivy ruthlessly torn off the tower, and cemented all the old joints of the stonework from top to bottom on all four sides. Henceforth I shall follow the Southern system, and allow no parasitic vegetation of any description to exist on the walls of my tower, and let it raise its head to the sky naked and forlorn, as is the case with all public monuments in the South. All who have travelled, if they will consult their memories, will recollect that they have never seen Ivy on public monuments in the South. My experience is clearly that of all time, and the danger of parasitical plants to buildings, old or new, is so generally acknowledged in the South, that they are never allowed. In England, in a minor way, the same thing must take place.

I take this opportunity to ventilate a conceit, and to ask a question. Does Ivy ever attach itself to a shrub or tree with thorns, say to a Rose tree? I cannot recollect such a fact in gardens, woods, and hedgerows, and several friends whom I have questioned say the same. Is it so?—for if it is, the Ivy, the parasite, has more sense (instinct) than human beings, who are constantly attaching themselves to those who have moral thorns, concealed or open, and once so attached as they cannot untwine, without getting lacerated and mangled as the results. *Henry Bennet, M.D., Torre di Grimaldi, Ventimiglia.*

ORCHID NOTES AND GLEANINGS.

LÆLIA FLAVA, Etc.

A distinct and closely related group of *Lælia* is formed by this species, *L. cinnabarina* and *L. harpophylla*. All three are Brazilian, the two first having been introduced forty or fifty years ago, while the last made its appearance in 1873. *L. flava*—the one perhaps least often met with—I saw a few days ago, flowering very prettily in the Messrs. Veitch's establishment at Chelsea. The flowers, of which there were six or seven on the spike, measured 3 inches across and were of an exceedingly bright yellow colour, the only variation being a few faint crimson lines along the side lobes of the lip. The pseudobulbs are ovate, and bear one or two thick, very leathery and purplish-tinted leaves. The unusual colour of the flowers, which is perhaps most nearly approached in Orchids by those of *Masdevallia Davisii* renders this a very desirable plant. *L. cinnabarina* is similar in habit to the above, but may be recognised by the more elongated, stem-like character of its pseudobulbs. The sepals and petals have a more acute shape, and the entire flower is of an orange-scarlet colour. *L. harpophylla*, the freest flowering and most useful of the group, has also bright orange-scarlet flowers, and a white blotch on the lip; it is readily distinguishable by the slender terete stems, which are 10 to 12 inches in height.

These *Lælia*s require to be grown in good peat-fibre, with a small addition of sphagnum and crocks, and succeed best in a light airy position in an intermediate-house. The growths should be well ripened off in autumn, otherwise there is a tendency during the dark, foggy weather which follows for the pseudobulbs to decay, especially those of *L. cinnabarina*. Whenever decay makes its appearance the part affected should be cut out, and flowers of sulphur rubbed over the wound.

SELENIPEDIUM GRANDE.

This striking hybrid—better known, perhaps, as a *Cypripedium*—is one of the many products of Mr. Seden's skill and is now flowering in the Kew collection. Its parents are *Selenipedium Rozlii* and *S. caudatum*; and it bears a considerable resemblance to the former in the general aspect of the flowers. They are, however, giants compared with those of *S. Rozlii*; and the side petals become upwards of a foot in length, and show strikingly the influence of *S. caudatum*. A notable feature of the plant is the size of its leaves, these being when fully developed 2½ feet in length, and 2½ inches in width. Even when out of flower awell-grown plant is a striking object.

LYCASTE SKINNERI.

For its size this Orchid is probably capable of producing more flowers than any other. We have now a plant bearing from a single pseudobulb no less than fifteen large and fully opened flowers. This fact may be worthy of mention, because during the last three years the plant has been systematically treated with fish-manure when in active growth, and at the commencement of that period the pseudobulb was little larger than a pigeon's egg, and produced but three flowers. A good method of applying this manure is to make about half a thumb-potful into a paste, and then mix it with four gallons of water. This proportion may be given from once a fortnight to once a month, according to the character of the growth, and only during the growing season. It is said that the systematic use of this kind of manure is apt to induce an apoplectic condition in the Orchids to which it is given, and that they are finally liable to "go off" very rapidly, but during the last years I have used it for *Lycastes*, *Pleiones*, *Anguloas*, and similar gross feeding Orchids, with entirely beneficial results. *W. B.*

MASDEVALLIA CULEX.

Mr. F. W. Moors, of Glasnevin, has been good enough to send me a specimen of this plant, which

proves to be *Pleurothallis macroblepharis*, as I indicated probable a week or two ago. Both the pieces which have come into my hands have proved to be this, though it is quite likely that *P. Barberiana* may also have been distributed under the name, as Mr. O'Brien (to whom I am much obliged for his reply) indicates. In the first case I found the name written *pulex*, and both ways of spelling would have appeared in my note but for a misprint. I may add, that I hope these spurious names, which should never have been given, will be allowed to drop at once, and thus avoid more confusion.

TRIAS PICTA.

A plant of this rare and interesting little gem is now in flower in the Kew collection. It is planted on a small piece of Tree Fern stem, and is in robust health in the warm division of the Orchid-house. It forms a compact mass not 3 inches high; the pseudobulbs are shortly ovoid, with four rounded angles, and the fleshy leaves narrowly ovate, with an acuminate apex. The fleshy flowers are about three-quarters of an inch across, honey coloured, densely spotted with light reddish-purple spots, and borne on the shortest possible stalks. It is a native of Burmah, where it was discovered by the Rev. C. E. Parish. It figures as *Bulbophyllum (Trias) pictum*, Par. and Rehb. f., in the enumeration of Moulmein Orchids in the *Transactions of the Linnean Society*, vol. xxx. But as *Trias* is considered a distinct genus in the *Genera Plantarum*, and as the habit is so distinct, it may as well stand as above. *Trias* oblongs, the other species of the genus, is another little dwarf, which is occasionally met with in collections. *R. A. R.*

CÆLOGYNE CRISTATA.

The plant of *Cœlogyne cristata*, of which we give an illustration (see fig. 68, p. 489), is that known as the Chatsworth variety, and was grown in Mr. W. Lee's garden, Downside, Leatherhead. Mr. C. Woolford, the very successful cultivator of Orchids at Downside, supplies the following particulars:—"The plant in question is kept in the Cattleya-house all the year round, and measured when photographed more than 7 feet across. It has not been potted for three or four years, and has so overgrown the pan (24 inches diameter) in which it stands, that the latter is almost hidden from view."

This form of *Cœlogyne cristata* is one of the best in cultivation; the pseudobulbs and foliage are of a darker green colour than most other varieties; each spike bears from six to nine flowers, of a large size, and the colour is of the purest white.

Cœlogyne cristata is a native of Northern India, and was first flowered in this country by Mr. George Barker at Birmingham in 1841. The Chatsworth form of *cristata*, although very fine, is said by Professor H. G. Reichenbach to be inferior to *C. c. var. maxima*.

DAFFODILS.

The following remarks on Daffodils were made by Mr. J. Walker, of Whitton, Middlesex, on the occasion of the meeting of the Horticultural Club on Tuesday, April 10, inst., at the Hotel Windsor, Victoria Street, Westminster:—

When I agreed with our Secretary at our annual gathering in January, to read a paper on Daffodils, I then expected to have had a much larger number of varieties to put before you, but "the best laid schemes o' mice and men gang aft agley," especially when one has to depend on the elements. I daresay you are all aware of the opinion that prevails that we have too many varieties of the Daffodil, under names, and to some extent this is true. I observed one writer advocates ten varieties as being sufficient; on the other hand, Mr. Barr, in his *Book of Daffodils*, out of 185, has no less than 102 varieties of single-flowered *Incomparabilis*—two extremes, seeing that they commence to flower in ordinary seasons in February, and continue until the

end of May, and ten varieties would only give one variety in ten days. If there is to be a Royal Horticultural Society Daffodil Committee, and if each individual is to exercise his discrimination, there will be plenty of scope for him; indeed, the number of good varieties is so large, that I will now confine my remarks to those only which may be considered the commercial varieties of the Trumpet-flowered section.

If we take the yellow forms first, I fear we shall have to pass by the English Pseudo-Narcissus, few if any of these succeeding under cultivation. Of the light yellow Narcissus, Emperor stands alone, and it has as yet no rival; and if we look at the deep yellows, the same may be said of Narcissus maximus. Both these varieties will be hard to beat.

cutting my beds of Horsfieldi, Empress commences to bloom; and when Empress is passed, grandis begins—these three varieties giving flowers for a period of about one month. To this section may be added Dean Herbert, J. Walker, M. Foster, J. B. M. Camm, and Mrs. J. B. M. Camm—all interesting flowers, quite distinct, and worthy of a place in any collection.

Although the white Narcissi are very pretty, they are not found so valuable for marketing as the yellows or bicolors, they being much more difficult to grow. Of the hybrids, Mrs. W. F. Burbidge is entitled to the first place: the flower is of fine form and substance, possessing likewise a good constitution. Next come Mrs. Thompson and Dr. Hogg, cernuus pulcher,

will be found that there are not two flowers alike; it seems as if each one was a seedling, whereas the flowers of our Tenby variety are all so much alike that it would lead one to suppose they had all originated from one bulb. It may be worth our while to inquire if we obtain any of our varieties from reversions. I for one believe that we do; some persons are of the contrary opinion. It may be very difficult to get direct and trustworthy evidence on this point, although strong circumstantial evidence can be produced. I believe a change rarely takes place in the progeny of bulbs of one's own growing, but rather from bulbs received from outside sources that have been grown for a long time in soil altogether different in its nature from one's own. It



FIG. 63.—CÆLODYNE CRISTATA, CHATSWORTH VARIETY. (SEE P. 488.)

I will now name a few in their order of flowering:—Tenby, Ard-Righ, Troilus, Henry Irving, Golden Spur, General Gordon, Captain Nelson, J. G. Baker, Blondin, Vicar of Lulworth, Hudibras, Edward Leeds; and there are doubtless many more which could be mentioned that are as good. Of those that resist the wind, sun, and rain best, are the Tenby and Troilus; the last named variety was introduced by our friend Mr. Wilks, who says that it has no origin, but is like the parson's calf which came alive. Those which possess the finest formed trumpets are J. G. Baker, and Captain Nelson. If we now take the bicolor section it will be very difficult to say with which variety we should lead off—Empress, Horsfieldi, and grandis, seem to have an equal claim, although, on heavy land, Empress will beat Horsfieldi, whereas on light land the order is reversed. I find that when I have about half done

Wm. Goldring, F. W. Burbidge—all very good varieties. Of those that are not known to be hybrids, I have not the slightest hesitation of placing our English cernuus, or what Hartland calls Bishop Mann; first it is a model flower, and stands well when cut. Of this class cernuus Niobe and Colleen Bawn are exquisite examples. The one which I should like to take next is Leda. In mentioning this variety I am aware of treading on delicate ground, as Mr. Barr challenges its name by calling it his tortuosus; but this I am certain of, that what he gave me in 1882 as tortuosus is not Mr. Hartland's Leda.

This is a question that cannot be settled by any one person, but may be decided when we learn the results of certain trials that are being made at various places. Before bidding good-bye to this section let us consider *N. pallidus præcox*, and it

would seem that it is when the bulb receives a violent change, the old blood is set a going. Mr. Dickson's opinion about a Sir Watkin is that the bulbs he received in 1884 had been grown in the same place for quite eight or ten years. Those I obtained were planted in soil that had been broken up about two years previously and had been meadow-land for a long course of time. When they had flowered in 1885 we got one flower with an orange cup, which we call Lady Wynn. The same may be said of Mrs. Thompson, which I contend is a short form of cernuus pulcher.

I have no doubt that the bulbs grew in the Aldborough Rectory garden from the time Leed's collection was divided, until the time of Mr. Nelson's death. It would appear that the greater length of time the bulbs are grown in one place, before being removed and planted in soil of a

different nature, the greater the change which is likely to take place.

With regard to the treatment of Narcissi this is very varied, seeing that the plants come from so many different parts of the world. As regards the depth at which they should be planted, much will depend on the nature of the soil, and the size of the bulb, but it is very certain that a bulb planted 6 inches deep will not make root so readily or so strongly as one planted only 2½ inches deep. As a rule the bulbs may be planted deeper on light land than on one that is heavy in its nature; again, if they are to remain more than one year in the ground, they should be planted somewhat deeper than if they are to remain but one season, the bulbs tending to grow upwards, and on wet land it would be advisable to raise the beds by throwing out alleys. I should consider 3 inches of soil on the top of the larger bulbs, and 1½ inch over the smaller ones, a fair depth.

With regard to the time to plant, the careful cultivator will soon discover that this also varies with the variety. I have planted Poeticus in June when the foliage was green; and the finest bed of yellow Hoopeppicoat that ever I grew was planted in February; however, it would be wise to have all planting over by the end of September, so that the bulbs may have time to make plenty of "fibre" before winter sets in, and such will come up much stronger than those planted later.

The time of lifting is also varied, but there is no safer guide than to lift as the foliage of each variety begins to die off, and when lifted they should never be allowed to be exposed to the sun or rain, but be placed on trays in an open airy shed, allowing whatever soil that may adhere to the bulb to remain until they are cleaned. I wish to lay particular stress on the matter of storing after having been cleaned, for if they are then placed in bulk they will become mildewed, and, if spread out, they also get deteriorated.

The more one studies them the more it will be found that there is an individuality about each one of them which must be taken into consideration, and it will be found that some varieties will require to be lifted every year, while others may remain in the same spot for a number of years and do well. If it were not for the labour and expense it would entail I would lift all my bulbs every year; and if this method was practised I have no doubt there would be fewer complaints about "rust."

I do not know if any one of you may have observed that a stray bulb growing with another variety will invariably do better than when in a bed of its own sort. If this be so it goes some length to prove that one variety takes something out of the ground which another variety does not. I think that most of you will agree when I say, that hybrids are much easier cultivated than species, or naturalised hybrids, though amongst the latter are some of varieties as easily cultivated as the former. Of the hybrids; the two I find the most difficult to grow and to multiply, are Dr. Hogg and J. G. Baker.

Now I do not know who is responsible for naming these two weak varieties after two gentlemen possessing so much—what shall I call it—fibre, grit, or will?—but I have a strong opinion that there should be some trace of the quality of the individual in the flower.

As an instance of this incompatibility, Mr. Barr in his book of 1885, has a single incomparabilis that he calls "Wellington;" now, imagine an incomparabilis with a flimsy perianth, and called Wellington!

Now, practically with all that can be said, or done, there is no hard and fast line to be laid down, as may be done with the cultivation of Anemones, Ranunculus, Tulips, Dahlias, &c.; but I am convinced the day will come when Daffodil growers, will be as anxious to change their bulbs as farmers now are to change their seed Wheat or seed Potatoes; and if each individual interested in Daffodil work would contribute his experience to a sort of general fund, we should soon come to a still better understanding with our friends the Daffodils.

FLORISTS' FLOWERS.

THE AURICULA.

THIS will undoubtedly be a late season, even should the weather change considerably for the better; but as far as I can judge from my own collection and what I hear from growers in the North, the prospects of a good bloom are excellent. I hope members of the National society will do their utmost to bring up as many plants as possible to the exhibition on April 24 at the Royal Scottish Volunteers Drill Hall, James Street, Westminster. Nearly all Auricula growers have heated houses now, where they can keep the cold from their plants; and if this has been done since January, the plants will doubtless be in good condition. In such seasons as the present the flower-trusses of the show varieties are generally much drawn up, owing to heating the house and neglecting to ventilate sufficiently. The best house for Auriculas is a low span-roofed one, and the plants ought to be arranged as close as possible to the glass; moreover, night and day the ventilators ought to be open a little to ensure a constant circulation of air. We have a row of cast-iron "hit and miss" ventilators in the walls opposite the hot-water pipes; and these are kept open even in frosty weather, but the cold air is warmed as it passes over the pipes, and filters up amongst the plants on the stages. On the mornings of fine days air must be admitted freely, and early.

The florist does not waste his precious morning hours in bed, and as the sun shines in on the plants he will observe how rapidly the temperature rises if the ventilators are not open at the top of the house. Unless it be frosty we open the top lights a little at 6 A.M., and again about 8. Shading is necessary as soon as the pipes are expanded, for if the sun catches them the rich colour fades, and the flowers may crumple up. Intending exhibitors should thin out from the trusses all imperfect pips, so as to allow of the perfect development of those which remain. Some trusses produce too many flowers, and in that case many of the small centre pips should be removed. Our alpine Auriculas have always been in time for the National exhibition the last Tuesday in April, without removing them from the cold frame; but this year it has been necessary to place them in a heated house. Besides the Auriculas we have now species of other Primula which make the Auricula-house much more attractive. We had excellent example of both alpine and Himalayan species in flower early in March this year, and Primula flowers will be plentiful until the end of May. Those who object to cultivate these alpine treasures in pots, miss the delicate beauty of the flowers early in the year, and in untoward seasons the bloom is usually very poor indeed out-of-doors. Many persons fail to successfully cultivate these Primulas year after year in pots, a fact due in some cases to improper methods of cultivation; but on the other hand many Primulas fail to do well after having flowered a year or two, and it is thus best to raise a few plants annually from seeds; even the common Primrose succeeds best the first year, producing the largest and the finest flowers.

The best way of raising these Primulas and Auriculas from seeds has probably not yet been determined. I have sown the seeds as soon as they have been saved, and this is probably the best way to make sure of their not being injured by damp, but the seeds will keep very well until January, when all of them may be sown together. Nearly the whole of them will vegetate during the months of February and March; in fact, the larger proportion of the seeds sown in summer will remain dormant in the soil until early in spring. I place the seed-pots or pans in the Auricula-house, when germination proceeds but slowly, I have at the present time plants of many species ready to prick out from sowings made in January. The plants must be pricked out as soon as they are large enough, or they run the risk of falling a prey to damp if allowed to remain in the seed pans, J. Douglas.

SOURCES OF THE NITROGEN OF VEGETATION.

FOR many years past the question of the sources of the nitrogen of our crops has been the subject of much experimental enquiry both at Rothamsted and elsewhere. In the *Proceedings of the Royal Society*, vol. xliii., is given a summary by Sir J. B. Lawes, Bart., and Professor J. H. Gilbert, of their own more recently published results bearing on various aspects of the subject, together with reference to the results and conclusions of others which have recently been put forward.

Until the last few years, say our authors, the controversy has chiefly been as to whether plants directly assimilate the free nitrogen of the atmosphere; but recently the discussion has assumed a somewhat different aspect. The question still is, whether the free nitrogen of the air is an important source of the nitrogen or food of vegetation; but whilst few still adhere to the view that chlorophyllous plants directly assimilate free nitrogen, it is nevertheless assumed to be brought under contribution in various ways, coming into combination within the soil, under the influence of electricity, or of micro-organisms, or of other low forms which thus indirectly serve as an important source of the nitrogen of plants of a higher order.

In their earlier papers Messrs. Lawes and Gilbert concluded that, excepting the small amount of combined nitrogen annually coming down in rain, and the minor aqueous deposits from the atmosphere, the source of the nitrogen of our crops was substantially the stores within the soil and subsoil, whether derived from previous vegetable accumulations or from recent supplies by manure; and recent Rothamsted investigations show that in those experiments soils and subsoils down to the depth at which the action of plant-roots has been proved, there exists a store of about 20,000 lb. per acre of already combined nitrogen. And while it is true that many soils will contain much less there are many, especially good garden soils, which contain a much larger amount of inherent fertility.

The history of both agriculture and horticulture throughout the world, so far as it is known, clearly shows that a fertile soil is one which has accumulated within it the residue of ages of previous vegetation, and that it becomes infertile as this residue is exhausted. *John J. Willis, Harpenden.*

CHRISTMAS ROSE CULTURE.

MR. JENKINS gives us another interesting record of actual experiences in Christmas Rose culture, p. 396, and I am glad to find it confirmatory of what I have written on the subject. It is one which is attracting an extraordinary amount of attention. The demand for plants has been very large, and all the nurserymen's stocks are nearly exhausted. We have had many visitors at Brockhurst studying our amateur mode of culture, and one gentleman had purchased 2000 plants, which he was going to cultivate for the flower market, as he found his farm did not pay under present prices of corn and beef. Here, then, is a practical idea worth working at by gentlemen farmers, who may enjoy flower-growing instead of ordinary farming. The demand for flowers is on the increase, and many florists find it far more profitable to sell flowers than plants. Mr. Jenkins asks if my experience agrees with his as to the time at which the roots of *H. niger* are formed. Now, this is a botanical question which well deserves careful study. A root, we are told, "is merely a prolongation downwards of the stem, and the part where they unite is the column or neck." "Afterwards the root is distinguished from the stem by the absence of a provision for the development of leaf-buds." "Such plants as the *Anemone japonica* have the power of forming buds on what are usually called their roots." (*Encyclopedia Britannica*, article "Botany.") Now, this variety, *H. n. maximus*, has the same power in a remarkable degree. Miss Hope

pointed this out in the *Gardeners' Chronicle* (December 25, 1875) thirteen years ago. She first divided the large plants of *H. n. maximus* into smaller ones, and then cut off as much of the "root-stock" as could with safety be spared, leaving the "true roots" attached to the neck of the plants intact. She then took the rootstock and cut it up into pieces an inch or two in length, "according to the appearance of the buds or swellings," and she found that a very large proportion of these grew into plants, just as the eyes of the Grape Vine produce Vines. I have followed this plan for years successfully. Thus it is evident that Hellebores have two very distinct sorts of roots. The "root-stocks," as Miss Hope calls them, and the "true roots." It was the latter which I termed rootlets (p. 200) in the article to which Mr. Jenkins refers. These may be described also as fibres from the main roots, and I suppose that they serve to collect food for the main fleshy rootstock, and furnish the life of the plant. So far as my observation goes these rootlets are pushed out in March just before the leaves are renewed, and it is at this time that the plant is in its most critical stage of growth, and when removal is not wise. When the plant has just finished blooming, say in February, its next duty would be to mature the seed, if it had any; but as *H. niger* seeds very seldom under culture the plants are then at rest, and it is an excellent time for division and replanting. The plant soon after gets its new rootlets into the new soil, and grows accordingly. Therefore in February I said I should remove two-year-old plants because they were then at rest; and I believe this is also the best time for dividing large plants. Miss Hope advised July for cutting up the rootstocks of *H. n. maximus*, and in this she was right, as it is quite a different matter. My experience, however, is that the root-cuttings do quite well in February also.

Mr. Jenkins also remarked upon my experience with the very large clump of *H. major*, removed here from Devonshire three years ago. Finding it made no progress I had it taken up early in February and divided. I found it to be a large fasciculated mass of roots, all crowded closely together, and those in the centre quite weakly and incapable of bearing good flowers or foliage. The outer rings only were healthy, and they alone seemed to bear good flowers and leaves. The clump would have divided easily into nearly 300 plants, each with its long fleshy root and its crown complete. Every one of these would form a good plant in time, but we left them in small clumps, and these made three dozen good-sized clumps, which were planted out in prepared soil. I had this plant carefully examined in view of the recent discussion about large fifteen-year-old plants, and I am more satisfied than ever that there is a stage in the growth of Hellebores, when it is much better to divide a plant than to continue its growth. The centre of this large example was quite inactive, and a mere circle of small plants would have produced as many blooms. The fourth and fifth years after division I find the plants quite large enough, producing a hundred flowers at one time; and by a judicious system of dividing old plants, and growing them forward, a good succession of large specimens can always be in readiness.

Our outdoor Hellebore plants, sheltered by frames and cloches, have been superior to those grown in the cool greenhouse during the past season, but in very wet winters it is otherwise. Both systems should, therefore, be followed, if practicable, as each has its advantages.

No plant deserves frame culture better than *H. n. maximus*. The beauty of its delicate rosy-white flowers is greatly enhanced by this protection, and there are always flowers to be had, from October to February, from a large frame of it. The plants—all our *H. n. maximus*—now in 3 feet borders, so that a frame 12×3×3 feet, can be readily placed over any portion of the beds when required. This is especially needful in snowy weather, and the flowers are continuously produced, irrespective of the cold. This variety differs entirely from all the *H. niger* and *H. n.*

major classes in its root and habit, and it requires a very different treatment. It is, however, the easiest to manage of any, and I think it is the best of all the Hellebores after all for garden purposes, because of its steady continuance in bloom, and its grand foliage. *Wm. Broxbank, Brookhurst, Didsbury.*

THE MELON PEAR.

I INTRODUCED the "Pepino" in 1882 (see p. 753, December 17, 1887) from Guatemala, where it is extensively cultivated in the highlands at an elevation of from 2000 to 5000 feet. The plants there yield abundantly, in fact enormously, 100 to 150 fruit to a vine 4 feet in diameter being nothing uncommon. I have seen it yield similarly in California, but whenever exposed to too much heat and dryness, it is very slow to set fruit. I would recommend you to start the plants in pots; the slips grow as readily as Willow cuttings. Then prepare cold frames with plenty of manure under. Set out as early as possible in spring, and when all danger of frost is over, remove the frame, and if possible, shade slightly. There is no fruit in the tropics or semi-tropics which so readily allays thirst as the Pepino. When properly grown it contains, besides the sugar, an acid of the most refreshing and remarkable kind. A single ripe Pepino will allay thirst for several hours even in the hottest weather. If grown under too much heat this acid is more or less wanting, and the Pepino becomes worthless or insipid, and resembles then simply an inferior Musk Melon.

One winter I picked my Pepinos in November, a day or two before hard frost. They were then unripe, but of full size. They began to ripen at Christmas, and I kept most of them until March; I kept them only in a box in a cold room. This shows the excellent shipping quality of the fruit. I have no doubt that where the Pepino can be set to fruit in abundance, it will prove a most valuable fruit. It is one of the finest I know of, and suits my taste.

Your suggestion that the fruit would be fine as evaporated (dried) strikes me as a new and valuable one. In some parts of Florida the Pepino has produced satisfactory crops—twenty to thirty fruits to the vine at one time. In its native home it bears continually the year round. Could not possibly a hybrid be produced between the Pepino and the Tomato? I have an idea such a fruit would be very desirable. At present I am not in position to experiment, but I suggest that those who are should try. Fertilise the flowers of a Tomato vine with the pollen from a Pepino, and raise seedlings and fruit them. Something very desirable may be had. The small yellow Tomato, so much eaten now, would perhaps be the most desirable variety to experiment upon. *Gustav Eisen, Kern Co., California, in "American Orchard and Garden."*

FRUIT REGISTER.

PEAR ALEXANDRINE DOUILLARD.

A STRIPPED variety of an old Pear, which appeared, as is ignorantly said, by accident. M. Barvenich remarks that a tree of *Beurré d'Amanlis* in his possession produces every year branches on which the leaves are wholly white. Buds taken from these albino branches do not "take" when budded, while buds taken from the base of the branch grow, but produce shoots with entirely white leaves. *Bulletin d'Agriculture, March.*

APPLE GOLDEN NODLE.

I was pleased to see this fine Apple was included in the excellent collection shown by Messrs. Veitch & Sons, at the spring meeting of the Royal Horticultural Society on March 27 last. With us it thrives uncommonly well in every aspect, is of very robust constitution, and an abundant bearer. The handsome fruit, when fully matured, leaves nothing to be desired in appearance, and it is, in fact, a noble Apple. As a culinary fruit it has few equals, having just

enough acidity to make it agreeable to the taste without the addition of sugar. I consider it superior, in this respect, to the Wellington or Duncow's Seedling. During the spring time, well kept examples are an ornament to the dessert, and are formidable rivals to some other favourite late keepers in flavour and appearance. The fruit requires careful handling, by reason of the clear yellow of the skin showing bruises very quickly. The fruit hangs well on trees exposed to high winds, the short, stout footstalk contributing doubtless to this. With some growers Golden Noble is confused with Waltham Abbey Seedling, but they are quite distinct, the former being of erect and robust growth, the latter somewhat pendulous and less strong. We recommend those who have not yet tried the former kind to add it to their collections, being convinced that it will give satisfaction. *J. Hudson.*

PEACH ALEXANDER EARLY.

This is a new and valuable American variety, of medium size, of a fine mottled colour and rich flavour; and while found to be hardly outside, it makes also an excellent forcer. Mr. Thomas King, The Gardens, Devizes Castle, has this season forced it with great success; he began gathering from it on the 26th ult., and by the 30th he had taken eight and a half dozen fruits from the tree; and he speaks of it in the highest terms as suitable for early work. The house was shut up about the middle of November. Mr. G. Bunyard, in his *Fruit Catalogue*, states that it is earlier than the Early Beatrice by ten days. *R. D.*

PEAR BELLE PICARDE.

A Pear of large size, with short stalk, regular pyriform shape, orange-red and speckled on the sunny side; eye deeply set; flesh white, melting, sugary; season December—June. A good dessert Pear, but specially recommended for cooking. *Revue Horticole, April 1.*

NOVELTIES IN DUTCH BULBS.

THESE bulbs have been better than usual, and as the season is unfavourable to the too rapid development of the bloom, these have remained in good condition for longer periods. We attend to the wants of our plants until the leaves begin to decay and the bulbs matured, and then remove them from the soil, to be put aside to plant in pots for early flowering the next season; afterwards to be planted out-of-doors. I find the bulbs of Tulips and Narcissus flower nearly as well the second year as the first. The newer varieties of Hyacinths have been exhibited in very good condition this year. In novelty of colour and size of spike they are much liked, and are surely if slowly displacing the old varieties. King of the Blacks, for instance, as exhibited this year, has been remarkably fine; the colour is rich blue-black. Masterpiece, a very dark blue, has also been fine. The pale blue Princess Mary of Cambridge is a lovely colour, which does not fade like *Czar Peter*. A well-known pale yellow variety, Queen of the Blues is a distinct pale blue variety, likely to become famous, but I have not yet seen the spikes large enough for exhibition. Amongst crimson varieties nothing can surpass *Vuurbaak* when it comes out as it has done this year; I grew six bulbs of it, and every one of them produced spikes fit for exhibition. Linnaeus has also been very fine; there is a rosy tinge in the crimson of this variety. Of the pale red or rose-coloured varieties there is nothing yet, equal to the semi-double *Koh-i-noor*; it can always be depended upon to produce massive spikes. Messrs. Veitch, of Chelsea, exhibited quite a new variety of this colour named *rubra maxima*; the spikes were long, and massive at the base, but rather too thin at the top; they may grow out of this another season. *Etna* is distinct, and has been very fine this year; the bells rosy-red in colour, well formed, and producing a solid massive spike.

White varieties are still headed by *La Grandessie*,

the form of whose bells and the massiveness of the spike are remarkable; *Lianocence* has been good, and the old variety *Mont Blanc* still retains a second place. The best yellow *Hyacinth* I have seen as yet is *Criterion*, a new variety exhibited by Messrs. Veitch, of Chelsea; and quite desirable is *King of the Yellows*. *Sybil* is certainly one of the best of the lilac-purple varieties; it is less bright than *Sir Henry Havelock*, but the spike is larger and very massive.

Star of Hillegom is the best of new blush coloured varieties shown this year. It is a semi-double with well formed, large spikes. Amongst Tulips we do not seem to improve upon the few old standard varieties. *Ophir d'Or* is the most recent, and is the best yellow extant, the flowers being large and well formed. The best white variety is the rather new white *Joost van Vondel*; *Proserpine* remains the best formed rose-coloured early Tulip; *Keizer's Kroon*, *Wouwerman*, and *Joost van Vondel* are the best of the rosy-crimson varieties.

A few desirable *Polyanthus Narcissus* have come to the front during the past few years. *Narcissus*, yellow with orange cup, flowers very freely, but the colour is not so rich as that of *Jaune Supreme*. *Mont Cenis*, a variety I have grown for two seasons, has flowers which are white with a yellow cup, freely produced, but these are smaller than those of *Bazelman major*. The plant has a more compact habit; and the trusses are supported on stouter stems. *J. Douglas.*

APPLE CULTURE.

It is a somewhat odd circumstance, that whilst not only is a special society or committee formed for the purpose of favouring the growth in this country of an article of such questionable value as Tobacco—Parliament itself being even moved to aid and encourage its culture—that little or nothing should be done of a specially practical nature to promote Apple culture materially. Possibly the secret of this activity on the part of Tobacco growers is found in the trade pressure which has been exercised in its behalf, and which doubtless hopes to find in British Tobacco culture eventually some tangible reward for its enterprise. But no one will for a moment hold that for general usefulness or national value Tobacco can for one moment compare with Apples; for the latter, far beyond being a luxury, is indeed food, and, it might be added, essential food for a nation in a temperate climate such as that of England. Possibly an exotic plant such as Tobacco is needs very much nursing and care, hence the formation of a body specially to protect its interest. Apples are of rougher mould, and can fairly well take care of themselves. Still farther, they are happily exempt from the thrall of the revenue officer, although were they not so we should doubtless find far more of Governmental concern for Apples' welfare. Not that Government aid is needed in respect of Apple culture specially, but it is certain that some valuable Parliamentary help might be given in the direction of placing the holding of land upon a more simple and equitable basis. At present, if landowners refrain from planting trees or refuse to do so at their own expense, tenants, whether farmers or market gardeners, have little inducement to do so, except where land is held on long leases. But it is seldom that these exceed twenty-one years, and few are the tenants, farmers especially, who will plant Apple trees with the assured certainty that at least one half of their term of holding the land must expire ere the trees will prove profitably productive. That is specially the case with orchard standard trees, and peculiarly so in respect of some of the strongest growing but most enduring varieties. Generally the market grower, and especially those who cater for the London markets, favour the growth of Apples which, fruiting fairly early in the season, may be gathered and marketed ere the winter sets in. It is thus seen that as far as the market trade is concerned very little is done towards competing

with the American or Canadian Apple grower, whose fruit comes to hand later in the year, and it is also evident that the imported American fruits but inappreciably affect the average market grower's profits. We have to get farther afield to find the needful area for competitive Apple culture, and that will be best found on the sunny slopes and sheltered valleys of our southern and western counties, where, without doubt, aided and protected by liberal land laws, Apple culture in an extensive way may well become a matter of national importance and of exceeding interest and profit.

Without doubt we should find an immense impetus given to Apple culture in the rural districts, where small farms and holdings were plentiful—assuming, of course, that such farms and holdings were either directly the actual cultivators, or else that occupiers had very long leases, or held under such conditions as would ensure to them the full value of their trees in the event of being dispossessed. It may be urged that landowners having suitable sites for extensive Apple orchards might well undertake the first cost of planting trees, which would, after all, be, to wealthy men, no great burthen; but then that could only be urged where landowners really were wealthy, whereas but too many are now poor, and still farther, so many of them are mere life tenants of their land, and have but small interest in planting and improving for the benefit, perhaps, of successors. Of course, the case of working and beneficial occupiers of land differs very materially from that of the ostensible owner, who is not the real occupier, for the former has every reason to make the most of his holding, consistent with safety, for his future interests; but when the working occupier of land is his own landlord also, then the motives to make the most of the land are doubled, because the product of labour is in that case to the present worker's entire profit. If, in conjunction with that production for the benefit of the living worker, the land is increasing in productive value for the benefit of his successors also, so much the better; hence it is very evident that the inducement to plant Apple trees on own holdings would be far greater than all those which now exist. It is very obvious also that the mere planting of Apple trees in quantity, and even of the most desirable kinds, is far from being enough. Land, let it naturally be ever so good, must none the less be prepared by deep cultivation, and, if need be, drainage, although it would hardly be good policy to plant extensive Apple orchards on land which needed costly draining. However, more or less expenditure of this kind would have to be met if an Apple orchard was to develop into a good though perhaps deferred investment. In all cases the trees would need staking and some occasional pruning, and it would be good policy to utilise the soil around the trees by growing for several years Potatoes, Mangels, or other crops which required no machinery to harvest. The trees getting by that time strong and well established, would be able to hold their own should the land be laid down to grass, for, after all, whether culturally the best plan or not, popular favour is most generally shown for orchards on grass. That so many of what were promising orchards on grass have done so badly later is due, first to the fact that the ground was not in the first place deeply moved and drained; second, that the grass has received but little manurial aid, indeed has been robbing the roots of the trees of their food; and lastly, the trees have, as a rule, been grossly neglected in the matter of thinning and cleaning. That there are plenty of fine orchards on grass in the western counties is certain, but those, it is found, are chiefly occupied with trees which are required to produce decent cider fruit, and not such fine fruits as will compete with the American imports. We are not so ignorant of the requirements of Apple culture in this country as to need the aid of a commission of inquiry into the methods of culture, &c., found so abundantly in North America. Given a free hand, without doubt our growers and occupiers of land at home could hold their own with the rest of the world. It may

be that some sound advice as to the best sorts of Apples, to grow for mid-winter marketing, and such as would be able to compete with American Apples, is needful; but the selection should be a liberal one, because sorts vary much in diverse soils and districts. We seem to be unanimous as to the great merit of the *Blenheim Pippin* for such purpose, and although a dozen others as good may not be found, at least not a few nearly so are available; we can furnish an immense area, ranging from Worcester in the west, to Cornwall in the south, and Kent in the east, which could furnish thousands of acres of suitable land for Apple production; and we may be assured also that our nursery trade would soon respond to the demand for suitable kinds if once created. Just now, perhaps, nurseries teem with too many kinds, two-thirds of which are worthless for the special purpose in view; but any great national effort in Apple planting will not be made immediately, and ere it is made it is hoped that nurserymen will have fully prepared for the demand. *A. D.*

COLONIAL NOTES.

FREESIAS AT THE CAPE.

PRACTICAL men at the Cape have read Mr. J. G. Hill's communication, p. 107, January 28, upon the *Freesia* with much surprise. It is scarcely possible that he is by mistake writing about a different plant from the white-flowered species, known rightly or wrongly among gardeners as *F. odorata alba*, and cultivated here in thousands for export; yet his description of it as 3 feet high makes one suspect an error. There are two garden forms of the white-flowered *Freesia*, and two of the yellow one, but none of them are in the smallest sense semi-aquatic, nor are they to be found near streams. Their natural habitat is dry stony ground, where the almost perpendicular formation of the rock leaves numerous cracks and crevices level with the surface. In these the *Freesias* grow and prosper, although their bulbs are often compelled to flatten out like a penny piece. I believe the original locality whence the white *Freesia* was obtained by Ecklon and Zeyher was not far from Bredasdorp, at a farm called Zoetendaal's Vrey, and onward towards Cape Agulhas. The yellow *Freesias* are quite Eastern; they come to us from the neighbourhood of Uitenhage. As to the culture, I find it an impossibility to keep them growing all the year, as *Vallottas* and *Imantophyllums* may do, and if they get water in our dry summer—that is, from December to March—the greater part of the large bulbs rot. It is just this peculiarity of our Western Cape bulbous plants, and of *Freesia odorata alba* among them, that renders their culture so difficult in the Eastern Province and Natal. There the seasons are the converse to ours, and they have a rainless winter and a wet summer. Hence your correspondent must either be writing of some other plant than this *Freesia*, or else he has been misinformed, for it is not a native of Natal, and when grown there is even more difficult to manage than in England.

There would probably be fewer failures if this plant were treated as is usual with Dutch bulbs. My plan would be to put from six to nine bulbs about 1 inch deep in well drained sandy loam in 6-inch pots; set them on a hard bottom, and after a good watering cover over with cocoa-nut fibre or other light material. Before long the pots will be full of roots. When the plants begin to show up above the soil remove them to a warm greenhouse, and keep them well supplied with water.

I find here that bulbs which are left in the ground all the year flower much better than those that have been lifted. Those planted early in March make more foliage and bloom better than those that are planted in April, and so on, till such as are left above-ground very long will not start at all that season. This is probably the explanation of complaints made respecting imported *Freesias* not

coming up. They have been kept dormant too long, and their season for starting has gone by. I much prefer the medium-sized bulbs to the very large ones, which are apt to run to spawn. A bed of these lovely bulbs, with 9000 or 10,000 of them in flower at once, is a sight worth coming to the Cape to see, and you may find their whereabouts by their perfume long before you see them. *H. Chalwin.*

— My colleague and head gardener, Henry Chalwin, in the above note gives his experience about Freesias, and I have added the locality whence Ecklon and Zeyher are believed to have got the white Freesia, and where it is said to have been originally found by Upjohn.

Many of Ecklon and Zeyher's exsiccata are marked "A. D. B. G.," that is, *aus dem botanischen garten*—meaning the plot of garden ground where Advocate Joubert permitted Ecklon to cultivate his bulb stock. As the *Topographisches Verzeichniss* is dated 1827, there is reason to conclude that this Freesia has been under culture for at least sixty years, and by perpetual selection of the whitest flowers the present garden form has been fixed. Now and then in our gardens plants appear exactly resembling Redouté's fig. 124, *Gladiolus xanthospilus*, with short scape, abundant foliage, and perianth yellow-stained within, purplish without. As a rule, these are rogued out. I do not remember to have seen a truly wild example of the white-flowered plant. There are only garden examples in the Cape Government herbarium. My conclusion is that *F. odorata alba*, so-called, is *F. xanthospila*, Klatt., and that the type-form is fig. 124 of Redouté's *Liliaceæ*. Of the other species *F. Leichtlinii* is unknown to me, even by figure. *F. odorata* of Ecklon is his No. 286, a dwarfish, short-leaved bright yellow-flowered plant from Uitenhage. On first starting, the leaves turn over sideways flat to the ground, and do not take the erect position till the scape appears. *F. refracta*, Klatt., is, by the author's quotation, Redouté's fig. 419, —a taller species, with dull greenish-yellow perianth. We scarcely deem it worth cultivation. Hence the garden view that there are two yellow Freesias and two white or whitish ones. Can the synonyms be put in order, or must all four forms be lumped under *F. odorata*? If so, Ecklon's name must be dropped as the authority, and the responsibility assumed by some one else. *P. MacOwan, Botanic Garden, Cape Town.*

SOLANUM CORNIGERUM.

Since my last I have taken especial pains to verify what I then suspected, viz., that *Solanum cornigerum* was merely a variety of *Solanum mammosum*. I have found plants producing both varieties of fruit, some with none, some with one, two, three, four, and five protuberances on the fruit. The plant is very common here, and each variety can be gathered at will from the same plant. Seed has been sent to the Royal Gardens, Kew, and other places, which will, when grown, doubtless prove the point, viz., that *S. cornigerum* is merely a variety of *Solanum mammosum* as aforesaid. *J. H. Hart, F.L.S., Royal Botanic Gardens, Trinidad.*

ENTOMOLOGY.

THE FLY OF THE IRIS LEAF.

THE injury committed by insects upon plants is not confined, as might at first be supposed, to the destruction of the leaves, flowers, or even the stems, by those parts of the plants being entirely devoured by the depredators. Partial injury is often as detrimental as total destruction, and it may be carried on without the enemy being detected or even its presence being suspected. This is especially the case where, from their minute size, the insects are enabled to subsist within and devour the interior of stems or of leaves whilst both the upper and under surfaces of the latter exhibit no appearance of the mischief going on within the leaf. The caterpillars of the larger and better known moths or other insects, for instance, devour the entire leaves

of plants sometimes as in the case of the ermine moth, lacquety moth, Currant saw-fly, &c., entirely defoliating the plants on which they are found; but there are many smaller species of moths and other tribes of insects which find sufficient subsistence in the parenchyma of the leaves, their presence being only detected by the sharp eyes of the horticulturist who perceives an unusual difference in the surface of the leaves, in the shape of withered patches, which might be supposed to originate in sun-burn or spots of rain at unusual times. Such was the case with some plants of *Iris ochroleuca* forwarded to us last August by a correspondent who had noticed such patches on the leaves as partially represented in our woodcut (fig. 69) where the patch is seen of a lighter tint both above and below the portion of the upper surface of the leaf, which has been raised in order to show the interior of the wounded part of the leaf, with a row of little oval black shining bodies arranged side by side, one of which is represented magnified in the upper part of

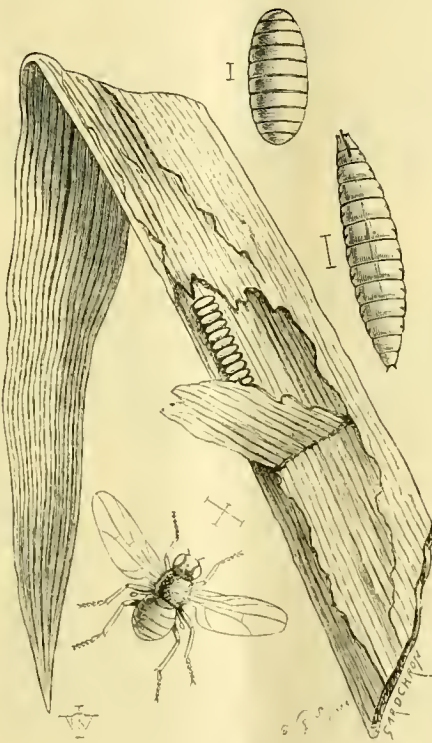


FIG. 69.—THE IRIS FLY.

the woodcut, and is seen to be impressed transversely, forming not very well defined segments, and which is the indurated skin of the larva or coarctate pupa, as it has been erroneously termed, of a small two-winged fly, the real pupa of which is inclosed within the oval shining black body. This is the ordinary condition of the pupæ of the very numerous species of dipterous insects forming the great genus, *Musca*, of Linnæus, or rather the modern family of *Muscidæ*, of which several instances are figured in our entomological series of articles, as in the Holly leaf-miner, *Gardeners' Chronicle*, 1846, p. 444; or the Marguerite leaf-miner, *Gardeners' Chronicle*, 1883, p. 593; but in no instance have we met with these pupa-cases arranged in the peculiar manner shown in the species now under notice. Our correspondent informs us that this insect appears to affect the whole of the species of the section of the genus *Iris*, to which *I. ochroleuca* belongs, but that the sections of *I. siberica* and *germanica* are free from its attacks.

Within the affected portion of the leaf a few larvæ of the fly were also found, one of which is represented magnified on the right side of our woodcut; it is long and fleshy, and narrowed at each

end, the head small and very retractile, armed in front with two or three points, one of which extends backwards internally, and constitutes the instrument which the insect employs for raking up the fine particles of the fleshy interior of the leaf for its food. There are no legs, and the extremity of the body has two very small retractile appendages, which are thickened at the tips.

The injured portion of the leaf also contained several specimens of the perfect insect produced within the pupa-cases, but these were unfortunately in an imperfect condition, so that I am unable to give so satisfactory a description of them as I could desire. It is, therefore, on this account that I can only provisionally suggest the generic name of *Agromyza* for this insect (a species of which genus was figured by Mr. Curtis as the Pansy fly, *A. violæ*, in the *Gardeners' Chronicle*, 1844, p. 244), and the specific name of *A. Iridis*. They measure about one-eighth of an inch in length and one-quarter of an inch in the expansion of the wings. They are of a black colour, and the upper side of the abdomen is flat. The wings hyaline, with fine black veins, which are of a yellowish tinge towards the base of the wings. (In our figure of the fly the two short cross veins in the middle of the wings are represented too far apart, and they are nearer the base of the wings than the middle of the disc.) The legs are black, and the balteres have the terminal knob white.

Notwithstanding the apparently secure position within the leaf, the larvæ of the fly are attacked by a beautiful little *Pteromalideus* parasite, of a golden-green colour with yellow legs, one of which I detected escaping from the pupa-case of the diptera. *I. O. W.*

CULTURAL MEMORANDA.

MAURANDYA BARCLAYANA AND ITS VARIETIES.

THESE are half-hardy purple and white flowering climbers of small growth, well adapted for greenhouse cultivation as basket or rafter plants, and will succeed out-of-doors in warm situations, and are then serviceable for planting at the margin of vases, on rockwork, or to twine round the stems of standard Roses and similar supports. Seeds sown now in light sandy mould, covered lightly, and after watering put into a warm frame and watered through a fine rose, will soon come up. The young plants should be pricked out into pans at 2 inches apart, or put into small pots, watered, and put back in heat, subsequently taking the plants up with little balls of soil, and transferring them to their flowering positions, making the soil firm about the roots in planting. Those plants intended for planting out-of-doors should be duly hardened off before being planted. In the greenhouse the plant is a perennial, and may be planted in the border, and allowed space to grow freely.

MANDEVILLA SUAVEOLENS.

A free-growing greenhouse climber, with fragrant pure white flowers. It is propagated from cuttings and seed. Those not having cuttings at hand, and who wish to grow the plant, should obtain a packet of seed, and sow it at once in light mould, in heat. The young plants should be pricked out like *Maurandya*, in a compost of fine sandy loam and leaf-mould, watered, and put back into heat, and near to the glass to avoid weakly growth. In due time pot them off into 3-inch pots, shading the plants from the sun until the roots have taken to the soil, keeping them moist at the roots, and in a growing atmosphere in a close frame.

EUPATORIUM RIPARIUM.

As a winter-flowering plant this is now well known and appreciated, especially as it may be cultivated in any greenhouse from which frost is kept out. Small plants in 3-inch pots, allowed to grow without being stopped, are excellent for furnishing when 12 to 15 inches high and 6 to 9 inches through at the base. These in the course of two or

three years may be grown to large dimensions—5 feet in diameter if necessary. Increase is by cuttings of the young growths or by seed sown at once, the young plants flowering next winter.

The seed should be sown in fine soil, on a slight hotbed, and the seedling plants pricked out into a pan, and returned to the hotbed, afterwards potting them off before they touch each other, and growing them in frames, shifting as may be necessary during June and July. *H. W. Ward.*

BALSAMS.

Sow the seeds singly in thumb-pots filled with light soil, water lightly, and place in warmth. When they are up keep the young plants always near the glass and moist at the roots. Shift them into 3-inch, 6-inch, 7½-inch, and 8½-inch pots respectively before the roots become matted, keeping a small percentage of the plants in 6-inch pots for furnishing purposes, and pick all the flowers off the plants as they appear until a fortnight before the time at which it may be desired to have them in flower. A good compost to grow them in, consists of four parts fibry loam and one of horse-droppings and leaf-mould. The plants require air in abundance through all their stages of growth, to prevent them making weakly growth; and overhead syringing on bright afternoons promotes growth, and wards off the attacks of red-spider. After the plants have pushed their roots well into the soil of their last shift, alternate waterings of diluted liquid manure at the roots will prove beneficial.

TUBEROUS BEGONIAS IN POTS.

No time should be lost in putting these into heat, and a forcing-house will suit their present requirements admirably. Prick over the surface of the soil before giving sufficient water at the roots to moisten the soil. As soon as the tubers start into growth shake the old soil off the roots and repot in a mixture of four parts fibry loam and one of horse-droppings and leaf-soil, with a dash of coarse sand added, returning the plants to a position near the glass, and giving water to settle the soil about the roots. A week or two later, after the roots have got to work, stand the pots on coal-ashes in a frame or pit having a southern aspect, where they may have plenty of air admitted in favourable weather, so that the growth may be sturdy. To increase the plants, cuttings of the young growths about 2 inches long should be taken, and put into pots filled with sandy soil, and plunged in a hotbed, watered and kept close till rooted, when they may be potted off singly into 60's and returned to heat, and, after the roots have pushed into the soil, be stopped, and afterwards treated as indicated above.

MANETTIA NICOLOR.

This graceful twining plant is rarely met with in prime condition, and this is the more remarkable as the plant is a wonderfully free grower. Its habit is nearly as slender and graceful as the well known *Myrsiphyllum asparagoides*, and add to this its brilliant flowers, produced from the axils of the leaves, and about the size of a single *Bouvardia* flower, and we have a very pretty flowering plant. The leaves are of a pleasing light green colour, opposite, narrowly elliptical, and tapering to each end, with the apex pointed. It has a free branching habit, and the flowering sprays look exceedingly well either on the plant, or when cut and mixed with other flowers, its pendulous habit making it very useful for placing in vases and epergnes. The plants can be kept for years, but the most satisfactory way of growing the plant is to raise a fresh specimen annually. Cuttings put in at the present time and treated in the usual way will by autumn have made nice flowering plants. If large masses are desired put several cuttings in a pot, and give liberal treatment afterwards. A light open compost and stove temperature suits it best. It begins to flower about Christmas, and lasts about six months. There are several other species of *Manettias* worth growing, indeed some are larger flowered than the species under notice, but bicolor I consider is the most attractive

of the group. *M. micans* has shining wide-mouthed flowers, and makes a good pillar plant, which by syringing well during the growing season may be kept free from insect pests, scale being perhaps the most troublesome if it gets a footing; should it do so, a little "Swift and Sure" insecticide, applied according to the directions on the bottles, will speedily remove it.

GOODIA LATIFOLIA.

A beautiful Australian Pea-flowered plant, not often seen outside public gardens, yet it is a good ornamental plant for the greenhouse or conservatory. It is of a free branching habit, producing large panicles of yellow flowers from the points of the branches—both main and lateral branches flowering freely. The standard or outside petal is, as usual, the largest; it is yellow with a brownish-red splash of colour at the base; the wings are erect, closely applied together, and enclosing the keel, which is small. The flowers have an agreeable scent, and last for a considerable time in perfection. Propagation is by cuttings, but seeds are the best means of increasing the plant, which, if sown now and grown well, will flower about this time next year. After the plants have done flowering they should be cut hard back, syringed, and otherwise encouraged to break; after which they may be slightly shaken out and repotted in good fibrous loam and leaf-mould, and towards the end of summer they are benefited by being stood out-of-doors, housing them before there is danger from frost. *F. R.*

CINERARIAS.

A pinch of seed should be sown now, and again in about a fortnight. The seed must be sowed thinly and evenly in well drained pans of light sandy loam and leaf-mould; make firm and water before sowing the seed. Cover lightly with very fine soil, put in heat, and place a square of glass over the pan, and over it a little moss, which must be removed as soon as the seedlings appear, and the glass a few days later, and the pan be placed near to the glass to prevent the weakly growth in the plants. *H. W. W.*

THE SUPPLEMENTARY SHEET.

THE BAOBAB TREE.—This giant of the vegetable kingdom, which Humboldt speaks of as "the oldest organic monument of our planet," belongs to the natural family, *Bombacæ*. The Baobab was considered the largest tree in the world, but is now known to be exceeded, in length of trunk at least, by the *Sequoia gigantea* of California. The usual height is from 50—70 feet, and not at all in proportion to the dimensions of its trunk, which occasionally reaches a diameter of 30 feet.

The flowers are white, solitary and pendent on long stalks, and when open are quite 6 inches across. The fruit is an oblong woody capsule covered with short down, and measures nearly a foot in length: internally it is divided into eight or ten cells, each cell filled with pulp, in which the seeds are imbedded.

A. digitata, the species figured in our Supplement, goes under various names in the different parts of the African continent, of which it is a native, and is known to English travellers as the *Æthiopian Sour Gourd*—*Monkey-bread*.

It is found in Abyssinia, Senegal, and on the west coast as far south as Angola, and on parts of the east coast. The particular specimen figured grew at Quillimane, on that coast. This tree is 120 feet in height, and is of the supposed age of 5000 years. The data as regards age is taken from Adamson's computation of the age of a tree he saw in Senegal in 1794, which was 30 feet in diameter, and whose age he stated to be 5150 years. From the bark a coarse fibre is obtained, which the natives manufacture into ropes, &c., and the leaves are used as a sauce with their food, not as a condiment but to diminish the excessive perspiration. The pulp of the fruit is given in malarial fever.

The photograph from which our figure was taken

was kindly furnished by our valued correspondent, Mr. W. Adam, of Pietermaritzburg, Natal.

CELOSIA PYRAMIDALIS VAR.

The plant from which our illustration is taken was shown in a group at the November exhibition of the Birmingham Chrysanthemum Society, by Messrs. Thompson. It is a well developed plant, of rich crimson colour, called *plumosa*. The cultural details, which are very simple, are as follows:—

The seed was sown on March 15, in heat, and the young plants were potted into 60-pots and grown on in a Cucumber frame until 8 or 9 inches high, and were then re-potted and grown on in an intermediate-house with a temperature of from 50° to 60°, and ultimately removed to a cool house. The plants averaged 4 feet in height from the pots, and 2 feet 6 inches through. The soil used is two part loam, one part well decayed horse-dung, and one part leaf-soil, with a sprinkling of guano in the compost. The plants are not stopped at any stage. With this easy cultivation the *Celosia* should form an important object amongst our winter decorative plants, and smaller plants in smaller pots would find a ready sale, but it is seldom that we see it done well.

THE ORCHID HOUSES.

WINTER being now past, the time has come for arranging the Orchid-houses for the summer season. Long practice in Orchid growing teaches gardeners who study the requirements of their plants that certain plants do best when placed in certain positions. This may often be done for convenience rather than for any other motive, and the surrounding conditions are often such that plants thrive in an extraordinary manner, thereby teaching a useful lesson to the observant gardener. Many hints can be gathered by visiting various collections of Orchids, especially when those in charge of them are ready, as they mostly are, to explain their methods of cultivation, and thus, by exchanging notes, much time is saved in arriving at proper methods which suit certain species of Orchids. Anyone commencing to grow Orchids soon discovers that there are other points of culture to be studied besides that of temperature. Many species enjoy the heat of the warmest house in the summer, but it requires some forethought to place the shade-loving species and those that enjoy plenty of light in their proper position during the summer months. Those who have the choice of only three separate houses in which to grow their plants may succeed very well by shading one part of the house heavily or fixing a permanent shading over a part, and by this means making less use of the roller-blind, and giving the other occupants of the house as much sunlight as they require. Most of the *Dendrobiums*, when growing, delight in the heat and moisture of the East Indian-house, provided they can be lightly shaded. I have previously given a list of those species which I have found to grow best in strong heat; to these might be added a great many more.

Every assistance should be given to Orchids starting to grow by keeping a moist atmosphere while there is plenty of sun-heat, and no more ventilation being given to the warmest houses than is necessary to keep the air sweet. In order to prevent the moisture from escaping too rapidly from the East Indian, cool, *Odontoglossum*, and *Masdevallia* houses, ventilation should be given at the top only, during bright sunny days. The cool-houses need fire-heat no longer, and should be shaded sufficiently heavy to keep down the temperature as soon as the outside temperature rises to more than 40°.

Cold winds are found to be very trying to the various species of *Phalænopsis*, which may, however, be assisted by placing a little fresh green sphagnum about the roots; and such as require it may now have new baskets or cylinders. *Lycastes* and *Anguloas* should be examined as soon as growth recommences. For a potting compost use lumps of fibry peat and light loam, some sphagnum and broken Oak leaves. After potting water sparingly for some time, only damping the surface with a fine rose syringe.

There will be found much to do in the *Cattleya*-house, and the plants of *Cattleya Trianae* and *Cæloglyne cristata* should be set right for the summer. A growing temperature should be maintained after this date. The temperatures may range as follows:—Cool

Odontoglossum and *Masdevallia*-houses, 50°—60° F.: intermediate-house, 60°—70°; East Indian, 65°—75°. On bright days check the fires, and afford a little ventilation by the upper sashes early in the day, but let the temperature of the East Indian-house rise 10° or 15° before ventilating it. Cattleyas and *Lælias* are best kept in health when the air of the house is caused to circulate by means of top and bottom ventilation. C. Woolford, Downside, Leatherhead.

PLANTS AND THEIR CULTURE.

PALMS AND CROTONS.—With attention to one or two details the culture of these plants is simple, both genera with few exceptions delighting in a high temperature, with abundance of moisture both at the roots and in the atmosphere—and, unless when in a young state, full exposure to the sun. Both require rich soil of a loamy character, and Palms that of a heavy holding nature, to which their roots can lay a firm hold. There are a few points which should be observed in potting Palms, viz., to afford good drainage, and never, if it can be avoided, to cut off any of the roots, especially if the plants be small or weak, as their chances of recovery from the injury will then be extremely small. If the plant is sickly, and has not got the best of soil to grow in, it will be better, provided the drainage is made good, to leave it alone until it shows signs of renewal of growth; and in repotting be careful not to bury up the stem of the plant, but let its base be level with the surface of the soil; inattention to this particular would most likely prove fatal, even in the case of large plants. Unhealthy Palms, when the drainage and soil are good, are best assisted by applying a top-dressing of some mild manure, which will do much more for them than if they were shaken out and repotted. The present is a good time to give the collection a general overhauling, the conditions being now favourable for the growth of the more tropical species. Some useful species do very well in an ordinary greenhouse, provided sufficient moisture is afforded them and they are occasionally well syringed. In a fernery or greenhouse where frost is excluded, the following species may be grown:—*Areca Baueri* and *A. sapida*, *Kentia australis* and the genus *Rhapis*, also *Scaevola elegans*, *Jubæa spectabilis*; and, as is well known, *Chamaerops Fortunei* and *exelsa*, which are hardy in this country. It is, therefore, evident that some species of Palms may be successfully cultivated by anyone who has a garden; but without plenty of heat at command it would be but misdirected energy to attempt the cultivation of the tropical species, *Stevensonia*, *Maximiliana*, *Calamus*, *Desmonicea*, or *Cocos*. Palms, with few exceptions, are propagated by seeds, which if plunged in a moist bottom-heat will soon germinate, when they should be potted off singly before the roots get entangled. The seeds of popular sorts, as *Cocos Weddelliana*, *Kentia*, and *Livistona*, *Latania borbonica* come frequently to the London sale rooms, and can be purchased at a few shillings per thousand seeds.

Crotons require a treatment similar to that afforded the tropical Palms, but less care need be exercised with the roots in re-potting, but avoiding over-potting, and making the soil in the pots quite firm about the roots. *Crotons* are propagated either by seeds or cuttings. For cuttings select large pieces and treat them as advised for cuttings at p. 110, January 28. There are now many forms of these plants, but few surpass the old *C. angustifolius*, when it is well grown, especially as an object for the table. These plants are much benefited by copious and forcible syringing, at least once a day, well damping the house afterwards. As regards the ventilation it is better to keep the front or bottom ventilators shut, leaving open a chink at the top to let out superfluous heat, and to change the air gradually.

Cool Bulbous Plants.—*Ixias*, *Sparaxis*, *Babianas*, *Gladiolus Colvillii*, *Scilla peruviana*, the evergreen *Libertias*, and similar things, are now pushing up their flowering-pikes, and should have increased attention as to watering, cleaning the surface of the pots, and ventilation. If the stock of bulbs is large, a portion may be brought in the greenhouse to flower earlier than the bulk, but it should be remembered that the plants dislike fire-heat. A place in a light, cool frame, with free circulation of air on favourable occasions, and not over much water are the proper conditions for these plants.

Greenhouse Bulbous Plants will require similar attention. *Lachenalias* which are coming into flower should be kept close up to the glass, taking care not to place them in a draught. These are handsome little plants, and are very effective when arranged with other plants. *L. aurea*, *L. Nelsoni*, *L. tricolor*, and *L. pendula* are the species usually met with in gardens, and are probably the best of the genus. The Australian *Patersonias* may be potted if they require it, using chiefly peat and sand only. These plants like plenty of water when growing, and must not be dried off like deciduous bulbs. *Hamanthus*—quaint looking plants in flower and foliage, but withal interesting and showy. The brushlike scarlet or white inflorescence usually springing from the naked bulbs is followed by huge thick leaves, generally in pairs. In *H. Kalbreyeri*, *H. puniceus*, and others the leaves are more inclined to be petiole-like or sheathing, oblong and bluntly pointed, and in *H. sanguineus*, *tigrinus*, and others the leaves are very large and ornamental. These plants do not require much water at any season, and it should be entirely withheld as the leaves ripen off.

Herbaceous Calceolarias.—Keep a sharp look out for greenfly, and do not permit it to obtain the least footing, or the beauty of the plants when in flower will be short-lived. It is safer to fumigate them occasionally, even if no fly be then visible. A little tobacco-powder dusted on the under-side of the leaves is a good preventive. Neatly stake the flower stalks as they push up, and shade the plants from bright sunshine; in watering give frequently weak doses of soot-water, which has become clear after mixing, or, where it can be had, use diluted liquid farmyard manure, and guard against letting the plants get dry. F. Ross, Pendell Court.

THE FLOWER GARDEN.

TREES AND SHRUBS.—Examine those which were recently transplanted, and water the same if necessary. Evergreens in light or sandy soils will be greatly benefited by copious watering at the present time, the ground, owing to the meagre rainfall, being abnormally dry, and not favourable to root-growth. Any plants which show signs of shrivelling of the bark of last year's growth should have temporary shelter from the drying east winds which we may experience any time during the next few weeks. Most of the planting operations for the current season, excepting that of *Hollies* and *Conifers*, should now be completed, and wherever it is admissible mulch newly planted stuff.

Seeds.—The present is an opportune time for sowing seeds of numbers of hardy perennials, which, although succeeding out-of-doors if properly treated, I prefer to sow in pots of moderate size and place in cold frames. The pots should be clean and well drained, and filled two-thirds full with potsherds and a layer of moss over these, and making up with suitable compost. The following plants may be raised from seed, viz.:—*Agrostemma Flos Jovis*, *Anthemum liliago*, *A. liliatum*, *Aquilegia*, *Campanula carpatia*, *C. turbinata*, *Chelone Torreyi* and *C. barbata*, *Cheiranthus alpinus*, *Dictamnus fraxinella*, *Dodecatheon splendens*, *Geum coccineum*, *Lychnis Haageana*, *Oenothera macrocarpa*, *Poppies*, *Himalayan Primulas*, *Rudbeckia Newmanni*, *Sidalcea candida*, *Silene alpestris*, *Phlox* and *Delphiniums*. Many more might be named, but these will be found suitable for a beginning. J. Horsfield, Heytesbury.

FRUITS UNDER GLASS.

PLUMS.—Where the fruit is set too thickly, thin them out so that the crop is evenly distributed over the trees, always leaving those which are the best placed. Pinch lateral shoots so as to produce fruit spurs about the third or fourth leaf, and remove the point from strong shoots, but allowing the leading shoots to grow where there is further need for extension. Plums are subject to be infested with the same insect as Cherries, and the same means hold good for their extermination. See *Calendar*, April 14.

Pears.—Whenever it is noticeable which fruits appear most likely to take the lead, all others should be removed forthwith, and by-and-by the number of those left may be reduced to one on a spur, if there be an even distribution of them over

the trees. Pinch in the lateral growths in time, and frequently examine the foliage at night for weevils; syringe the trees twice a day, and give good attention to watering them.

Strauberies.—To secure fruit of the finest flavour the plants must receive abundance of air, and a cool atmosphere for a few days after they are coloured, else they will not be worth eating. Continue to bring forward successions as the earlier plants are cleared out, and continue the copious syringings and the daily application of weak manure-water; give attention to the early thinning of the fruits, and hand fertilisation may now be discontinued, the more thorough ventilation and bees, &c., rendering that act unnecessary.

Melons.—The earliest fruits will now require to be supported when growing on trellises, and for this purpose some growers use pieces of board of 6 inches square suspended by a string or wire at each corner, others three or four strands of soft matting crossed. I have tried both these methods, and find that when touched by any object there is a liability of the arrangement being upset, the sudden jerk often detaching the fruit from the stalk. I have a preference for a 9-inch square of netting suspended by the four corners, which is secure against such accidents. The night temperature may range from 70° to 75°, admitting a little air whenever the weather is fine. Attend to top-dressing and to stopping the shoots of successions after the requisite number of fruits have been set, and keep up the supply by timely sowings. For succession pits a temperature of 65° to 70° will be sufficient at night. Avoid the too liberal application of water, this being conducive to weak foliage, and which is readily injured by the sun's rays.

Cucumbers.—Do not overcrop the plants, or exhaustion will follow, and some considerable time will elapse ere they can be brought to bear satisfactorily again. Pinch the shoots of vigorous plants at each joint, but where the plants have been in bearing some time, or have been overcropped, allow a few extra vines to run, removing all old leaves as soon as they become discoloured. If greenfly should appear fumigate lightly on three successive nights, always having the foliage dry prior to the operation. Keep the temperature at 70° to 75°, and the bottom-heat at 85°. Plants in hotbeds will be better to have the fruits laid on slates, to secure them against being blached. These frame plants do not require so much feeding as those grown on trellises in pits or houses, as the roots penetrate into the manure composing the hotbed. W. M. Baillie.

THE KITCHEN GARDEN.

HINTS IN SEASON.—Beet sown early in heat will require to be pricked out into light soil, using frames which can be shut up at night. Brown Cos Lettuce in pits should have plenty of water, with an occasional dose of liquid-manure, and be tied up for use as required. The planting of all late varieties of Potatoes should now be finished as soon as possible; Cabbage beds should have the surface-soil carefully stirred with the Canterbury hoe after heavy rains, in order that the plants may obtain the full benefit of the sun-heat, and to prevent the growth of weeds.

Seeds to be Sowed.—White Cos Lettuce, Brussels Sprouts for the latest crop, Scotch and all other Kales, Savoy, Rosette Colewort, Chou de Burghey, and all varieties of Broccoli. Of the latter it is well to reserve a portion of seed of the latest kinds for sowing a month hence. The above should all be sown on a fairly rich border in shallow drills 2 inches wide and 9 inches apart in preference to the broadcast system of sowing, and be at once protected with nets from loss by birds. A good quantity of Marrowfat Peas should again be sown. These will produce a more abundant crop if the rows stand 20 or 30 feet apart, as they then are benefited by the greater amount of sunlight and air that reaches them. This can easily be arranged at this season by running rows at intervals between other crops. Turnips Early Milan and Snowball, Spinach, Asparagus, and Seakale may likewise be sowed; and as the last two crops usually remain for two years before they are lifted, they should be sown on well prepared ground into which plenty of manure has been dug. W. H. Divers, Kelton Hall, Stamford.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, APRIL 24 { Royal Horticultural: Scientific, Fruit and Floral Committees meet.

SHOWS.

TUESDAY, APRIL 24 { National Auricula (Southern Section), at Victoria Street, S.W.

WEDNESDAY, APRIL 25—Ancient Society of York Florists.

THURSDAY, APRIL 26 { Royal Horticultural Society of Ireland.

SALES.

MONDAY, APRIL 23 { Cattleya Lawrenceana and other Orchids, at Protheroe & Morris' Rooms.

TUESDAY, APRIL 24 { Orchids in flower, at Protheroe & Morris' Rooms.
Carnations, Picotees, &c., at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, APRIL 25 { Importations of Orchids from Messrs. H. Low & Co., and 5000 Liliuni auratum from Japan, at Stevens' Rooms.
Lilium auratum, Freesias, Cape Bulbs and Carnations, &c., at Protheroe & Morris' Rooms.
Stove and Greenhouse Plants from sample, at Protheroe & Morris' Rooms.

THURSDAY, APRIL 26 { Importations of Orchids, from Mr. F. Sander, at Stevens' Rooms.
Specimen Plants, at Messrs. T. Jackson & Sons' Nurseries, Kingston-on-Thames, by Protheroe & Morris.

FRIDAY, APRIL 27 { Portion of the Collection of Established Orchids, the property of C. Dorman, Esq.; also Imported Orchids, at Protheroe & Morris' Rooms.

The Ghent Show.

THE preparations for the opening of the great Ghent Show on Saturday last were somewhat interfered with by the unexpected visit of the King of the Belgians and his suite before the organisation of the Jury was well completed, and hence a certain amount of delay and more confusion were inevitable. It is, however, a matter for pride and satisfaction to us to have to record that among the very first procedures was the presentation by His Majesty, to our most valued correspondent, Professor REICHENBACH, the President of the Jury, of a Gold Medal in recognition of the invaluable services rendered by him for so many years, mainly through the medium of these columns, to all interested in Orchids, either commercially or as amateurs. The inscription on the Medal runs thus:—

Viro clarissimo
REICHENBACH Hamburgensi
qui Orchideis describendis
de hortorum ornatu
per orbem terrarum
optime meritis est
Societas gandavensis
D xv. Apr. A. MDCCCXXXVIII.
hunc numum d.d.

The presentation was made, on behalf of the Royal Society of Agriculture and Botany, with

a few of those graceful, well-turned expressions of which kings and princes have the secret.

The Horticultural Press, represented by the editors of the leading horticultural papers of Europe, also received a flattering acknowledgment from His MAJESTY, who took the opportunity of commending the services of the *Gardeners' Chronicle* when its Editor was presented to him as a Pressman and one of the Vice-Presidents of the Jury. British exhibitors received similar royal recognition in the persons of Messrs. BULL, VEITCH, and WILLIAMS. The KING, who was attended by a brilliant suite and escorted by military, then proceeded leisurely through the show, spending some three hours in the examination of the whole exhibition. On the departure of His MAJESTY the jury commenced their labours. Most of the countries of Europe were represented on the jury, not only by nurserymen and amateurs, but by eminent botanists, among whom we noticed the Professors of Botany from Brussels, Ghent, Liège, Hamburg, Lille, Dresden, Warsaw, Berlin, Leyden, &c. Our own countrymen were dispersed among the different sections, Dr. MASTENS being nominated Vice-President of the Jury and President of the First Section (new plants); Dr. Hogo President of the Fourth Section (Palms, Cycads, Pandanads); Mr. HANVEY presided over the Tenth Section (Camellias, &c.).

We must refer to another column for an account of the show, which will remain open till Sunday next, but which is too vast to be treated in detail. Moreover, the task of the reporters was rendered unusually difficult, by the delay in the issue of the catalogue and the quite incomprehensible system of numbering adopted—schedule and catalogue differing totally, and the numbering on the exhibits themselves often differing from either, while the labels on the plants were too often undecipherable.

Speaking generally, we should be inclined to say that Ghent, if it be possible, has surpassed itself in this its twelfth quinquennial International Exhibition. Certainly, the Exhibition is larger than ever, and more varied, and this, although certain sections are less well represented than on some other occasions. The Exhibition, as a whole, is one of unusual magnitude, great diversity and general excellence.

The President of the Society, the Count KENCHOVE DE DENTERGHEM, is the life and soul of the exhibition, directing, guiding, supervising every department with an energy that seems proof against fatigue, a skill and a knowledge equal to all demands, and a cordiality of manner that charms every one even more than his extraordinary gift of eloquence.

One thing, and one thing only, casts a shade over this brilliant Exhibition—and that is, the gaps that time inevitably makes in the muster-roll. We miss the brilliancy of MORREN, the learning of PLANCHON and KICKX, the sterling qualities of VERSCHAFFELT and VAN GEENT, not to mention those of our own country, whom the irrevocable decree has prevented from attendance at the present quinquennial floral function.

Large as the accommodation is, it is still, as we have stated, insufficient for the purpose, and hence the general effect of the great hall, in which the larger part of the Exhibition is held, is somewhat marred by the densely crowded groups. The centre of the great hall is, as usual, occupied by a brilliant mass of Azaleas; around the sides of the building are groups of magnificent Palms and stately Cycads, while above the glorious groups of miscellaneous plants tower the slender stems of lofty Tree Ferns. Glowing An-

thuriums and brilliantly coloured Cliveas relieve the monotony of the green foliage plants.

As many of our readers know, while the larger groups in the central hall remain untouched, the smaller ones, which comprise the details which fill in the picture, are entirely re-arranged after the decision of the jury has been taken. The work of effective re-arrangement fell upon Mr. ECKHAUTE, a son of a well-known member of Mr. VAN HOUTTE's staff; and considering the difficulties of his task, the overabundance of material, the relatively inadequate space, and the very short time at his command, he must be said to have accomplished wonders.

On an upper floor are spacious rooms destined for the exhibition of new plants, Orchids, Amaryllis, bulbous plants, a lovely series of Ber-tonias, exhibited by M. BLEU, &c. Here is the splendid lot of Amaryllis exhibited by Messrs. VEITCH, and which has taken the horticultural world by storm, and secured redoubled honours on the exhibitors. Mr. B. S. WILLIAMS' group of Cyclamens has also excited general admiration, a circumstance that those who are acquainted with his excellent strain will not be surprised at.

In the grounds is a vast annexe, which of itself is a large exhibition of the first class, filled as it is with Ghent Azaleas, Rhododendrons, Camellias, flowering and ornamental foliaged shrubs, Cinerarias, grand plants of Cytisus racemosus, and a host of other things. Here Mr. CANNELL upholds the honour of his country by a fine collection of double Cinerarias, trusses of Pelargoniums, and beautiful sprays of Pride of Penshurst Carnation. In addition to this are various small span-roofed houses, one devoted entirely to Orchids, others filled with Azaleas, Rhododendrons, alpine plants, and a charming little collection of terrestrial Orchids, &c. A collection of Babianas, Ixias, and various bulbous plants in one of these houses is very remarkable for the time of year.

Scattered about the grounds are groups of Conifers, not so fine as usual, and some of them badly named; magnificent standard and pyramidal Bays, a specialty of Ghent, exhibited by Messrs. VERVAENE and others; huge tubs of New Zealand Flax, shown by M. DE SCHRYVEN; and almost equally large clumps of Aspidistra; these strike the attention of the most heedless visitor. Fruit and vegetables are entirely unrepresented.

Exceedingly interesting and curious is the reproduction of the building in which the first exhibition of the now famous Society was held in 1809. This was a wooden shed attached to an *estaminet*, and measuring some 40 feet by 24 feet. Along one side of this humble tenement was a bench or stage, on which fifty plants were exhibited. One prize only was awarded—a Silver Medal—to M. LE BÈGUE, for Erica tricolor. The canteen at one end of the building, with its pipes and glasses, has been faithfully reproduced. The matches, composed of dried Hemp-stalks dipped in sulphur, tallow candles of the period, pictures, almanacs, a quaint clock, and thermometer, and various paraphernalia, afford a scene of striking quaint interest. The managers of the present Exhibition have endeavoured to get together as many of the kinds of plants as were shown in February, 1809, as possible, and in this they have been fairly successful, assistance having been rendered from the various botanic gardens of Kew, Leyden, and others. It may be interesting to give the names of the plants constituting the first Exhibition, and most of which were represented on this occasion, Jasminum glaucum, Andromeda lucida, and Porlandia rosea (sic), not having been obtainable:—



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Erica triflora
Camellia japonica fl. rubro
Cyclamen persicum
Arbutus Andrachne
Camellia japonica
Dillenia scandens
Mimosa heterophylla
Cyclamen coum
Correa alba
Aletia capensis
Rosa portulandica. [R. rugosa
 apparently did duty for
 this.]
Mimosa longiflora
Rhododendron ferrugineum
 „ *hirsutum*
 „ *ponticum*
Magnolia grandiflora.
 „ *ferruginea*
 „ *nova species*
Illicium parviflorum
 „ *floridanum*
Agave striata
Viburnum laetana
Nerium Oleander
Daphne odorata
Rosa chinensis
Daphne purpurea

Jasmin de Valence double
 flowers
Scilla maritima
Pancratium amboinense
Cineraria cruenta
Ledum latifolium
 „ *angustifolium*
Justicia pulcherrima
Ceanothus discolor
Andromeda rosmarinifolia
 „ *axillaris*
Plumbago rosea
Phyllica ericoides
 „ *plumosa*
 „ *spicata*
Erica herbacea, in flower
Heliotropium peruvianum,
 id.
Arbutus Unedo, fl. pl.
Sparmannia africana
Reseda arborescens in flower
Lonicera tartarica, id.
 A large quantity of double
 and semi double Hyacinths,
 Van Thol Tulips,
 Crocus, Iris, and a *potpourri*.

well as a constant succession of flowers and plants on exhibition. For the purpose of properly displaying the collections which will be formed, it is desired to provide a number of hothouses and conservatories, which, it is suggested, should be erected by exhibitors. The Director-General of the Exhibition, M. BERGER, has just written to the Lord Mayor's Committee to ask if any English constructors are inclined to exhibit buildings of this character. I would draw the attention of those interested to this fact, and to say that I shall be glad to give them any further information as to the conditions under which the buildings will have to be put up, if they will communicate with me at the offices of the British Section Committee, 2, Wallbrook (Mansion House), E.C."

ADIANTUM FERGUSONI.—We have received the following communication from the Director of the Royal Gardens, Kew, with reference to this plant:—"The interest which this fine Fern has excited, induces me to think that it may be worth while to place on permanent record in the *Gardeners' Chronicle* the account which was given me in a letter by the late Mr. W. FERGUSON of its first discovery. W. T. Thiselton Dyer.

"Extract from a letter from W. FERGUSON, dated Colombo, April 28, 1885:—'On my return from Puttalam, about 85 miles north of Colombo, in November, 1881, I stopped a night at Negombo, about 21 miles north of this, and by a curious coincidence the next house to the rest-house in which I put up, was that of your acquaintance, T. G. DE LIVERA, Esq., District Judge of that place. On walking over to call upon him, I found this Fern, for the first time, in a small pot between plants of *Adiantum tenerum* and *A. Farleyense*, and said to Mrs. DE LIVERA that I thought it was *A. Farleyense*, which had taken a great bound and gone back to be a fruitful Fern. I went on purpose to Negombo a short time ago to trace out the history of this Fern; but I am sorry to say it is involved in obscurity. Mrs. DE LIVERA got the plant from a family of DE SILVAS close by, a member of whose family is said to have got it at a sale of plants at Colombo, and this is all its history in the meantime. Here, in Kelvin Grove, it is a tall, stiff Fern, about 2 feet in height and 4 feet in expansion, growing in coir fibre and in a tub. It has seeded freely here in the walls of wells, and in crevices in walls round my house; in fact it has no barren fronds at all, and the tiny seedlings show no difference from the parent plant when they are quite young. It is surely too robust a plant to be squeezed into any form of *A. Capilluveneris*, and the nearest to it that I can suggest is *A. concinnum*, of which several forms are in cultivation here. But after I get a photo taken of this giant Fern, I shall take up good specimens, with roots and all on, for Mr. Moore, and Kew. I feel very grateful to Mr. Moore for the honour he has done me in naming this rare Fern after me, and for Mr. BAKER for all the trouble he took respecting it."

NOTTS HORTICULTURAL AND BOTANICAL SOCIETY.—At the last monthly meeting, held at the Nottingham Mechanics' Institute, for the purpose of hearing a number of papers read on "The Duty of the Gardener to his Employer," for which three money prizes had been offered by Mr. S. THACKER, Mr. J. BOOTH presided. After Mr. Woodward had read the essays under their respective *noms de plume*, the prizes were awarded by ballot, the result being:—1st, Mr. N. H. Pownall (gr. to Mr. F. Wright, Lenton Hall); 2nd, Mr. J. H. Walker (gr. to Mr. J. W. Lewis, Hardwicke House, The Park, Nottingham); 3rd, Mr. St. T. Wright, Glewston Court Gardens, Hereford.

FRUIT GROWING IN HAMPSHIRE.—A meeting of persons interested in the fruit-growing industries, chiefly Strawberry cultivators from Farnham, Botley, and the vicinity, was held on Wednesday, April 11, at the George Hotel, Winchester, under the presidency of the Mayor of the City, Mr. T. F. Kinn.

HORTICULTURE IN CALCUTTA.—From Mr. JADUN CHUNDER BISWAS of the Eupress Nursery, Calcutta, we have received a photograph showing a group of miscellaneous plants exhibited by him at a recent flower show in Calcutta. The plants are what here would be classed as stove-plants, including tree Ferns, Palms, Nepenthes, Marantas, Tillandsias,

Dracena Goldieana, *Eucharis*, *Anthurium*, and many others. For the good natives of Calcutta it is doubtless a matter of satisfaction to see the plants that form the adornment of European conservatories, but for the British element surely it would be far more interesting to see specimens of the native flora. The photograph before us is interesting as showing what may be done by enterprise and skill, but we do not want photographs from Calcutta to show us plants with which we are familiar from every day contact. On the other hand, representations of the flora of the country would have far more interest for us at home, and we expect also for the British residents at Calcutta. Think of this, Mr. JADUN CHUNDER BISWAS.

HORTICULTURAL SOCIETIES' SCHEDULES.—Of these seasonable compilations there are before us—Winchester, announcing a general show on July 12, and another, on November 13 and 14, of Chrysanthemums. The statement of accounts shows a loss on the two previous years of more than £29 in all. Brighton Chrysanthemum Society intends to hold its show on November 13 and 14. The balance-sheet indicates a better financial state than Winchester, the balance in hand at the end of 1887 being £43 3s. 9d., but does not show so well as in 1886, when the balance was £82 9s. 5d. It is evident that these two important Southern societies are either spending more than they should in providing amusements for their patrons, or that the horticulture-loving public and the gardeners are not contributing to their support as they once did.

CINERARIA BLOOMS.—Some specimen blooms of their Brilliant prize *Cineraria* have been sent us by Messrs. J. CANTEN & Co., Holborn, which are, as regards the size, substance, &c., equal to any that we have seen elsewhere. A flaked variety is a break in colour; Snowflake, a pure white, is very good; and the quilled flower, Emperor William, is very distinct. They have at the present time something like 500 plants in full flower at their nurseries, and which are well worth inspection.

APPLES FROM THE CAPE.—We learn from the *Agricultural Journal*, Cape Town, that nine cases, containing approximately 10,000 Apples, have been shipped per *Athenian* and *Trojan*. The Agent-General here, who will receive them and arrange for their sale in London, will also report on the result of the experiment. The fruit is the produce of the districts of Stellenbosch, Tulbagh (Ceres), and Queen's Town.

REFLEXED JAPANESE CHRYSANTHEMUMS.—The Revision Committee (Messrs. LEWIS CASTLE, GEORGE GORNON, and HARMAN PAYNE) appointed by the National Chrysanthemum Society to tabulate and arrange the returns for the new catalogue, have prepared the following list of reflexed Japanese as a guide to growers intending to compete in the new classes provided for these varieties. It must be pointed out that the varieties named as Japanese reflexed are only excluded from the true reflexed class; they can be shown in all the Japanese classes as before. Nearly two-thirds of the thirty members of the committee have named varieties they consider should be classed in the new section, and a total exceeding sixty varieties have been thus mentioned. The following twenty-four have obtained the highest number of votes, and will form the select list recommended by the committee for exhibition. They are arranged in the order of merit as determined by the votes, and those that are also specially adapted for culture as specimen plants are indicated by an asterisk:—*Elaine, *Maiden's Blush, Triomphe du Nord, *Dr. Macary, La Triomphante, L'Adorable, Magdeline Tezier, *M. Astorg, Amy Furze, Jeane Délaux, Père Délaux, M. John Laing, *Val d'Andorre, *M. Henry Jacotot, *Flambeau, Gorgeous, *La Nympe, Criterion, *L'Africaine, *Roseum superbum, Phœbus, *Margot, *Wm. Holmes, and *Tendresse. A few have advocated transferring Cullingfordi to the Japanese reflexed section, but the majority are in favour of its retention in the true reflexed class.

As for Ghent hospitality, it knows no bounds, its only fault is its profusion. The grand banquet to the Jury, presided over by the genial and learned Count DE KERCHOVE, and attended by two of the Ministers and a large number of local celebrities, was a truly magnificent affair.

The members of the Belgian Horticultural Press also invited their colleagues of other nations to a friendly dinner, over which Count DE KERCHOVE presided with his usual eloquence, and more than his customary humour. We cannot pass over this reference to the Belgian Press without mentioning a veritable *tour de force* accomplished by the *Revue de l'Horticulture Belge*, of which Count DE KERCHOVE may be styled the *redacteur en chef*. On the Sunday evening, at the banquet to the jury, each member found beneath his plate a copy of the *Revue* with a long and detailed account of the Exhibition which had only been opened in the morning. This smart piece of business deserves commendation on the part of those who can appreciate the difficulties of the task.

The International meeting of horticulturists, after a long discussion, condemned the Phylloxera laws, and advocated Free Trade in horticulture.

We should egregiously fail in our duty if we did not emphatically express our sense of the very cordial welcome afforded to our compatriots.

THE ROYAL HORTICULTURAL SOCIETY.—A meeting of fruit growers, florists, nurserymen, seedsmen, and commission gardeners, will be held in the rooms of the Covent Garden Club, at the hotel of the same name, on Monday, April 23, at 9 P.M., to discuss the question of co-operating with the Royal Horticultural Society in the advancement of horticulture. The attendance of all interested is requested. Mr. J. B. THOMAS, Covent Garden, is the president of the Club.

THE HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* were held at the Hotel Windsor, Victoria Street, which is likely to be the future quarters of the Club, and was attended by a large number of the members, amongst whom were Mr. J. Lee (Chairman), the Rev. W. Wilks, the Rev. F. H. Gall, Messrs. Crowley, H. J. Veitch, H. I. Pearson, C. J. Pearson, Geo. Paul, and James Walker. The arrangements were considered to be in every respect an improvement. In the evening an admirable paper was read by Mr. James Walker on "Daffodils," and a discussion was entered upon afterwards, in which Mr. Wilks and others took part.

PARIS UNIVERSAL EXHIBITION, 1889.—We have received the following communication from Mr. H. T. WOOD, Hon. Secretary to the British section of the above undertaking:—

"Amongst the attractions at next year's Paris Exhibition it is proposed to have flower-shows, as

NATIONAL AURICULA SOCIETY (SOUTHERN SECTION).—The following has been received from Mr. J. DOUGLAS, Honorary Secretary:—"Circulars have been issued to all the members of the Society informing them of the arrangements for the exhibition to be held in the Drill Hall of the London Scottish Volunteers, James Street, Westminster, on the 24th inst. I am writing this note on the 14th, and a few days ago the prospects of the Northern exhibitors getting their plants in was problematical. Now things are much more promising for a good show. One of the leading Northern exhibitors intends to be present, and I hope to hear that more will be able to say they will come south in a day or two. I hear the flowers have come in rapidly since the change in the weather. When vegetation has for long been held in suspense by adverse weather it is astonishing how rapidly it moves with a favourable change. I hope members and exhibitors will not only attend in force themselves, but will also bring their friends with them. An excellent luncheon will be provided at the Hotel Windsor, quite close to the Drill Hall, at 1.30 p.m., tickets for which may be obtained from the Secretary or the Chairman of Committee, the Rev. H. H. D'OMURAIN, Hotel Windsor, Victoria Street, S.W., also from any member of the committee. The Council of the Royal Horticultural Society have kindly placed the Drill Hall at the service of the Society, and Mr. BARRON will receive the entries from exhibitors as usual. Other spring flowers besides Auriculas are likely to be exhibited, forming a really good spring show, and a large attendance of visitors would make things lively and pleasant all round."

EFFECTS OF THE WINTER 1887-88 IN THE SOUTH OF FRANCE.—The winter has proved disastrous to many of the supposed acclimatised plants in the littoral region of the South. M. NADIN, in *Le Bulletin de la Société d'Acclimatation*, gives a dismal list of losses and injury at the Villa Thuret. Most of the Acacia, *Aberis Myoporum*, *Rhus*, and *Polygala*, have had their leaves destroyed. *Phoenix spinosa*, *Livistonia australis*, *Eucalyptus Ravertiana*, *maculata*, *citriodora*, and *filicifolia*, with *E. globulus*, *corata*, and others, are cruelly injured; but, on the contrary, *Eucalyptus viminalis*, *urnigera*, *rostrata*, *crebra*, *resinifera*, *linearis*, *Muelleri*, *cordifolia*, *gomphoccephala*, and *microtheca*, are quite unhurt. *Jubaea spectabilis* and *Phoenix canariensis* have proved themselves to be insensible to the frost.

LINDFIELD CHRYSANTHEMUM SOCIETY.—The committee of the above Society having decided to give an entertainment in aid of the Gardeners' Orphan Fund, arrangements have been made for holding the same on Wednesday, April 25, in the Assembly Rooms, Lindfield, under the patronage of the Hon. A. E. GATHORNE-HARDY, M.P., and Lieut.-Col. DUDLEY SAMPSON, J.P. Mr. A. J. BROWN is the Chairman of Committee, and Hon. Local Secretary of the Gardeners' Orphan Fund.

SHOW FIXTURES.—The Newcastle-upon-Tyne Autumn Show—always looked forward to in the North of England—is fixed for August 22, 23, and 24, in Leazes Park. Valuable money prizes are offered, amounting in all to £342 14s., and the Royal Horticultural Society's Medals for twenty-four Hollyhocks, and for a vase or epergne of cut flowers. The schedule of the Bath Floral Fête Committee's shows is to hand for the exhibitions on May 16, July 5, and November 7 and 8. The Veitch Memorial Medal and £5 are offered for eight Chrysanthemum blooms (four large incurved flowered and four Japanese), at the last mentioned show. At the Rose Show (in July), two National Rose Society's Medals are offered for single best blooms in the display, and Silver Cups and money equivalents in other classes, and also a Gold Medal and cash as prizes for local amateurs. Another exhibition will take place on September 5 and 6, when, as the British Association will be visiting Bath, on that occasion large prizes will be offered, and the schedule will appear at a later date.

HOME CORRESPONDENCE.

NEW FELLOWS FOR THE ROYAL HORTICULTURAL SOCIETY.—Your obliging insertion of my letters continues to bring in names of candidates for Fellowship. In this neighbourhood, within a walk from my house, thirty-nine owners of gardens themselves and two of their friends have added their names to the list of guinea and two-guinea Fellows, while some have not yet answered, and others have not yet been written to. I have little doubt that we shall make the number up to fifty owners of gardens. Surely this proves that if ladies and gentlemen are shown that they owe a debt to the Society for the work it has done, and is doing, to improve horticulture, and that if friends of the Society will take a little trouble each in her or his own district, a very large increase in the number of Fellows will result. An influential friend, who feels as strongly as I do the importance of moderate subscriptions, has done in his neighbourhood (Chislehurst) what we are doing here. *George F. Wilson, Heatherbank, Weybridge Heath.*

MEETING DAY OF THE ROYAL HORTICULTURAL SOCIETY.—The note on this matter at p. 435 is opportune, as the success of the Society will depend on the amount of patronage it receives, and therefore no effort should be spared in trying to make its meetings as convenient to distant patrons as to local ones. At present local supporters have the best of it, as it is required that objects sent for the opinion of the Fruit or Floral Committees be delivered by 10 a.m., which rule, however, is by no means rigidly enforced. The committees sit at 11 o'clock, and this last hour may be taken as the extreme limit. Now, this hour is too early to admit of parcels being delivered with anything like certainty when despatched from a distance on the previous day; the consequence is, that supporters around London are able to avail themselves of the advantages of the meetings to a much greater extent than are provincial people. As a remedy it has been suggested that the day of meeting be changed, but several difficulties present themselves here. I presume no one would suggest either Monday or Saturday, while Wednesday or Thursday would, it seems to me, place the Horticultural Press (which does much to further the Society's interests) at a disadvantage, owing to the time of publication. I do not argue that the Royal Horticultural Society ought to be guided solely by these considerations, yet possibly they are worthy of more than a passing thought. It has occurred to me that what is desired could be accomplished by altering the hour of meeting instead of the day. Suppose that 1 o'clock were the hour for the committees' meeting. They would still have time left to get through their work, and I see no reason why the Fellow and public should not be admitted at the same time as the committees commence their labours, for it could hardly be seriously urged that they would, in any appreciable degree, impede the progress of business; indeed, I think this little alteration would prove both agreeable and advantageous to all who take part in those meetings. At present some exhibitors and committeemen must start at an hour so early that the whole day is taken up, but if the hour were later business men would be able to see to the morning's letters, &c., before starting, or in the case of a gardener he would be able to see that everything was in order for the day. Moreover, if these people wished to transact any little business in town it would be better if they were able to get this through before coming to the meeting. They would not then have to hurry away (now frequently the case) as early as possible after the committee had risen, to which bodies these last remarks more particularly apply. This arrangement would permit the majority of parcels posted on Monday being delivered in time. But the parcel-post is by no means the best medium for conveying fragile objects, and many would prefer sending by passenger train, in which case parcels despatched early on Monday, from any part of Great Britain and the chief Irish ports, would be delivered in time. For example, the train leaving Aberdeen at 5 p.m., and Perth at 7.30 p.m., Monday evening, arrives in London by 8 next morning, so that this late train would leave between four and five hours for delivery; but parcels could be in London by 4 a.m. if despatched by the earlier train. It appears that all that is required to enable distant exhibitors to forward their things in time, without

standing over Sunday, is merely to postpone for two hours the time of opening. *F. R.*

RICHARDIA ÆTHIOPICA.—The advantage of planting this plant out in the open during the summer—a practice largely followed by many of the growers of this useful subject round London—is seen in some very fine specimens Mr. J. Davidson has in the conservatory at Highfield Park, Heckfield, Hants. The plants are in 9-inch or 10-inch pots, they are most luxuriant in growth, and have each thrown up three and four and more very fine growths: they bloom with remarkable freedom, and produce spathes of very large dimensions. The plants are turned out of the pots and planted in good soil in the open ground as soon as it is safe to do so; there they remain during the summer, and in the autumn they are lifted and potted in rich soil, and brought on gradually into bloom. Some of the specimens are of very large size, and form conspicuous objects in the house in which they are flowering. *R. D.*

DOUBLE DAFFODILS.—An interesting example of the way in which Nature can be accelerated in respect of the expanding of double Daffodils was noted in the early vinery of Messrs. W. & E. Wells' gardens, Hounslow. A large iron cistern, a bath, and several pails, each containing water, were all crum-full of bunches of double Daffodil buds—for they were simply buds, without an atom of colour being visible when cut. Thus subjected to warmth with ample moisture for the stems to absorb, the blooms expand freely in twenty-four hours, indeed, whole bunches of buds thus forced have been found fully expanded after but one single night's subjection to the heat. It is obvious that if the flowers are left outside until opening naturally they will but turn in with the general bulk, and that bulk is enormous. Double Daffodils are usually serviceable at Easter, but this year, to the harm of the flower growers, Easter was too early and the season too late. *A. D.*

EUCHARIS AMAZONICA.—Permit me to draw the attention of Mr. A. Macdonald to what I think with good cause to be quite a mistaken idea. On p. 403, March 31, in writing of his own success with these plants and his neighbours' failures with the same, Mr. Macdonald says:—"I am of opinion that as long as they are kept in robust health the mites will not attack them." This is certainly an erroneous idea, of which I have had ample proof for a long time past whilst watching healthy *Eucharis* and the mite thriving well together. My experience is (and has been worked out by a series of long and carefully-made experiments) that, if from any cause the *Eucharis* become unhealthy, every wound made by the mite is at once attacked by the fungus—probably the yeast fungus—so fully and ably described and illustrated by Mr. Grove in your issue of March 27, 1886, and that this fungus seems to spread more rapidly on bulbs and their roots in light soil, rather than in strong loam. I have been carefully watching two lots of plants which are growing side by side in a stove, plunged in ashes, in strong bottom-heat; the one lot, in strong loam, are robust and healthy, but infected with the mite, and to a certain extent with fungus. The other lot is not thriving in the light compost, the plants unhealthy and miserable looking, with every wound made by the mite, a dull red mass of fungoid dense, and the roots for the most part rotten. For bulbs thus badly affected I am of the opinion that there is no cure, having tried almost every known remedy without success. The starving method which Mr. Macdonald refers to is undoubtedly the cause of numberless failures with *Eucharis*, and I quite agree with him that so long as the plants are kept growing freely they may be kept in good health even when infested with mite; but as soon as the plants receive a check, either by withholding water or placing them in a cooler house with a view to flowering them, the mite then undoubtedly gains the mastery, and the plants get into bad health; and once in that condition it is impossible for them to recover. But I am convinced that *Eucharis* do not flower so freely when always kept in the same condition as when they are to a certain extent dried off. But the practice followed by many gardeners, viz., that of removing the plants when they have completed their growth in a stove, where they have had perhaps a good bottom-heat, and placing them in a house, say of 15° colder, is certainly contrary to sound practice. Plants free from the mite will doubtless stand the treatment without any visible injury, but let the plants once get infested with mites then the practice must be abandoned. Manure-water used carefully is un-

doubtedly very beneficial to Eucharis, both in growing and flowering, but I am of opinion that rotten manure and leaf-mould used when potting is conducive to the increase of the mites and fungi. But half crushed bones used in the place of so much rotten manure is undoubtedly far preferable, serving not only as a substantial manure, but as a material to keep the soil open, and assist the percolation of water. *C. B. Keetley, Torquay.*

GROWING CHRYSANTHEMUMS AGAINST SOUTH WALLS FOR DECORATION.—I have to thank you for permitting me to commend this method in your columns, more especially as it is a departure from the orthodox system. There is, however, no reason, as in Mr. E. Molyneux's case—Swanmore Park—why the various methods should not go on side by side, *pari passu*. I, however, want the wall system to get a fair chance, and this is why I took exception to Mr. J. Horsfield's suggestion (p. 303) to "turn out the old stools, and reduce the balls to one-third of their bulk, and plant firmly"—that is, to plant the old stools; but this I never do. My method—very fully described last December by Mr. Dumper, Summerville Gardens, Limerick, in *Gardening World*—and I presume of many others, is to specially prepare the border in front of the wall, best soil and richest manure, 2 feet deep and more wide, and plant with single rooted plants any time from mid-February when convenient. My plants were snowed-up and repeatedly frozen under a layer of dry hay since that date, and now seem not to have lost a leaf by it. All the newest and best varieties are included, and I may at once state, with proper thinning, disbudding, and nailing out of the shoots as they develop, while reflexed, do best—none fail. They are protected by an overhanging eave and with tiffany in November and December, and then numbers are pleased to see them. This wall would be bare and untitled otherwise. Are there not thousands of similar cases that could be made objects of great interest for nine months out of twelve? There are 300 varieties there now, pictures of health. *W. J. Murphy, Clonmel.*

VIOLETS AND WALLFLOWERS.—We have rarely had a worse season for these favourite sweet-scented flowers than is the present one. In ordinary good years vast quantities of the fine dark red Wallflowers would now be crowding the market vans, furnishing labour on the one hand and remunerative returns for the grower on the other. Now the plants are almost bare of flowers, for the check to the plants given by the last year's drought has not been alleviated by the long cold spring, which assists nothing and checks everything. Violets, again, usually in their full height of flowering, and providing abundant labour for hundreds of women in gathering, are but a miserable dribbling crop, and fully 60 per cent. below the average of produce this time last year, and still more than is found in a really good Violet year. We have had no actually good Violet seasons for several years. Still nothing checks the determination shown on every hand to increase breadths, in view of a possible good season somewhere. *D.*

FRUIT RATES OF TRANSIT, &C.—The large body of fruit growers whose field of culture is found in South Hants have taken up arms against what are regarded as the excessive charges of the railway company for carrying their fruit from the local stations to London. The commission of the London salesman also forms the subject of severe criticism, these averaging 12½ per cent., inclusive of certain market dues; and as the rail charges amount to 7½ per cent., no less than 20 per cent. of the grower's profits are absorbed in these two items alone. It is therefore no subject for wonder that the growers should not only rebel, but should also combine to endeavour to bring about some appreciable improvement. What is sought for is, first, a very material reduction in the rail charges for the transit of the fruit to the market; and, second, some scheme by which the local gardeners could have their own salesman, who would undertake to dispose of the fruit consigned at a very moderate commission. To that end it is proposed to form an association of local growers which the special salesman should represent, and if any growers refused to join the association they would have to accept the responsibility of their isolation. The local growers, who seem to be chiefly engaged in the production of Strawberries, state that they send not less than 350 tons to the London market annually—an enormous quantity, and producing on the average £51 2s. 11d. per ton, or a total of about £33,000 in one season.

These figures demonstrate the importance of the Strawberry growing trade of Hants. The deduction of about £10 per ton for transit and sale is a big amount, and serves to show how largely land products help to enrich carriers and middlemen rather than the actual producers. The injustice of the present system of rail charging for transit over some sixty to seventy miles is shown in the fact that one truckload of fruit would, in many boxes from diverse consignors, come to as much as £10; indeed, as some seven or eight truckloads were often sent away in a single night, the cost of transit came to some £70 or £80. The charge for a single box of fruit to London averaged 2s. Of course were an association formed the fruit could be consigned solely by the manager or secretary to the salesman at tonnage rates, and the saving in that direction alone would be enormous—far more than repaying the charges incidental to the maintenance of the association. Whilst the oppressive nature of the charges upon the growers is thus clearly set forth, it is made obvious that only by combination can a remedy be found. Even if Parliament rendered the abatement of the rail charges compulsory—and it is very doubtful whether it will go very far in that direction—growers have the matter very largely in their own hands, when they agree to combine and send their fruits over the railway as a single consignment at a very considerable reduction of cost. The question of the payment of middlemen or salesmen is far from being a new one, but is necessarily incidental to a state of things which prevents the grower from selling in person as the metropolitan market gardeners do, thus enabling them to retain the whole of the resulting profits. If growers will consign to ordinary salesmen they must take the consequences; whilst if they combine to retain the services of a single salesman at a very reduced rate of commission, they may find certain market influences antagonistic, and in that way, perhaps, prevent the fruit from securing its full value. The matter is surrounded by difficulty, and needs to be very boldly faced. In the interests of fruit culture it is important facilities of sale should be ample and helpful; and if the association of the South Hants' growers can create greater facilities, no doubt growers everywhere will reap the benefit. *Spade.*

SCENTED-LEAVED PELARGONIUM FAIR HELEN.—I was at Highfield Park, Heckfield, Hants, the residence of F. Marson, Esq., a few days ago, and saw against a trellis at the back of one of the plant-houses a large plant of this charming Pelargonium, which, in addition to a sweetly fragrant foliage, has also very pretty light well formed flowers, like those of a small fancy Pelargonium, produced on numerous compact trusses. It is a good grower and remarkably free, and the plant—planted out in a border—seemed to be in a position that suited it exactly. It is very continuous in bloom, and can be said to be in bloom all the year round. Fair Helen was the name given to it by Mr. J. Davidson, the gardener, and it may be recognised by some under this appellation. Its value for cutting from can scarcely be over-estimated, and I should think it would make a delightful summer bedding plant. *R. D.*

WANTED, A GARDENER.—We are glad to see in the editorial foot-note to the remarks and suggestions of "Querist," under the above heading, that there is some hope of a revival of gardeners' examinations, that were held some years ago under the auspices of the Royal Horticultural Society, and more particularly of young practitioners. Those who have any ambition to excel in their occupation, should not delay to prepare themselves for this test of their knowledge of gardening and general subjects. Any candidates who can successfully pass an examination such as that required by the Society should, and we firmly believe would, have a distinct advantage in these days of competition in obtaining posts suited to their abilities. The requisite study of the various subjects included under the head of horticulture combined with actual practice, which are requisite to pass the examination with success, will be time well spent, and will not be a matter of regret in the future. The plea of not having sufficient time for study can hardly be urged by many, and the aids to a preparation for an examination are so very abundant in the horticultural literature of the present day, that no reasonable excuse in that direction can be made. We do not in the least reflect on the way in which young men spend their spare hours, but we would impress the fact on their minds that those who give the most time and the greatest determination to

their improvement, and become well versed in all matters pertaining to their profession, are those who in the future will stand the best chance of obtaining the better class of situations. Such certificates as a candidate may obtain would beneficially supplement the recommendation of former employers. It must be borne in mind by young gardeners that the education of the present day is far in advance of that afforded only a few years ago, and will tend to force many competitors out of the field who may be a few years their seniors. Theory we well know is useless to a gardener without practice, but the two combined, if backed up with good general education, will make the road to success much more certain. When well equipped for his work by education how much easier become the various operations in a garden to a gardener, as he then not only knows how to do a thing but also why it is done. Some twenty years back we had an ambition to go up for the exams. of the Royal Horticultural Society, and in some of the succeeding years did so, the result being one of entire satisfaction, and we never regretted the time spent in preparation. There were some persons who said they did not see the use of such things, and were inclined to dissuade us from the course of study received. I have now in my mind several who passed just about the same time, and who are now doing well (Messrs. Wynne, Lynch, and Burbidge, for instance). I hope with you, Mr. Editor, to see a revival of these examinations, and in no better way can this be done than under the auspices of the Royal Horticultural Society. Published results of all examinations should be given prominence, for the benefit of those who pass the same and as an incentive to others. *J. H.*

—It was with the greatest interest that I read the article under the above heading in a recent issue. Surely something can be done for us young gardeners who are in want of situations. Your correspondent makes mention of the Colonies. I am sure that there are hundreds of young gardeners who would emigrate immediately if there was the least prospect of suitable situations. [An emigrant should not always think of the suitability. *Ep.*] Certainly a large majority of young recruits will agree with me when I say that I hope the proposition made by "Querist," referring to the possibility of the Royal Horticultural Society issuing certificates of efficiency, will receive early attention from that body. What can be more just than to let gardeners have the situations who prove themselves fittest for them? For do we not know that there are many situations filled by men who are not competent, and who have never served an apprenticeship or in any other way acquired a knowledge of their business? There can be no doubt that if the granting of certificates could be carried out it would make matters much better for gardeners and help to improve their profession. *R. Larcombe, Harbury, Carlisle.*

BEES.—The long spell of cold weather, and the unusual absence of spring flowers, owing to the lateness of the season, may lead to dysentery among the bees. Its presence is indicated by yellow spots and foul odour. It is recommended that stocks suffering from this should be at once moved into clean hives, the old hives being washed on the insides with a weak solution of carbolic acid. If the weather is not warm enough for the change to a clean hive being made in the open air, it should be carried to a warm kitchen or any suitable place indoors, and the transfer made there. *R. D.*

THE HARDY FRUIT GARDEN.

DISBUDDING.—This operation must now be commenced, the young shoots on Peach and Nectarine trees being sufficiently developed that they can now be easily rubbed off. The operation of disbudding requires care in carrying it out, and should be done not all at once, but at three or four different times, allowing an interval of five or six days between each, until the trees are finally disbudded for the season. As a commencement, remove all the fore-right shoots—those which grow at right angles, or nearly so, with the wall; then by degrees reduce the number of those on the sides of the branches, but be sure to leave the two lowermost buds on a shoot, as these will be the bearing wood of the next season. Young trees require treatment rather different, as shoots in sufficient number must be left for their

formation and extension, so that the wall or fence may be covered quickly.

Grafting.—The weather has been very favourable for this operation, which should be proceeded with as expeditiously as possible, the sap being rapidly on the ascent. If clay be employed it is a good practice to bind some moss over the clay, by which means the cracking which always takes place from shrinkage will be averted. *A. Ward, Stoke Edith Gardens, Hereford.*

SOCIETIES.

INTERNATIONAL HORTICULTURAL EXHIBITION AT GHENT.

THE Royal Society of Agriculture and Botany of Ghent opened their Quinquennial International Exhibition on Sunday last. In another place brief allusion is made to the history of this powerful Society, and to its modest beginning. As the show will not be closed till the evening of the 22nd, and the journey from London occupies only some eight or nine hours, there will be still time for gardeners to visit this remarkable exhibition, from which they cannot fail to learn some useful lessons. In proceeding to note a few of the details of the present very magnificent exhibition, we do so with a sense of the difficulty of the task, arising from the magnitude of the show, our own limited space, and the inconvenient system of numbering the exhibits, so that it is difficult, and in some cases impossible, to ascertain to whom certain groups belong.

NEW PLANTS, &c.

New plants of a distinct character and likely to make a useful future were few and comparatively unimportant. A 1st prize was awarded to M. Paul de Hemptinne for a remarkably white variegated form of *Vriesia hieroglyphica*, and 2nd, to Mlle. Block, for a very extraordinary Bromeliad with ornate leaves, 2 feet in length and 9 inches in width and of a peculiar reddish tint.

M. E. Pynaert van Geert exhibited some very good novelties: *Begonia Lubbersii* has the colour somewhat of *B. Rex* with the habit of *B. argyrostigma*, but the leaves are peltate and sharply pointed at each end. *Adiantum Regine*, *Pteris tremula grandiceps*, and *Gymnogramma elegantissima* (a form of *G. schizophylla*), and some new and rare Palms and other plants coming from him; *Begonia Louise Closson* and *Boronia heterophylla* in the exhibits of MM. Fr. Desbois & Co., were noteworthy.

The *Alcascia* (of the Veitchianum section), Comte de Kerchove President, sent by M. E. Vanden Abeele & Co., was also the best thing in its kind; and MM. Jacob Makoy & Co., of Liège, sent some rare and interesting Aroids, Bromeliads, and other plants. Among MM. Jacob-Makoy's plants may be specially mentioned the handsome new Fan Palm, *Bismarckia nobilis*, the curious *Nepenthytis picturata*, an Aroid from the Congo, with hastate green leaves with white raised blotches on the upper surface looking like a paper pattern affixed to the upper surface of the leaf. *Alcascia Leopoldi*, shown in this section, has bluish-green deeply toothed leaves.

M. Van Houtte shows a collection of *Nepenthes*, but lacking the colour we are accustomed to see in Messrs. Veitch's plants.

Dichorisandra pubescens var. *teniensis* of M. Ed. Pynaert van Geert seems likely to be a plant in general demand. M. Pynaert also shows a handsome new *Begonia* with claret-coloured foliage sprinkled with white hairs and with pendulous racemes of pink flowers. The new plant is called *President de Bourlilles*.

The principal prize takers in this section were MM. Jacob-Makoy, Desbois et Cie, J. Hye Lyeysen, A. Van Geert, Pynaert, Van der Cruyssen, Vuylsteke, and the plants exhibited by them are for the most part noted under special headings.

ONCHIDS.

These certainly formed one of the most beautiful and considerable features in the exhibition—a feature long to be remembered by all who were fortunate enough to see it, tastefully arranged as they were in the various galleries, all the accessories of Maiden-hair Ferns and other foliage plants being duly studied, with much advantage to the general effect. The

chief interest was centered in the fine arrangements in the end gallery, which contained the collection which secured the Gold Medal given by the Queen of the Belgians for the largest and most meritorious collection. This coveted prize was secured by Mr. A. Peeters, of Brussels, with a fine lot of over one hundred well grown and flowered plants, many of them large and rare examples. Prominent in the group appeared a fine variety of *Cymbidium Lowianum*, *Odontoglossum Jenningsianum*, *Lycaste Skinneri alba*, *Coelogyne cristata alba*, *Laelia grandis*, fine; *L. purpurata*, *Cypripedium Schroderae splendens*, *C. Sedeni candidulum*, *Odontoglossum mulos*, *O. Roetzlii*, *Cattleya Warneri*, some *Vandas*, a fine scarlet *Sophranitis*, and a generally uniform lot of good things. The 2nd prize, or rather a special prize, on account of the number of plants exhibited, went to M. Charles Vuylsteke, of Loochristi, Ghent, for a neat collection, quite filling the Orchid-house specially erected in the grounds. In the same class Messrs. Vervaeet & Co. secured the 3rd prize, a Gold Medal, with a good group, among which were a golden-yellow *Odontoglossum*, provisionally named "Masereeli"; some fine *Odontoglossum crispum*, and *O. vexillarium*.

For the best fifty Orchids M. James Bray, of Ghent, was justly awarded the 1st prize, an *objet d'art*, his really fine collection having good examples of *Odontoglossum Harryanum*, *Coelogyne cristata alba*, *Cypripedium selligerum majus*, *C. Harrisonianum superbum*, and a grand *C. caudatum*, with a score of fine blooms. MM. Vervaeet & Co. were 2nd, and secured the Gold Medal, with a nice group, containing several *Cattleya Trianae* of good quality. M. De Smet-Davivier being 3rd, with by no means an indifferent collection.

In the class for thirty Orchids (amateurs), M. Jules Hye-Leyssens, one of the most promising and enthusiastic Orchid growers in Ghent, secured the 1st prize (a Gold Medal), with a remarkable group of exceptionally good things, in which his specimen of *Cypripedium grande*, for size, reddish-purple tint of the flowers, and generally high character, presented this grand plant in quite a new aspect, even to its raisers, Messrs. Jas. Veitch & Son. In M. Hye's group, *Cypripedium caudatum*, *Masdevallia Veitchiana*, *M. ignea*, *M. Shuttleworthii*, and *Odontoglossum Edwardii* were especially noteworthy. Jas. Bray was 2nd, his fine plants, not usually seen so good, being *Cattleya Schilleriana*, *Chysis bracteosa*, *Miltonia cuneata*, and *Odontoglossum Corradinei*.

In the same class (30), for nurserymen, M. A. Van Geert was 1st, his *Angreum sesquipedale* and *Dendrobium Dominianum* being especially good; M. Ad. D'Haene was 2nd.

The prize offered by M. le Baron Henri de Ranst de Berchem, in memory of the Comte de Gomer, for thirty *Cypripediums*, &c., brought an interesting competition, although the size of the plants is not equal to that to which we are used in England. M. Hye-Leyssens secured the 1st. This gentleman's collection embraces the lovely and curious *Cypripedium Lawrenceanum* Hyeannum, which may be regarded as a charming albino or colourless variety of *Lawrenceanum*, which it resembles closely in every way, except that the pouch is clear yellow, the dorsal sepal pure white with emerald-green lines, and an entire absence of the red tint of the type. It is a precious novelty in these days of *Cypripediumomania*; his grand *C. Argus Moensii* should also be mentioned.

For the finest lot of fifty *Odontoglossums* M. Vuylsteke, of Loochristi, secured the 1st prize, his group being largely composed of varieties of *O. lanceans*.

For the rest of the numerous classes in the Orchid competition, it may readily be understood that all the classes were not numerously represented, but of exhibits there were plenty, and indeed so many that even with the extensive resources of the Casino a difficulty was found in finding proper room for them. Madame Block, of Brussels, exhibited well, so also the good firm of M. A. Van Geert and others. Strangely enough the prizes for single specimen Orchid brought but one entry—a fine *Cymbidium Lowianum*, with six spikes, from M. Vervaeet; and also that for a new Orchid from seed was adjudged to M. Raymond Lemonier, the only exhibitor, for *Cypripedium Lemonieri*, a very close approach to the *C. calurum* of Messrs. Veitch. *Cattleyas*, *Laelias*, *Vandas*, and some other species were not so well represented as they might have been, the dull, sunless weather having been, in Belgium, as well as with us, inimical to the expansion of the flowers. Enough, however, arrived to make a show, and a good show too.

Perhaps the greatest interest centered in any one object was created by a cut three-flowered spike of a grand form of *Cattleya Trianae*, superb in form and size, and with the additional attraction of a bright crimson marbling on the sepals and a similar broad feather of crimson spots up the wide and conspicuous petals. All agreed that such had never arrived before, or anything like it, and it was suggested to call it *C. Trianae* var. *Courtaldiana*, as it was brought from that gentleman's collection by Mr. O'Brien.

STOVE PLANTS.

Aralias and *Rhopala* were of very fine quality in the collection shown by M. A. Dallière, who won the 1st prize for twelve of the former and eight of the latter. A. Chabrieri, A. farinifera, A. leptophylla, A. trifoliata, and R. corcovadensis, R. villosa, and R. elegantissima were most noticeable, but all were excellently grown.

Dracaenas were a strong feature, the plants being represented by finely cultivated specimens throughout, and especially was this the case in the lot of D. Lindenii, from M. E. Vaucoppenolle, who evidently is an expert at the treatment of these plants. *Dracaena cuneata* was equally well done by M. B. Spae. M. P. Deschryver took the chief award for a single specimen, having a large and most beautiful plant of *D. umbraculifera*. The collection of thirty, as shown by the Société Horticole Gandoise, was worthy of all praise, such fine plants were shown, splendid examples of culture, and the collection itself a very comprehensive and interesting one—M. L. van Houtte coming as a close 2nd with a case of *Bertolonias*. It may here be mentioned that M. L. van Houtte showed tropical fruit plants and official plants, in both of which classes he took prizes, and was the only exhibitor. A very comprehensive and well-grown collection of fifty *Caladiums* was also shown by this exhibitor, and he was again without a competitor, but he fully merited the award of the 1st place which was made. J. Linden, greenish-white, with red primary nerves, and green secondary; *albo-luteum*, greenish-yellow; *candidum*, transparent yellowish-white, green nerves; *Lielle*, green-red nerves, and white spots, were specially good; D. Lindenii, Massangeana, amabilis, Casanova, Madame Ch. Heine, Madame F. Bergman, Madame Constant Lemoine, Leopold Clerc, *Triomphe d'Angers*.

M. Dallière carried off many prizes besides those already mentioned; he took 1st in each of the following classes, and throughout the quality was excellent:—Twenty-five ornamental foliaged stove plants, ten *Anacochilus*, six *Nepenthes*, twelve *Dieffenbachias*, and twenty *Marantas*. D. Baumann, *Reginae*, *Leopoldi*, and *Bausei* were good.

The *Anacochilus* were splendid throughout, especially *Lowi*, *Dawsoni*, *discolor*, *purpurata*, and *elegantissima*.

In the ornamental class good examples of the following were shown:—*Phrynium variegatum*, P. Lubbersi, *Tillandsia Leopoldi*, *Pandanus Veitchii*, *Dieffenbachia nobilis*, *Cissus porphyrophyllus*, *Anthurium crystallinum*, *Pothos aurea*, &c. *Nepenthes* were only of average merit.

M. A. Blen, Paris, sent fifteen *Sonerillas* and *Bertolonias* in magnificent condition, and took 1st in the competition.

M. Louis van Houtte contributed greatly to the attractions of the large hall by his well-grown and extensive group of miscellaneous plants, carrying off, as was only just, the highest honours of the section, viz., the piece of plate offered by the Comte de Kerchove de Denterghem; this was a wonderfully rich collection. A splendid specimen of *Anthurium Veitchii*, occupying the central position; the leaves of this plant measured over 3 feet in length, and as they were numerous, it may be imagined that it was a striking object. An almost equally fine specimen of *A. Gustavi* was also shown, but the large cordate leaves of this plant are not so impressive as those of the species before-mentioned. *Licuala grandis* was well shown, and also *Medinilla magnifica*; a large *Dracaena Lindenii*, *Davallia Mariesii*, *Alcascia Thibautiana*, *Cochlostema Jacobianum*, a good specimen of the rare *Lycopodium pinifolium*, about 3 feet high; *Zahnia Lehmanni*, *Tillandsia tessellata*, *Brachysema acuminata*, *Arpophyllum giganteum*, *Strelitzia reginae*, *Phyllotanium Lindenii*, and many others of equal merit, indeed the whole fifty were splendid plants. The same exhibitor showed a most creditable group of forty flowering plants, taking the prize offered by M. C. Leirens, Secretary to the Society. One of the most noticeable plants was a well flowered specimen of *Erythrina crista-galli*, and *Clanthus magnificus*, *Metrosideros semperflorens*.

grandiflora, *Oncidium sarcodes*, *Arpophyllum giganteum*, numerous hybrid *Rhododendrons*, *Acacias*, *Anthurium Scherzerianum*, *Cytisus*, *Boronias*, and various other subjects were included. The "Société Horticole Gandoise" was a good 2nd in the 1st class, occupying the chief position at one end of the large hall. The group was very gracefully set out and was composed of the following plants among others:—*Anthurium carneum* (a large plant), *Ruellia Daveauxana* (?), *Attacia cristata* (in flower), *Maranta*, *Kerchoveana*, *Philodendron* M. Elinoni, *Dracena Lindenii*, numerous *Crotons*, and various specimens of common *Orchids*, with *Palms* and *Cycads* of the usual decorative sorts.

Clivias (*Inantophyllum*), are an important class of plants on the Continent, and in Ghent especially, and a large number of the nurserymen have turned their attention of late years to their culture, and the raising of new varieties. No fewer than seven classes were set apart for them, and all were well represented. Wide strides have been made in the improvement of these plants since the last Quinquennial Exhibition, when the finest variety was that named *Madame Donner*, which, beautiful as it still is, must be set in the background to give place to some of the splendid seedlings which were included in the chief collections. The *Inantophyllum* classes were for twenty, twelve, six, three, and single plants. There were several collections of twenty, the finest, which won the valuable *objet d'art* offered by the members of the Council of the Society, being that from M. Bernard Spae, while the other prizes were taken by MM. Boelens frères and M. L. van Houtte. The finest varieties among these collections showed a great advance on those in trade, and the finest in the whole show was that called *Souvenir de F. Vervaeke*. The flowers of this are perfect in shape, sepals broad and rounded, like those of *Vallota*, and the colour is a glowing orange-scarlet with bright yellow centre. The truss, too, is enormous. Next to this in merit was *Madame Auguste Lemonier*, the shape of the flower being very good, but lacked brilliancy of colour. The other selected varieties were *Joseph Spae*, *Madame L. van Houtte*, *Jules van Loo*, *H. Todd*, *Madame Freeman*, *Madame Donner*, *Martha Reimers*, *Lindenii*, and *superbum*. Among the newest sorts are *Mrs. Harry Veitch*, *Baron Schroder*, *Madame Peeters* and *Mdlle. Alex. Hardy*; but these, though finer than early varieties, are poor compared with those we have described as the best. The collections of twelves and sixes were excellent, the most successful exhibitors being MM. Blanquaert and Vermeire, who showed several remarkable varieties, and admirably grown specimens. The finest *Clivia*, from a cultural standpoint, was a specimen of the *Lindenii* variety, from M. Vuytsteke, of Lochristy, which bore about a dozen huge spikes of brilliant flowers.

ANTHURIUMS.

Judging by the large numbers of the many new and beautiful varieties of these seen throughout the exhibition, they must be very popular on the Continent. The several varieties and hybrids of *A. Andreanum* and *A. Scherzerianum* made of themselves an exhibition. Seven classes were devoted to *Anthuriums* alone, and nearly all were represented. The principal exhibitors were M. Louis de Smet and M. L. de Smet-Duvivier, who, between them, took the 1st prizes. The chief class for an unlimited selection was best represented by M. L. Desmet, but the most varied were the smaller collections of twenty and twelve. The most noteworthy varieties in these were *A. Andreanum roseum*, with spathes of a delicate pale rose colour—very beautiful; *Andreanum carneum*, flesh coloured; *A. leodiense* ×, a cross between *A. Veitchii* and *A. Andreanum*, with longer and larger leaves than *A. ferrierense* ×. *A. Desmetianum*, with spathes of an intensely deep crimson, was the most remarkable of all, and one that we hope to see soon in London. The varieties of *A. Scherzerianum* were exceedingly numerous, but those that were absolutely distinct were few. The genuine large spathed *Wardii* was to be seen in large specimens, and the long spathed *longiflorum* also; but the most striking varieties were the spotted hybrids, of which the variety *Rothschildianum* is the type. Numerous spotted forms have now been obtained, but though they differ from each other in minute particulars, they are a good deal alike.

M. de la Devansaye, a great amateur of *Anthuriums*, offered a valuable prize for seedling *Anthuriums*, and it was won by M. L. de Smet-Duvivier, with his hybrid named *Leopold II.*, in the way of *A. Andreanum*, but with a finer and differently

coloured spathe and distinct foliage. M. Devansaye himself showed examples of some extremely fine varieties of spotted spathed *Anthuriums*, some being very much finer both in size and colour than the original *Rothschildianum*.

They comprised eight varieties, which were prettily arranged in glasses, with Fern fronds to display them. *Marie Thérèse*, with a spathe 17 cm. in length, red, with delicate white mottlings; *La Fresne*, rose, with red spots—very pretty; *Dr. Masters*, a good new variety, white, with a few large splashes of red; *Devansayanum* is also a fine mottled variety; *Andegavense* is moderately spotted red on white. A double-spathed sort, named *Souvenir de Nice*, is stated to have the peculiarity of producing an extra spathe; it is constant. It is a mottled sort, red on white. Another similar variety, also double, is *Souvenir de Gand*. *Souvenir de Morren* shows a few whitish specks on a red ground.

BROMELIADS.

Belgium is the adopted home of Bromeliaceae, and, as might have been anticipated, many beautiful and distinct kinds were exhibited. We have yet to cultivate a taste for these plants. How it comes that plants which in addition to beauty either of flowers or foliage, possess also the excellent quality of standing rough treatment without suffering, have not found admirers among horticulturists in England, is difficult to explain. If some leading decorator would begin to use them there is little doubt but that in time we should appreciate them as much as the Belgians and French do; and here we cannot suppress our feeling of the loss of the historian of this order—the late Prof. Morren, who was wont to take so active part in these exhibitions.

For a collection of thirty kinds M. le Comte Paul de Hemptinne was 1st, with a beautiful lot; MM. Jacob-Makoy & Co. being 1st among the nurserymen, with a magnificent collection. Among the latter were splendid plants of *Caragana Zahni* and *C. cardinalis*, both of them in flower, and having a heart of large cardinal bracts; *Vriesia hieroglyphica*, *Tillandsia fasciculata*, *V. Philippo-Coburghii*, *Alchmea Crousseana*, which is very near our *A. glomerata*; *Nidularia Marichali*, similar to *N. fulgens*, but much deeper in colour; and *Chevalera Veitchii*, bearing a large richly-coloured head of flowers. A wonderful plant, named *Vriesia glaziouana*, carried off the 1st prize for a beautiful well-grown Bromeliad. It had very broad, semi-erect leaves of a vinous-purple colour. It belongs to the gigantic group, of which *V. regina* is the best-known example.

M. Louis van Houtte showed two plants of *Tillandsia Lindenii latispata*, which were much admired. The scape is short, and covered with broad overlapping bracts, as in the variety called *vera*, but the bracts are broader, and the colour is pale salmon; the flowers, too, are larger and have more white in the centre than in the other forms of this beautiful Bromeliad. But the prince of the Bromeliads was a variety of *Vriesia hieroglyphica*, of which a single plant was shown under a large glass case. The beauty is in the variegation of the foliage, broad stripes or, in some leaves, one quarter of the width was wholly creamy-white, and the hieroglyphic-like transverse bands were of a soft vermilion. *Brocchinia Andreana*, shown by MM. Jacob-Makoy had leaves 3 feet long by 6 inches wide, deeply channelled at the base. It looks like the plant which Schomburgk describes as the nurse of *Utricularia Humboldtii*, which is found only in the water held in the sheathing bases of the leaves of the *Brocchinia*. Plants of this are at Kew. *Nidularium Makoyanum* is a pretty plant, the leaves soft and shining, prettily striped with white. *Canistrum Leopoldinum* is a large plant, the leaves semi-erect, green, with large irregular blotches of black-brown. These were shown by MM. Jacob-Makoy & Co., whose collection of Bromeliads is famous for its richness and attractiveness.

PALMS.

Among the plants exhibited none contribute more effectively to the beauty and grace of the exhibition as a whole than *Palms*. The Belgians, and, in fact, most Continental gardeners, cultivate these plants very largely, and the enormous examples of some of the most noble and rare kinds which they have sent to this exhibition are a proof of their devotion to the princes of vegetation. The cultivation of these plants is evidently much better understood in Belgium than with us. Magnificent specimens, furnished to the base with foliage, and perfect in

health, are grown in comparatively very small pots and tubs. This is one of the most astonishing features at the present exhibition, and one asks, how is it done? The Belgians say it is simply "Plenty of water, plenty of manure." Certainly we have something to learn from them in regard to the cultivation of *Palms*.

One of the most admired groups in the whole exhibition is one of grand specimens of *Palms* from M. Ghellinck de Walle. There are thirty plants, all very large and healthy, the finest perhaps being *Ceroxylon andicola*, with a sheaf of leaves 20 feet long—a magnificent plant; *Thrinax chuco*, called here *Trithrinax brasiliensis*, was also represented by a fine plant; *Livistona australis*, a splendid specimen, with a mass of leaves quite 12 feet through; *Thrinax excelsa* was shown under the name of *T. graminea*, both it and *T. argentea* being especially fine. *Pritchardia pacifica* was almost as large as the largest at Kew. *Livistonia Hoogen-dorpi* is scarcely known in England, but it is evidently a favourite with Belgian exhibitors, several very fine specimens being shown, that from M. Ghellinck being the best. It has purplish petioles clothed with long black spines, whilst the blade is divided almost to the base into broad segments.

An almost equally fine group was from M. Bernard Spae, also of Ghent. The most remarkable specimen was one of *Pritchardia macrocarpa*, which had six leaves, each 4 feet through, the blade spreading out flat, and the petiole very stout.

Washingtonia robusta is one of the very finest of Fan *Palms*. It was very well represented, both in M. Spae's collection and several others. The leaves are as large or larger than those of *Livistonia sinensis* and they are supported on stout petioles bearing large spines. This grand *Palm* will thrive in a cold house; there is a healthy example of it in the Temperate-house at Kew.

Cocos Bonnetti is another very handsome plant. It has the appearance of a *Syagrus*, the leaves being recurved and very glaucous. *Phoenix Andersoni* is very near *P. rupicola*, but not quite so soft and graceful; it is probably one of the seedlings raised in the Calcutta Botanic Gardens by Mr. Scott, some years ago.

M. D'Haene, of Gendbrugge, sent some very fine specimens, one of *Caryota Rumphiana* towering above the rest, its massive leaves stretching 20 feet or more. This large specimen was in a round tub less than 3 feet in diameter.

Erythraea.—This genus was represented by two plants, one shown as *Brahea calcarata*, and also known as *B. Rozeii*, but which is the true *E. armata*, was most attractive. It is not unlike *Thrinax argentea* in habit, but the petioles are shorter and bear small marginal teeth, and the whole plant is glaucous, almost silvery. This *Palm* is another which may be grown in a cold house.

Cocos Yatai is similar to *C. Bonnetti*, but more graceful. It was represented by some very handsome specimens. Except at Kew we do not remember having seen this *Palm* anywhere in England. *Kentia rupicola* and *K. Mooreana* are two Belgian names for *K. (or Howea) Belmoreana*. Some very fine specimens of this were shown, the largest and handsomest by Madame la Comtesse de Kerchove. *Phoenix farinifera* was shown under the name of *P. Houlettii*; and a very handsome specimen *Caryota*, called *C. intermedia*, struck us as being very near *C. Blancoi* in general appearance; it is one of the most graceful of *Palms*. M. Vanden Abele sent some splendid *Palms*, a handsome specimen of *Sabal Palmetto* being particularly striking. The groups of large *Palms* were all exceptionally fine, but we have only space for mentioning some of the most striking.

Included among the miscellaneous groups were excellent examples of *Licuala grandis*, the finest being shown by M. Van Houtte. The Belgians appear to have secured most of the plants of this beautiful *Palm* which were in England a few years ago, and, whilst it is a very rare *Palm* with us, they have numerous handsome specimens of it.

Ravenia Hildebrandtii, also shown in splendid health by M. Van Houtte, as well as by other exhibitors, is one of the most distinct and beautiful of the *Palms* there. It is dwarf, graceful, with Fern-like leaves, almost as in *Cocos Weddelliana*; but the leaves are flatter and the pinnae broader. It is a *Palm* which in England ought to become popular.

Stevensonia grandifolia is shown in fine form by several exhibitors, and *Glaziova insignis*, which is a true *Cocos*, affined to *C. Weddelliana*, and not unlike the *Juan Fernandez Palm*, *Juania australis*, is also well represented. When young, this *Palm* is not attractive, but, like the ugly duckling, it develops

into a beautiful little specimen; as an exhibition plant it ought to rival *Cocos Weddelliana* with us.

Bismarckia nobilis is represented by small plants. At present it is more interesting than beautiful, and as it belongs to the gigantic *Borassus* set it is not likely to become very popular. It is a *Corypha*-like Palm, with short stiff petioles, the whole plant being glaucous-green.

Among small Palms there are many such as are used to some extent for decorative work with us, but few that were new. *Calamus australis* is a small species, remarkable for the form of its pinnae, which are broadest at the apex, and the central one much the broadest. It is quite distinct from any other *Calamus* in gardens, and is very near *C. Cunninghamii*. It was exhibited by M. Pynaert van Geert among a group of ten new Palms, which also included a distinct *Wallichia*, at present unnamed; *Korthalsia robusta*, *Corypha decora*, *Calamus trinervis*, &c. This was the 1st prize collection.

CYCADS.

As with Palms, so it is with Cycads in Belgium; they occupy a foremost position among popular plants. The number of grand specimens at this exhibition is remarkable, and without a single exception, they are perfect examples of culture. The variety, too, is equally striking, and, we regret to say, so also is the nomenclature. In England we have our own names for Cycads, the Belgians have theirs, the Germans theirs, and there is much confusion in consequence. If some one authority could be recognised everywhere we should then in time get uniformity in names for these plants. The same may be said of all plants. At present, whilst Englishmen are busy revising, remodelling, renaming, the Continental botanists are doing likewise, and we have two or more sets of new names to swallow. Here we shall place the English names first and bracket those which are used at this exhibition.

For the most beautiful lot of fifteen Cycads the 1st prize was awarded to M. de Ghellinck de Walle for some magnificent examples of careful culture, and the 2nd prize was taken by the brothers De Smet with very fine plants. M. de Ghellinck was also 1st for eight Cycads. Other exhibitors of Cycads were M. B. van Milgham, M. L. Spae, and others.

Macrozamia spiralis (M. Mackenzii).—A plant of this, bearing four fine cones, is a great attraction. The cones are about 5 inches by 2½, deep green, and are on stalks 4 inches long. *Encephalartos Frederici Gulielmi*, called in one group *Zamia Van Geerti*, was shown in magnificent condition, as also was *E. brachyphyllus* (*Zamia cycadiifolia*); these had leaves 3 feet long, and good stems. *E. Altensteinii* and *E. longifolius*, which are very closely related, were represented by very fine plants, under the names of *Zamia Vanden Hulli*, *Z. Katzeri*, and *Vroomi*. *E. villosus* was very well shown, one plant having a magnificent head of leaves, each one 10 feet long; *E. horridus* and *E. Lehmanni* were very conspicuous in their coats of silvery-green.

Some good plants of *Cycas* are shown, amongst them being splendid pieces of *C. siamensis*, with Onion-shaped stems and beautiful heads of foliage. This *Cycas* is certainly one of the most valuable of all in a decorative sense. A strong plant of it was shown in one group as *C. spicus*. A tall thin-stemmed specimen, without a name, looked remarkably like *C. Ruminiana*, an exceedingly rare plant. Of course *C. revoluta* was well represented; this species is grown by the florists for use in wreath-making, especially funeral wreaths, the fronds being arranged in a kind of circular plume, and the flowers placed at the base of the plume.

No true *Zamia* nor *Bowenian* nor *Stangeria* was shown—a curious circumstance at an exhibition in Belgium.

TREE FERNS.

There are some grand Tree Ferns shown, so tall and mighty that one must admire the enthusiasm of the exhibitors who bring them. The Brothers De Smet were 1st, with eight monsters, amongst them being *Cyathea medullaris*, with a stem 20 feet high, carrying a fine head of fronds; two *Hemitelia Smithii*, with 12 feet stems; *Dicksonia antarctica*, 12 feet stem; and *Cyathea dealbata*, 10 feet stem. The 2nd prize was awarded to MM. E. Vervaeke & Co., for very fine plants, among which were *Dicksonia fibrosa*, with a stem 15 feet high, and 1½ foot in diameter at the base. *Cyathea Cunninghamii*, stem 21 feet high, and 9 inches at base; and *Dicksonia squarrosa*, 10 feet high. These all carried fine heads. The same firm showed a magnificent *Cyathea dealbata*, with a stem 20 feet high, which,

however, was placed 3rd to a very fine *Dicksonia antarctica*, exhibited by M. Ad. D'Haene, and a *Cyathea dealbata*, from M. de Ghellinck de Walle. These giants are established in tubs which are very little more in diameter than the base of the stems they contain, and although this results in the fronds being less in dimensions than when a liberal allowance of root-room is afforded, still the heads of fronds were as a rule all that one need desire.

M. de Ghellinck de Walle was the only exhibitor in the class for thirty tropical Ferns, and he was awarded the 1st prize for a collection which, though made up of small plants, were well grown and interesting.

M. Auguste van Geert showed a handsome *Lomaria platyptera*, for which he obtained the 1st prize, as a beautiful and well grown Fern; a large example of *Gymnogramme Lauchiana gigantea* being 2nd. The same exhibitor was 1st for three new Ferns, showing *Pteris Mayi*, *Adiantum reginae*, and *Nephrolepis rufescens tripinnatifida*. M. Pynaert van Geert was 2nd with *Gymnogramma elegantissima* (our *G. schizophylla*), *Pteris cretica grandiceps*, a pretty and well crested form, and *Adiantum reginae*.

For thirty hardy Ferns M. Louis van Houtte took the 1st prize, with a clean and well grown lot; he was the only exhibitor in this class.

BULBS, &c.

Bulbous plants are much below the English standard in all cases, except as regards *Clivia*, which may be conveniently treated under this section. Hyacinths were of fair quality, and the varieties such as we see at the London shows. The leading exhibitors are Messrs. Byvoet frères, Haarlem, who took 1st for both 150 and 100 varieties. Tulips are poor, but the varieties were very numerous from the same exhibitor. This poverty is probably owing to the long duration of cold weather, which would naturally retard development. Lilies of the Valley are rather drawn, and the flowers small. Prizes were offered for *Narcissi*, but no competitors appeared—a circumstance which would hardly occur at the exhibitions of any English society at the present time. The *Amaryllis* received due attention, but the Belgians are a long way behind as regards these plants.

Messrs. James Veitch & Sons, Chelsea, London, show a splendid collection (not for competition), mostly of new varieties. Of the many new sorts shown the following is a selection of the best examples:—*Tityrus*, brick-red, green base; *Dante*, brick-red, white nerve, pale lower segments; *Etna*, deep brick-red, excellent in form; *Malvolio*, scarlet, crimson base; *Gigantea*, deep red-scarlet, dark base—very large; *Adela*, white, lightly flaked with red; *Perfection*, bright red, with white nerves—very attractive; *Fair Maid of Perth*, white red, paler lower segments. This group, which created a deal of admiration, which certainly was deserved, as the flowers were well formed, large, and richly coloured. For this was awarded a double extra prize, consisting of a 200 franc Gold Medal and a piece of plate offered by Madame Verschaffelt.

M. L. van Houtte shows a good collection of twelve Lilliums, and took a 1st prize. They were well-grown samples throughout—*Browni*, *canadense*, *longiflorum* vars., *umbellatum*, *bicolor*, &c., were very good specimens.

Cyclamens are well represented by M. A. Dallièrre, Ghent, whose plants received a Gold Medal; and a similar award was made to B. S. Williams, London, for his group, sent not for competition. His flowers were excellent specimens of culture and selection.

Gloxinias, usually a weak feature at these shows, are, on this occasion, well shown by M. Delany-Cardon, who took the premier place for thirty plants.

Clivias are abundantly shown by various exhibitors, and throughout the quality was excellent, as is usual at the Ghent show. The firm of Messrs. P. Blanckaert & Co., Vermeire, showed extremely well, securing 1st for new varieties, and also in two other sections. M. Ghellinck de Walle led well in the amateur's class, showing strong specimens bearing large heads of bloom. M. B. Spae led in the chief open class (for sixty), showing very well indeed—miniata splendens, *Lindeni*, Madame J. Ilye were good varieties. Messrs. Boelens Bros. came in as a close 2nd. M. Ch. Vuylsteke had a grand plant of *C. Lindeni*, for which he took a Silver-gilt Medal.

AZALEAS.

Azaleas of the indica section, and also, as was only proper, of that section which has received the name of this town, viz., Ghent, are shown in great

abundance. The varieties of indica are magnificent in all respects; the plants in some cases measure as much as 4 or 5 feet in diameter, and were simply masses of bloom; the groups, which occupy the centre of the great hall, contain the leading specimens, and to the general public these balls of flower probably constituted the chief, or at all events, one of the chief features of the whole show. The Louis van Houtte Memorial Prize (English) was offered for a collection of the best varieties introduced since 1880. M. Joseph Vervaeke, of Ghent, is the successful competitor, with wonderfully good plants, comprising sixty-eight varieties, all equally well flowered; M. L. van Houtte, of Ghent, was a good 2nd, with a smaller collection.

Forty specimen plants are best from M. de Ghellinck de Walle, who therefore carried off the prize offered by the Federation of the Belgian Horticultural Societies. The Comtesse de Kerchove, Ghent, was awarded the 2nd place. M. Vuylsteke also showed well.

Of all the plants shown the following varieties were good:—*Alexander H.* (white), *La Victoire* (bright crimson), *Mlle. Leonie van Houtte* (white, green spots), *Roi des Blancs* (pure white, fine var.), and *Bijou de Paris*, *Comtesse de Flandres* (rose), *Duc de Nassau* (cerise).

M. Ch. Vuylsteke contributes a pretty hybrid *Azalea* from *A. amœna*, called *Forsteriana*×; it is of a bright red colour, and has a petaloid calyx, like *amœna*; the flower is about the same size as in *A. amœna*, or perhaps a trifle larger—very decorative; a double form of double *Azalea mollis*, of a terra-cotta colour, named *Perfection*; he also had a large group of *A. mollis* of great worth, justly receiving a 1st prize for the exhibit. The plants were extremely well flowered and capitally coloured. C. F. Lappies (pale red), and W. E. Gumbleton (pale sulphur) were conspicuous. *Azalea pontica* varieties were also best from the same exhibitor, and M. L. van Houtte was a good 2nd, both exhibitors having similar varieties, of which the best may be named as *Roi des Belges*, *Fama*, *Gloria Mundi*, and *Unique*. These exhibitors secured most of the leading prizes for *Azaleas* of all sections, but other prizetakers included Messrs. Vervaeke, De Schryver, De Meyer, Mieghen, and M. E. Vercartrien, of Melle, the last of whom was successful in securing the 1st place for sixty indica varieties (market plants), offered by Messrs. De Smet fils, as a memorial of the late M. L. de Smet; M. P. de Baerdemaeker was 2nd, both lots being very freely flowered plants. These smaller plants of *Azalea indica* varieties are also first-rate in quality, and, with the *Rhododendrons*, form the leading features in the large annexe.

Several novelties are shown, but space forbids our further mention of them. Of the varieties of recent introduction there were several plants, but we can only call attention to the leading sorts. *Vervaeiana*, from M. J. Vervaeke, Ghent, is a very pretty flower; it is pink, with a pure white margin with rose spots, double; and from the same exhibitor *Perfection de Gand*, a brilliant carmine, single. M. de Kneff had President Oswald de Kerchove, after the same style as *Vervaeiana*, but more deeply coloured, double; Madame Raph. de Smet, also from M. de Kneff, may be described as a single form of the other. M. Louis van Houtte had J. T. D. Llewellyn, rosy-pink with a white margin, double. These varieties were also shown in other lots.

While speaking of *Azaleas* we may say incidentally, for the benefit of planters, that we were informed that *A. mollis* is not touched by rabbits and deer, which acts will add to the value of this plant.

RHODODENDRONS.

Of *Rhododendrons* there are many capital collections; but, notwithstanding the general excellence of the exhibits, the English growers are able to show plants of even greater merit. M. Alexis Dallièrre, who is an exhibitor in many classes, contributes the grandest collection of *Rhododendrons*, the plants being chiefly conspicuous for the large size of their trusses, *Mlle. Marie van Houtte* and *Cytha* at once attracting the attention of the beholder: he won the 2nd prize in the leading class for fifty—the exhibit made by M. Bauman, also of Ghent, being the most honoured. John Waterer, Madame Pasteur (lilac), Evelyn (white, green spots), are good varieties here. M. Pynaert van Geert, Ghent, contributed a grand collection, all good specimens of varieties which are popular with us at home, and took 3rd; but mention may be made of a striking variety, of a bright rosy-crimson colour, shown in this collection, and named *Sir R. Peel*.

M. B. Fortie shows a good lot in the thirty class for nurserymen, the chief prize offered for amateurs being awarded to M. A. Vermeersch Hebbelynck, Ghent, whose exhibit was highly creditable. Himalayan and Java Rhododendrons were represented by a few groups, but nothing of a very striking nature is shown. M. Pynaert van Geert shows the best. Messrs. Spaë, D'Hane, De Smet, Cuvelier, Bauman, and Vervaeke all have a good display. The large annexe was very gay with these plants, and in all cases competition was very close. New hybrids and seedlings did not include anything of particular merit.

MISCELLANEOUS.

The Van Houtte Memorial Committee offered a prize for twenty-five hardy trees and shrubs forced into flower. This was won by M. Van Driessche-Lys, who shows a most deserving group of plants in pots. There are in the group specimens of *Magnolia* and *Ribes*, *Coronilla emerus*, very well done. M. L. van Houtte is 2nd, also showing a good group, in which *Spiræa* and *Hydrangea* were well represented; also a trained plant of *Forsythia viridissima*, the stems being brought together and encased in clay on which cress was sown. The appearance presented is that of an expanded umbrella—a cultural trick for the amusement of the populace. A good specimen of *Wistaria sinensis* and various *Ribes*, &c., is also shown.

From M. J. de Costa there came good *Kalmias* and *Andromedas*, he leading in these classes; and he also showed, what is not seen at English exhibitions—twelve pots of *Epimedium violaceum*; but no prize was awarded here, the specimen not being very well flowered. Specimen *Acacias* from him are good, and he also had a good couple of *Aspidistra*, although M. Fortie showed better plants, and consequently led. Fruited Orange trees (Chinese) in pots, small plants about a foot or 18 inches in height, form a pretty feature, M. Pierre Guliaek showing the finest, laden with fruits. Of the large specimen Orange trees, those of M. Schatsaert-Brasseur are splendid; the heads were beautifully even, and the plants in excellent condition. Large plants of *Cytisus racemosus* are exhibited in a close competition, and very beautiful objects they were too, M. L. Vervaeke and M. A. Cornelis being respectively 1st and 2nd.

Cinerarias were poor, like all the other florists' flowers, although Messrs. Vilmorin, Andrieu & Co., Paris, made a good exhibit of these plants, not for competition. The colours of their plants were very bright, and an extra prize of a Gold Medal was awarded to them. In the competition M. Surmont de Volksberghe shows best among the amateurs, and M. F. van Driessche-Lys occupies the same place in the nurserymen's section.

Around Messrs. H. Cannell & Sons' (Swanley, Kent) exhibit of specimens of their strain of double Cinerarias there was always a throng of admirers, and the cut flowers of the singles far surpassed anything else shown elsewhere. Some cut flowers of Carnation *Pride of Penhurst*, and fine trusses of zonal *Pelargoniums* were also shown. A Large Silver Medal was given in recognition.

Roses are generally greatly below our standard, except from Messrs. Wychaert frères, who showed fairly well. *Dieltra spectabilis* is good from M. F. Mierschaert, gr. to M. Cannart, Melle, and *Deutzia gracilis* from M. E. Decock, Ghent, were fine.

Migronette shown by M. A. Snoeck, of Ghent, is remarkably vigorous and strong, the foliage large and flat.

Camellias are very fine from M. Louis Eekhaute, who shows thirty excellently flowered specimens of well known popular varieties, such as *Mathotiana fimbriata reticulata*, &c. MM. I. & L. Wychaert and M. J. Vervaeke also contribute creditable examples.

Not for competition, M. Van Houtte sends a varied and extensive collection of shrubs of recent introduction; this is a very pretty exhibit, and comprised such plants as *Sambucus racemosa plumosa*, with the pinnae lacinated, and the entire plant very graceful; *Tilia platyphyllos foliis medio pictis*, a prettily variegated pendulous Lime; *Sambucus nigra pendula*; a variegated form of the Tulip tree; *Ulmus campestris plumosa*, &c., and a few Maples; but the finest varieties of these latter are shown by the same exhibitor in a separate collection of special merit. All are forms of the Japanese Maple, and numbered twenty. It would be impossible to say which are the best, as the extreme gracefulness of the variously coloured and finely divided leaves are in all cases most attractive. Messrs. Jacob-Makrooy & Co. show a well grown plant of *Araucaria ele-*

gans about 5 feet in height, and from Messrs. Spaë comes a tree of *A. excelsa glauca*.

A large exhibit is that entered as a compliment, from the members of the Floral Society of Antwerp and which is composed of a quantity of stove and greenhouse plants from various gentlemen, each plant bearing a ticket with the proprietor's name. This comprised about one hundred varieties and species, which we are quite unable to particularise.

Large specimen Bays in pots are truly magnificent from both M. T. Bayse and M. Schryver, the trees being very large and furnished with solid even heads. Mr. Pynaert van Geert had *Hollies* in specimens.

Messrs. Van Geert, M. P. de Schryver, and J. Vervaeke had each good specimens of *Aucubas*, the fruiting plants of the two latter being very good specimens.

Bouquets, wreaths, epergnes, boxes for windows, and baskets for indoor decoration, were fairly numerous but the only thing calling for special mention is that Mr. W. Brown of Richmond, Surrey, took the Gold Medal for six various bouquets and for table decoration.

BOILERS, ETC.

There are a considerable number of these, but the majority are much like our English forms, and we found nothing specially to be recommended to our English friends. The best one we noticed was a form of terminal-end saddle, exhibited by M. Ed. Mahn, Ghent, which has a waterway back to the fire, about 8 feet from the end; the flame has to pass over this, and under the end waterway to the chimney. The heating-power is also much increased by five 2-inch tubes under the arch, which are secured into the front and back waterways. Charles de la Croix, Ghent, shows a number of saddle boilers with horizontal "Galloway" tubes in the firebox, but these boilers are much too deep from the bars to crown of arch, one measuring nearly 3 feet. A saddle should not exceed 21 or 24 inches in depth. J. Vanderputte-Stevens, Ghent, exhibit a horizontal tubular somewhat like Ladd's, but the pipes form a continuous coil. As this boiler was 7 feet long, and under 250 feet of 3-inch pipe to heat, there was no opportunity of judging of its power; but, on the whole, we did not think it equal to the English forms. We saw a boiler made in this way by the late Mr. Speed at Chatsworth, some years ago.

Bentack frères, Ghent, exhibit several sizes of an upright boiler, made on the principle of a locomotive boiler; the fuel is fed at the top, and there is a large magazine, so that it will burn some time without attention. This central magazine is surrounded with 2-inch tubes passing through the waterway, and connected with two chimneys—why two we could not discover. The greatest defect we noticed was, that the flow-pipe left the boiler about 1 inch below the top, thus leaving a space of steam and air—one of the greatest checks to circulation a boiler can have. Kerner Deguevera shows a variety of rivetted saddle-boilers, much like ours, but having only a 1-inch waterway. These may answer with good water, but with impure water would soon be furred up. In conclusion, we may say that the exhibition, both of boilers and greenhouses, was neither so extensive nor so good as in 1883.

In the matter of greenhouses and other structures the Belgians would do well to learn from the English on many points. In one of the houses, however, there was a good style of staging, consisting of square porous earthenware tiles, freely perforated and resting on iron stays.

Messrs. Dutry-Colson, of Ghent, opened their extensive new premises on Sunday for the sale of horticultural requisites and agricultural machinery, and invited the inspection of the horticulturists. The firm was established in 1812, and has now grown to be the first in this business in Belgium. The shop covers 1500 square yards. It has a very handsome façade to the Rue des Champs. Below the street level is a large basement for storing the heaviest descriptions of ironmongery, mowing machines, garden stools, and, in fact, every horticultural requisite is there to be found, selected with judgment from the best makers.

Obituary.

JOHN WOODBRIDGE.—The intelligence of the death of Mr. John Woodbridge, head gardener, agent, and steward to the Duke of Northumberland, Syon House, Brentford, on the 16th inst., at the

age of fifty-six, has been received with universal regret, not only by the horticultural community, but also by a large circle of personal friends resident in the district, and his unlooked-for decease is all the more regrettable because he had recently been selected to represent the practical gardening community upon the Council of the reorganised Royal Horticultural Society. This important post was accepted by Mr. Woodbridge with sincere diffidence, for he was one of the most unobtrusive and unassuming of men, and with a due sense of the responsibility he was undertaking. That this feeling dominated in his mind was shown during the hours of delirium which immediately preceded his death—he alluded to resolutions he had to propose at Council meetings, and to weighty matters impressed on his mind as necessary to the well-being of the Society. He gradually sank to a semi-unconscious state, and died about 10 A.M. on April 13. He leaves a widow and one son, thirteen years of age. Our friend was laid to rest in Isleworth Cemetery on Thursday, the 18th, his grave surrounded by a large circle of mourning friends; Mr. A. F. Barron, Chiswick, attending on behalf of the Council of the Royal Horticultural Society.

Mr. Woodbridge was a native of Amersham in Buckinghamshire, and was born upon the estate of the late T. T. Drake, Esq. He entered upon his career as a gardener in the Rectory Gardens, and leaving there proceeded to the Marquis of Londonderry's, at Fulham; and from thence to the gardens of Lord Chelsea, situated on Putney Heath; then to Latimer, Bucks, the residence of the Hon. C. C. Cavendish; and next to Lord Boston's seat at Hedsor, Maidenhead. In 1848 young Woodbridge was sent by Mr. Davis, then in charge of the Hedsor Gardens, to one of the great exhibitions of the Royal Horticultural Society at Chiswick with two Pines of large size, and his most sanguine aspirations of that day could not possibly have been in the direction of a seat on the Council of the Society to which he was appointed just forty years afterwards.

On leaving Hedsor he went to Gunnersbury Park, and served for a time under the late Mr. W. Forsyth. Then he was transferred to Syon, where he remained for four years. Then he engaged himself to Mr. Forest, to assist in laying-out the Surrey Gardens, at Walworth, wherein was erected a spacious music hall, in which M. Julien gave promenade concerts, and the Rev. C. H. Spurgeon preached prior to the erection of his Tabernacle in Newington Causeway. This business done, and his health failing him, he went to the West of England, and entered the nurseries of Messrs. Garraway, Mayes & Co., at Durdham Downs, Bristol. Then he took charge of the gardens of W. Tothill, Esq., at Stoke Bishop, near Bristol, and while there made his mark as a highly successful cultivator of Orchids, stove and greenhouse plants, fruit, &c., taking high honours at the exhibition held at Clifton. From here he went to Kiddington Hall, Oxfordshire, the residence of H. L. Gaskell Esq., and had charge of the gardens for the space of four years. Next he came to the Royal Gardens, Kew, as one of the foremen of departments, taking in hand Orchids, Heaths, &c., until July 1870, when, on the recommendation of Mr. John Smith, he took charge of the gardens at Syon; and in 1882 he had in addition the appointment of steward and agent of the estate. While he had to witness changes in the subjects cultivated at Syon, in all matters he exhibited high skill, and reaped well-deserved success. About 1853 he succeeded in first fruiting the Vanilla [in this country] and Mangosteens, and contributed to the horticultural journals some interesting details respecting his achievement. He was an occasional contributor also on other matters, always writing in a weighty and thoroughly practical manner.

Mr. Woodbridge was called to fill many offices of trust in connection with gardening. For the period of sixteen years he was almost continuously a member of the Fruit and Floral Committees of the Royal Horticultural Society, and at the time of his death had a seat on the Fruit Committee. He was an

active member of the committees of the Apple and Pear Congresses. He was a valuable promoter of the series of International Potato Exhibitions held at the Alexandra and Crystal Palaces. He was a member of the committee of the Gardeners' Orphan Fund, and he was a zealous promoter of this important movement. As a judge at horticultural exhibitions his services were much in request, for he not only possessed great practical experience, but rare judicial capacity also.

THOMAS CRIPPS.—We regret to have to record the death, on Tuesday, the 17th inst., of Mr. Thomas Cripps, of the well-known firm of Cripps & Son, nurserymen, Tunbridge Wells, in his 79th year. The deceased, who was highly respected by all who knew him, started in business nearly sixty years ago, and had developed his nursery into one of the largest of the kind in the kingdom. For several winters Mr. Cripps had been obliged, through a bronchial affection, to stay indoors during bad weather, but this did not impair his zeal for business. Many new varieties of plants were originated in this nursery, and some of our readers will remember that it was from this nursery that the first white Fuchsia (*Venus Victrix*) was sent out nearly fifty years ago; and of late years the Clematis has been very successfully handled, and many new varieties raised. The deceased was a kind-hearted man, and many a gardener can bear testimony to his kindness in times of adversity, and many a young gardener obtained at the Tunbridge Wells nursery his start in life. The funeral is to take place at the new cemetery, Tunbridge Wells, on Saturday, April 21.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending, April 16, is furnished from the Meteorological Office:—

"The weather continued cold with some falls of rain, sleet, or snow, during the earlier days of the period, but subsequently became mild and seasonable, warm showers alternating with bright intervals of sunshine.

"The temperature remained very low until the 12th, when it rose rapidly and became high for the time of year. The average for the week has consequently been rather above the normal in Ireland, as well as in the east of Scotland, and at most stations in the west of Scotland and north of England, but elsewhere a deficit is still shown. The highest of the maxima, which were registered either on the 14th or 15th, varied from 57° in 'Scotland, N.' to 63° in the 'Midland Counties,' and 'England, S.' and to 66° in 'England.' The lowest of the minima were recorded on the 10th, when the thermometer fell to between 28° and 31° in the 'Wheat-producing' districts, and to between 29° and 35° in the 'grazing' districts. In the Channel Islands the lowest reading was 39°.

"The rainfall has been more than the mean in the north and west of Scotland, but in other parts of our islands it has not diffused much from the normal value.

"Bright sunshine has been rather deficient except in the north-eastern and eastern parts of the kingdom. The percentage of the possible amount of duration ranged from 17 in 'Scotland, N.,' and 19 in 'England, S.W.,' to 36° in 'England, N.E.,' 37 in 'England, E.,' and 38 in 'Scotland, E.'"

NOTICES TO CORRESPONDENTS.

* * Owing to the space occupied by the Ghent Show Report, much matter is held over till next week.

APPLE: *R. P.* Unknown; not of any merit.

BORONIA MEGASTIGMA: *P. L.* This plant may be grown in the mixed greenhouse, but it is much better when placed along with the other New Holland and hardwood plants in a pit or house. Cut back slightly after flowering; give a month's rest in a cooler house than that in which the plant flowered, and report when top growth has begun.

Shifts into fresh pots should be very slight ones at a time, and should not take place later than the middle of July, or the new growth will not get matured. Half plunging the plants in a bed of fine gravel in a frame facing south is a good way to grow this and other *Boronias* during June, July, and August. Use the best of hard peat and silver-sand, and crock the pots well, but do not half fill them with drainage materials.

CORRECTION.—In report of the Royal Horticultural Society, last week, p. 470, col. c, *Miltonia vexillaria* Emperor Frederick, for Mr. Catt read Mr. Cooper.

INSECTS ON TOMATO PLANTS: *E. P.* Shake them off at night on to white cloths, and destroy; shovel away the surface soil and burn it. The insect is one of the destructive family of weevils.

MARBLE VASES: *Constant Reader.* Vases of Italian marble, when filled with soil for plant-growing, are liable to get discoloured, and to harbour moss on the surface. It is always better, in planting such vases, to employ a broad pot or pan to hold the soil, and then, provided the egress of water is sufficient, no harm will be done.

NAMES OF PLANTS: *W. G.* 1, next week; 2, *Coleonema album*; 3, *Arum* sp.—next week; 4, *Scilla Sibirica*; 5, *Acanthophippium sylhetense*; 6, *Dendrobium pulchellum*.—*F. G. T.* *Bletia hyacinthina*; *Dendrobium Wardianum* malformed.—*W. M.* *Lycaste Harrisoni*; *Dendrobium chrysotoxum*.—*T. P.* *Streptosolen Jamesonii*: it is also called *Browallia Jamesonii*.

NECTARINES: *Enquirer.* The fruits do not swell because the stone has reached its final stage of growth, when that is over, the maturing of the fruit should take place. The splitting of the stone may be due to too much moisture at the root arising from insufficient drainage.

PERENNIAL CLIMBING PLANTS FOR AN ARCH: *Trellis.* The following may be used in the position named:—*Begonia radicans*, *Periploca graeca*, *Clematis flammula*, and any of the many varieties of the *Clematis*; *Aristolochia Sipho*, *Virginia Creeper*, *Roses Climbing* *Devoniensis*, *Madame Desprez*, *Fellenberg Noisette*, *Rosa Polyantha*, and *Honey-suckles* in variety.

POTATO PLANTING: *E. Jones.* On rich soils, and in seasons when the Potato disease is not prevalent, planting in rows from 2 to 3 feet asunder, and about half that distance apart between the sets in the rows, may answer very well; but in moist seasons, when the disease is usually too common, Potatoes planted at wider distances, each plant having a circular mound to itself when earthed up, escape the disease better so far as the tubers are concerned; as, owing to the branches of the plants lopping over on to the ample surrounding soil, in which no tubers lie buried, the latter escape infection by the falling spores to a very large extent. On soils of poor quality thick planting is very objectionable for obvious reasons.

ROYAL HORTICULTURAL SOCIETY: *T. P.* Apply to the Secretary, 111, Victoria Street, S.W., for the rules, &c.

STRAWBERRIES: *P. C.* The abortive berries may be due to want of ventilation, or to the plants being suddenly put into great heat and a moisture-laden air. We do not suppose the hard water you use in a tepid state would cause the malady.

STRAWBERRY: *J. M.* Sir C. Napier.

VIOLET VICTORIA: *J. C.* The seedling sent is one of the finest dark double flowers that we have seen; footstalk sufficiently long, and the fragrance delicious.

CATALOGUES RECEIVED.

W. PAUL & SON, Waltham Cross—New Rose and Florists' Flowers.

COMMUNICATIONS RECEIVED.—*J. D. H.*—*F. W. O.*—*P. W.*, St. Petersburg.—*R. P.*—*G. S.*—*J. R. J.*—*G. M.*—*E. W. B.*—*J. C. M.*—*L. J. A.*—*D. P.*, Calcutta.—*A. M. J.*—*W. R.*—*T. Weaver*,—*W. Kirk*,—*J. G.*, send full name.—*R. A. R.*—*J. C.*—*C. B. P.*—*W. E. B.*—*H. Dunkley*,—*T. Christy*,—*A. M. J.*, will be put in hand.—*O. Thomas*, and *J. Birkenhead*, (next week).—*W. H. M.*—*C. W. D.*—*G. H.*—*J. H. G.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

DIED, recently, Mr. GROSVENOR, of The Nurseries, Wetley Rocks, Stoke-on-Trent.

Write for Dr. Voelcker's Report, Pamphlet, Testimonials, and Instructions how to apply

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 Emperor Reading Russet
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 They have also many other varieties in stock.
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YEWs, bushy and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per dozen, 35s. per 100; 2 to 2½ feet, 8s. per dozen, 50s. per 100; 2½ to 3 feet, 9s. per dozen, 60s. per 100; 3 to 3½ feet, 12s. per dozen, 64s. per 100. Prices of larger sizes and other evergreens, suitable for hedges (e.g., TREE BOX, HOLLY, LAUREL, PRIVET, CYPRESS, JUNIPER, THUIA, &c.) on application.

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Seaforthia elegans, Latania borbonica, Phoenix reclinata, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Latania borbonica, Seaforthia elegans, Phoenix reclinata, and Corypha australis, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seaforthia elegans, Latania borbonica, Phoenix reclinata, Enterpe adulis, and Areca lutescens, 2 feet 6 inches to 3 feet high, 3s. to 5s. each.

Fine feathery-foliaged Seaforthia elegans, 4 feet high, 15s. per pair.

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The New Carnation,

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Coloured in *The Garden* of March 17, 1888. A most beautiful and remarkable introduction, 2s. 6d. each, 24s. per doz.

Special Clearance Prices per dozen:—CARNATIONS, CLOVES, from 4s.; selfs, 6s.; shows, 7s. 6d. PICOTEES, Red Braes, 4s.; shows, from 7s. 6d. PANSIES, show and fancy, from 2s. 6d. Tufted VIOLAS, from 2s. VIOLETS in variety, from 2s. 6d. PHLOXES in variety, from 4s. IRIS GERMANICA, named, from 3s.; mixed, 2s. GLADIOLUS, Scarlet, from 6d. Less per 100.

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	Bushel.	lb.
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See full description of this surprising plant in last issue of *Gardeners' Chronicle*, page 457, but with the remark that this astonishing introduction is not due to the "indefatigable zeal of Mr. F. Sander," but to that of Mr. J. Linden, who introduced it first from New Guinea in May, 1887, and flowered it in January, 1888.

Good Established Plants, 4 to 5 leaves, 63s. each; 3 Plants, 168s. Stronger Plants, 105s. and 147s. each.

CYPRIPEDIUM PRÆSTANS, RCHB. F.

One of the finest Cyprapediums, also introduced from New Guinea by Mr. J. Linden in 1886, and splendidly figured in *Lindenia*.

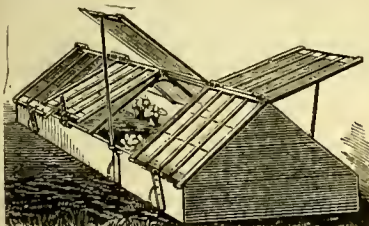
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BOULTON & PAUL, HORTICULTURAL BUILDERS, NORWICH.

No. 73.—GARDEN FRAME.

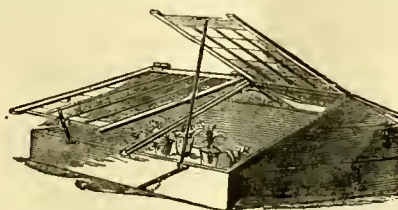
Sides of Frames 14 inches high, 2 feet 3 inches at ridge, easily put together. This Frame has given general satisfaction, and was brought out by us in 1883.



	Length.	Width.	Price.
1 Light Frame, 4 feet by 6 feet	...	...	£3 17 6
2 " " 8 feet by 6 feet	...	...	4 7 8
3 " " 12 feet by 6 feet	...	...	5 17 6
4 " " 16 feet by 6 feet	...	...	7 7 6
5 " " 20 feet by 6 feet	...	...	8 17 6

No. 74.—PLANT FRAME.

The Frames are 13 inches high at front, 24 inches high at back, and 32 inches at the ridge, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, fitted with set-ops, and arranged to turn over, back and front, for ventilating.

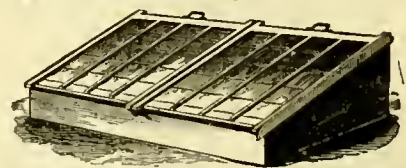


	Length.	Width.	Price.
1 Light Frame, 4 feet by 6 feet	...	...	£3 17 6
2 " " 8 feet by 6 feet	...	...	4 7 8
3 " " 12 feet by 6 feet	...	...	6 0 0
4 " " 16 feet by 6 feet	...	...	7 12 6
5 " " 20 feet by 6 feet	...	...	9 5 0

Made up to any length.

No. 75.—CUCUMBER FRAME.

The Frames are of 1½-inch boards, 24 inches high at back, and 13 inches high in front, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, with iron bar across and one handle at the top.



	Length.	Width.	Price.
2 Light Frame, 6 feet by 8 feet	...	...	£3 0 0
3 " " 12 feet by 6 feet	...	...	4 5 0
4 " " 16 feet by 6 feet	...	...	110 0
5 " " 20 feet by 6 feet	...	...	6 15 0
6 " " 24 feet by 6 feet	...	...	8 0 0

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ARAUCARIA imbricata ...	8 to 10 feet high.
ABIES Douglasii ...	8 to 10 feet "
... canadensis ...	4 to 5 feet "
CEDRUS Deodara ...	6 to 8 feet "
... atrocinerea ...	4 to 5 feet "
HOLLIES, English, Green ...	6 to 8 feet "
LAURELS, latifolia ...	4 to 5 feet "
... Portugal, all shapes ...	3 to 6 feet "
PICEA Nordmanniana ...	3 to 6 feet "
... nobilis ...	4 to 6 feet "
YEW, English ...	4 to 5 feet "
THUJA Lobbi ...	4 to 5 feet "
... Lawsonii ...	4 to 5 feet "
PINUS austriaca ...	4 to 5 feet "
... excelsa ...	4 to 5 feet "

The above are all well-grown perfect specimens, will remove with good balls, and travel any distance. This is the best month to transplant.

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CARNATIONS and **PICOTEE**s to name, 6s. per dozen; Border and Clove varieties, from 4s. 6d. per dozen.

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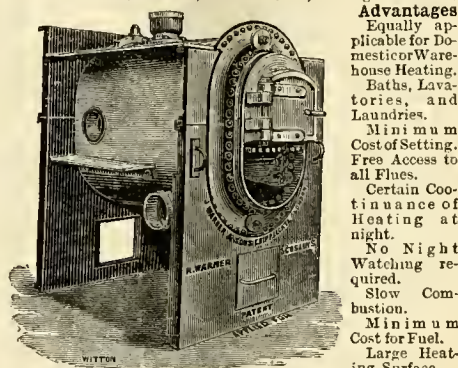
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13½ by 8½ for 14/-	or 300 squares 15 ounce, 8 by 6.
12 " 9 " 10/-	or 250 squares 8½ by 6½, or 220
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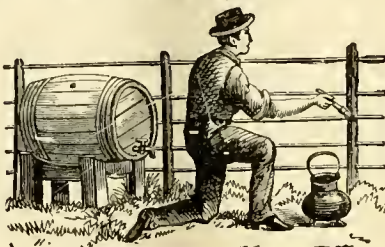
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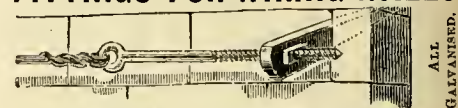
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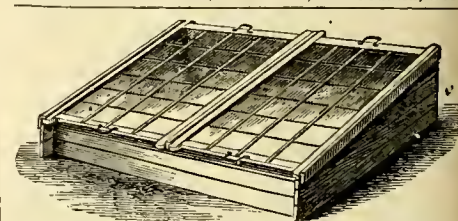
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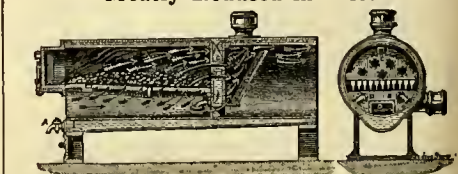
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Carriage and Breakage Free on £10 Orders. Half Carriage and Breakage Free on £5 Orders.

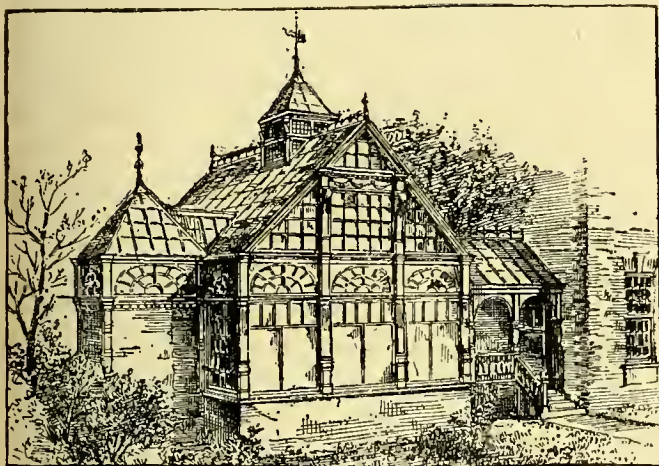
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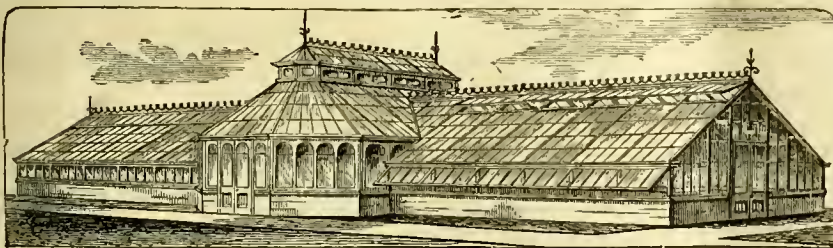
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about 30, where three others are kept. Two acres Flower and 6 acres Fruit Garden, with several large Glass Houses.

He must be active, intelligent, and competent, to take a pride in his work, be skilled in the use of the Spade and Hoe, a good Propagator, Grower, and Plantsman; Grapes, Tomatoes, Strawberries, Asparagus in quantity; 4000 choicest Fruit Trees.

Wages, 22s. a week, with 12½ per cent. commission on produce. A good situation for a competent man, who must produce testimonials as to character for energy, sobriety, and honesty.

Address—T. ARNALL, Oxford.

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WANTED, a young GARDENER, age 18 to 20; willing to assist in Housework. Must have good character.—Apply by letter only Mrs. BEHAR, 128, Maida Vale, W.

WANTED, a GROOM GARDENER, wife as Landress (no children). Good personal characters. Livery, and firing found.—Apply by letter, stating age, wages, and all particulars to Elm Bank House, Castelman, Barnes, Surrey.

WANTED, a thoroughly experienced young MAN, as Furnisher and Gardener. Also a YOUTH, about 18, accustomed to Gardening. Must have good references.—Apply, before 11 or after 7 o'clock, 60, George Street, Portman Square, W.

WANTED, a First-class Man as ORCHID GROWER, and to take full charge of good Collection. First-class character requisite.—Apply, by letter only, to R., 18, Thayer Street, Manchester Square, W.

WANTED, a JOURNEYMAN for Houses, and Assist Outside, Pruning and Bedding Out. Wages 16s. per week, both, &c.—Apply by letter, stating age and experience, I. W. CORNFORD, Quex Park, Birchington, Kent.

WANTED, TWO Young MEN (about 20 years of age). Must have had experience in Growing Plants and Cut Flowers for Market.—Apply in own handwriting, to ROBERT FEATHERSTONE, St. Ann's Nursery, Kirkstall, Leeds.

WANTED, a Young MAN, for the Grape and Tomato houses, and willing to make himself useful.—State age, experience, and wages expected, to W. HAZELL, Mill Road, Heene, Worthing.

WANTED, AT ONCE, a strong, active, respectable young MAN, to work in Small Nursery, and do Jobbing Work. Wages, 21s. Also a strong active LAD, about 17.—J. Y. FRASER, Florist, Brackenbury Road, Hammersmith, W.

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WANTED, an ASSISTANT for Florist's Shop, where a high class business is done. Must be a first-class hand at Wreath and Bouquets, and be of good address.—Apply, stating experience, wages, and full particulars, to SEASIDE, *Gardeners' Chronicle Office*, 41, Wellington Street, Strand, W.C.

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MR. CHARLES ENSOLE has been appointed Head Gardener to Colonel PREVOST, Elford House, Hawkhurst, Kent.

Mr. JAMES FORD, for the last eighteen months Foreman in The Gardens, Taymouth Castle, has been appointed Head Gardener to W. D. DANESON, Esq., Violet Bank, Langside.

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Letters addressed "Poste Restante" to initials or to fictitious names are not forwarded, but are at once returned to the writers.

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Gardeners, Baliffs, &c.

JOHN LAING AND SONS, having filled many important places, can RECOMMEND with every confidence, energetic and practical MEN of tested ability and first-rate character. Ladies and Gentlemen in want of Gardeners and Baliffs, or Gardeners for first-rate establishments, or Single-handed situations, can be suited, and have full particulars by applying to us. No fees charged.—JOHN LAING AND SONS, The Nurseries, Forest Hill, S.E.

WANTED, A GARDENER!!!—Having had long experience and an extensive connection we are in a position to RECOMMEND MEN thoroughly capable of filling with credit any situation in the Gardening World. On receipt of full particulars we will recommend a suitable Man. Correspondence invited.—R. B. LAIRD AND SONS, Successors to Downie & Laird, Seed Merchants, Edinburgh.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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GARDENER (UNDER).—Age 21; willing to be useful. Good character. Abstainer.—F. SMITH, Cambridge Cottage, Harmondsworth, Slough.

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To Head Gardeners.

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JOURNEYMAN.—Age 23; can be well recommended.—J. HARRIS, Garnstone, Weobley, Herefordshire.

JOURNEYMAN, in the Houses.—Age 18; four years' character from present situation. Total abstainer.—E. B., Palestine Villa, Brondersbury Road, Kilburn, N.W.

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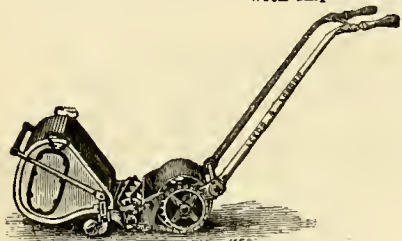
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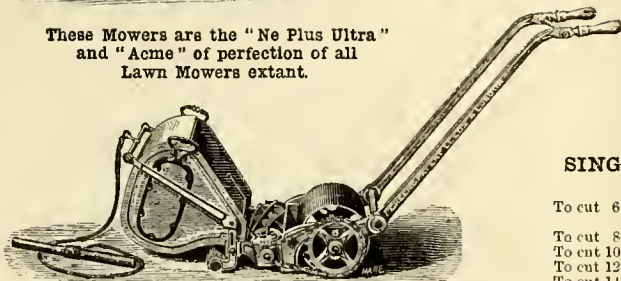
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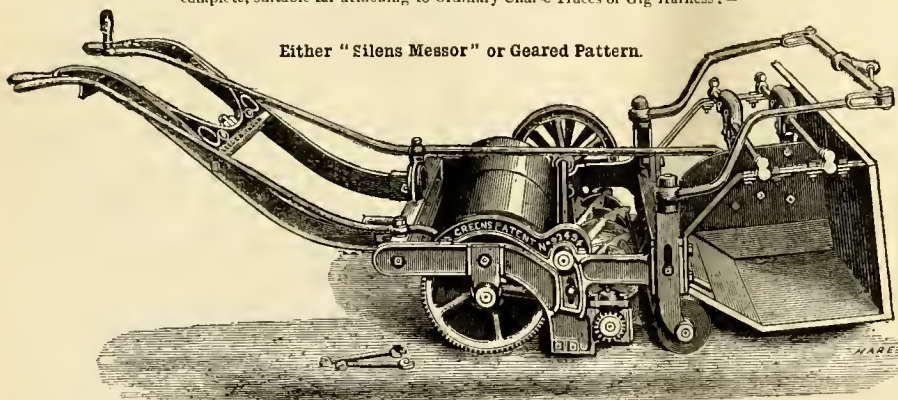
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To cut 8 in., do. do. ...	2 10 0
To cut 10 in., do. by a strong youth ...	3 10 0
To cut 12 in., do. by a man ...	4 10 0
To cut 14 in., do. do. ...	5 10 0

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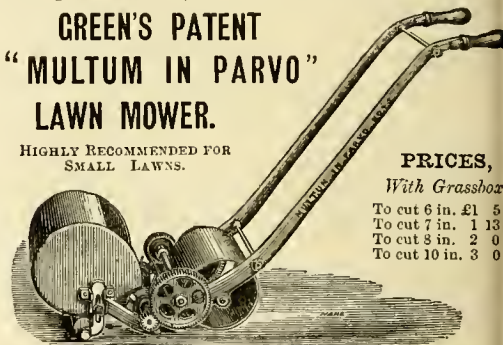
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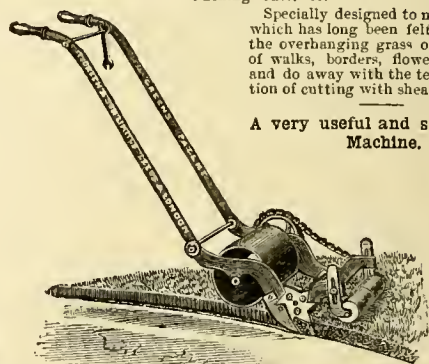


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Back Numbers of the "Gardeners' Chronicle."
NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

NOTICE TO SUBSCRIBERS.—All Numbers of the "Gardeners' Chronicle" from January 1, 1887, are still to be had.

CRYSTAL PALACE.
GREAT SUMMER EXHIBITION OF FLOWERS and PLANTS, SATURDAY, May 12.
Entries Close on May 5. Schedule of Prizes on application to Mr. W. G. HEAD, Superintendent of Gardens, Crystal Palace, S.E.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
The NEXT FLORAL EXHIBITION will be held in the Town Hall, Manchester, TUESDAY, May 1.
THE GRAND NATIONAL HORTICULTURAL EXHIBITION of 1888 (ONE THOUSAND POUNDS in PRIZES) will open on MAY 18. For Schedules apply to the undersigned,
BRUCE FINDLAY, Royal Botanic Gardens, Manchester.

THE SCOTTISH PRIMULA and AURICULA SOCIETY'S SECOND SHOW will be held in the Calton Convening Rooms, Waterloo Place, Edinburgh, on WEDNESDAY, May 9. Schedules and Members' Tickets may be had on application to
WM. STRATON, Hon. Sec., Annfield, Broughty Ferry.

PEOPLE'S PALACE, Mile End Road, E.
Chairman—Sir EDMUND HAY CURRIE.
FLOWER SHOWS will be held as follows:—
June 1 and 2 Spring Flowers.
July 6 and 7 Grand Rose Show.
August 8 and 9 Grand Summer Flower Show.
Schedules may be obtained on application to the Chairman as above. Band of H.M. Scots Guards each evening.

SUTTON'S FLORISTS' FLOWER SEEDS.
Begonia, Calceolaria, Cineraria, Cyclamen, Gloxinia, Primula, &c., the finest strains in existence. See SUTTON'S AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct from SUTTON and SONS, Reading.

The Best Present for a Gardener.
VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 6s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

SAMUEL SMITH, Tansley Nurseries, Matlock, offers:—RHODODENDRON PONTICUM and mixed Hybrids, 4 to 6 inches, 35s.; 6 to 9 inches, 55s.; 9 to 12 inches, 75s. POPLAR, Black Italian, 2 to 3 feet, 12s.; 3 to 4 feet, 15s. GORSE, 2-yr., 2s. 6d. Flowering SHRUBS, in variety, 1½ to 2½ feet, 50s. All at per 1000.

TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE Free on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

A Few Large Healthy
PALMS, 3 to 5 feet high, for immediate disposal—Latania borbonica, Seaforthia elegans, Chamerops excelsa, and Phoenix reclinata—from 10s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

Plant Now.
TROPÆOLUM SPECIOSUM, the well-known hardy scarlet climber. Fine strong plants with numerous strong growths, free and safe by post, out of pots, 1s. each; 9s. per dozen. Cash with Order.

HOWDEN and COMPANY, The Nurseries, Inverness, N.B.

THREE LARGE PALMS for Sale. From 10 to 15 feet high, very healthy. Would suit a specimen Exhibitor. For particulars apply to GARDENER, Emsworth House, Hants.

Verbenas—Verbenas.
WILLIAM BADMAN offers clean, healthy, well-rooted VERBENAS, at 8s. per 100; 50s. per 1000. Purple, White, Scarlet, Rose, and Crimson; or, 1000 Choice Named Sorts for 8s., if post-free 3d. per 100 extra. Packing included. Terms cash.
Cemetery Nursery, Gravesend.

SQUELCH and BARNHAM, North Row, Covent Garden, W.C., are OPEN TO DISPOSE of any quantity of MUSCATS and BLACK GRAPES, TOMATOS, CUCUMBERS, FRENCH BEANS, STRAWBERRIES, CHOICE FLOWERS, &c. Highest Market Prices obtained. Account Sales daily; Cheques weekly or as preferred by Sender. Baskets and Labels supplied. References given.

MESSRS. GREGORY and EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

CHOICE FLOWERS and FRUIT.—Highest Market Prices guaranteed. Empties free.
WISE and RIDES, Covent Garden, W.C.

BULBS.—SNOWDROPS and DAFFODILS WANTED. Send samples and quantities to RICHARD BARKER and CO., Bulb Growers, Frampton, Boston.

WANTED, Large Specimens of PALMS, such as SEAFORTHIAS, KENTIAS, ARECAS, CORYPHAS, LATANIAS, PHOENIX, &c. State lowest cash price to W. WEEKS, Nurseryman, 440, Fulham Road, S.W.

To Gardeners.
WANTED, various SMALL STOVE and GREENHOUSE PLANTS, good Alpines and other Herbaceous Plants, Double Violets, all kinds; named Show Carnations, Picotees, and Show Pinks; named Gold-laced Polyanthus, Small Tree Peonies, &c.—Send offers and particulars for Cash Trade to FLORIST, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

NOW IS THE BEST TIME TO PLANT
THE GOLDEN-RAYED LILY.

CARTERS' LAST CONSIGNMENTS of the GOLDEN-RAYED LILY of JAPAN, LILIUM AURATUM, have arrived direct from the Japanese Lily Farms. Selected Bulbs of this charming hardy Lily are obtainable at the following low prices, direct from the Importers, plump and sound as English-grown Bulbs. Prices, 4s., 6s., 8s., 12s., 18s., and 24s. per dozen, carriage free. Cases as imported, containing 100 choice Bulbs, price 40s.; sent free to any railway station in England and Wales, on receipt of cheque or P.O.O.

CARTERS', Royal Seedsmen by Sealed War- rants, 237 and 238, HIGH HOLBORN, LONDON, W.C.

To the Trade.
FRESH PALM SEEDS.—Write for Special Low Offer of all the leading kinds to H. DAMMANN, Jun., Breslau, Germany.

Begoniae a Specialty.
LAING'S BEGONIA SEED.—Awarded Four Gold Medals. Saved from Prize Plants. Unequalled quality. Choice mixed, Single or Double varieties, 1s. 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Order direct from us, to procure the genuine seed. The best and cheapest combined procurable.
JOHN LAING and SONS, Seedsmen and Begonia Growers, Forest Hill, S.E.

BY PARCEL POST.—BLOOMS of extra choice NARCISSUS or DAFFODILS, named, from 1s. 6d. and upwards per Box.—RICHARD BARKER and CO., Bulb Growers, Frampton, Boston.

STRUTHIOPTERIS GERMANICA.—Beautiful hardy Fern, very strong, direct imported, 25 plants, 10s.; 50 do., 16s.; 100 do., 25s. Cash with order only.
T. JANNONCH, Lily Nursery, Dersingham, King's Lynn, Norfolk.

FINEST LILY OF THE VALLEY CROWNS for Early Forcing, by Gustav A. Schultz, Berlin. For price write to JACOB and VALENTIN, 58, Cheapside, London, E.C.

SPECIMEN CONIFERS, TREES for Avenues, EVERGREENS and FOREST TREES in great variety. CATALOGUES Free on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

EUONYMUS.—20,000: all nice bushy well grown specimens, 9 to 30 inches, 15s. to £7 per 100; about 150 large ones, 3s. 6d. to 6s. each.
J. J. CLARK, Ouldstone Farm, West Brighton.

ALPINE and HARDY PERENNIALS.
CATALOGUE, with Cultural Notes and New Supplementary List, free. 100 ALPINES, nur selection, 25s. 100 SAXIFRAGES, 100 sorts, 25s.
STANSFIELD BROTHERS, Southport.

ASPARAGUS.—Plant now. Thousands of excellent plants. Special prices on application.
JAMES DICKSON and SONS, "Newton" Nurseries, Chester.

GRAPE VINES, most excellent Canes, best varieties, 3s. 6d., 5s., 7s. 6d. Descriptive LIST Free.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

STRAWBERRIES FOR FORCING.—Apply for LOVEL'S SELECT LIST of STRAWBERRY RUNNERS for 1888, with Prices; or send 3d. for Sample of Plants and Pamphlet. Runners ready in July. Great demand. Book early.—W. LOVEL and SON, Strawberry Growers, Driffield.

SELECTED SEED POTATOS.
Special low prices on application.
JAMES DICKSON and SONS, 108, Eastgate Street, Chester.

W. H. LASCELLES and CO., HORTICULTURAL BUILDERS, 121, BUNHILL ROW, LONDON, E.C. Plans and Estimates Free.
See large Advertisement, April 7, page 423.

SALES BY AUCTION.

Special Sale of Orchids on Monday Next, April 30. Important to large Buyers. An extensive importation received direct from a well-known Collector, for Sale, entirely without Reserve, 1500 ODONTOGLOSSUM PESCATOREI, TRIUMPHANS, HASTILABUM, and PHALENOPSIS; 500 CATTLEYA DOWIANA, &c.

MESSRS. PROTHEROE AND MORRIS will include in their SALE OF ORCHIDS, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 30, at half-past 12 o'clock precisely, without Reserve, various imported Orchids, which have arrived in excellent condition, consisting of the following:—

1500 Odontoglossum Pescatorei	100 Odontoglossum Phale-nopsis
300 „ triumphans	300 Ada aurantiaca
250 „ hastilabium	200 Cattleya Dowiana

The Sale will also include a few ESTABLISHED ORCHIDS, including fine specimens of *Cypripedium villosum*, *C. cantharidum superbum*, *C. selligerum*, and *C. concolor chlorophyllum*.

On view morning of Sale, and Catalogues had.

Special Sale on Monday Next, April 30.

CATTLEYA TRIANÆ
ODONTOGLOSSUM GRANDE.
ODONTOGLOSSUM CRISPUM (ALEXANDRE).
MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shattellworth, Carder & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 30, at half-past 12 o'clock precisely, a magnificent importation of CATTLEYA TRIANÆ from Ibague, whence have come so many of the grand varieties which have flowered in this country; an unusually fine lot of ODONTOGLOSSUM GRANDE, including some of the best masses ever imported; splendid importation of O. CRISPUM (ALEXANDRE), of the very best type; also LYCASTE SKINNERI and ODONTOGLOSSUM PULCHELLUM.

Special attention is called to the ODONTOGLOSSUM CRISPUM and O. GRANDE which have just arrived in the best possible health, and amongst the former will be found some unusually large masses.

On view morning of Sale, and Catalogues had.

Tuesday Next.

A yellow ODONTOGLOSSUM PESCATOREI. A grand variety, with a fine sound full flower; sepals and petals deep yellow, densely blotched and spotted with crimson; lip nearly white, with deep orange callus, and spots of same colour as those on sepals and petals.

MESSRS. PROTHEROE AND MORRIS are instructed to include the above valuable Plants in their SALE OF ORCHIDS on TUESDAY NEXT, May 1.

Harlesden.

Ten minutes' walk from Willesden Junction Station. Tibble's new pure white PELARGONIUM, not yet sent out, and acknowledged to be the finest white in cultivation. From its vigorous and profuse flowering habit, it is invaluable to all Market Growers, Florists, and others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. H. Miller to SELL by AUCTION, on the Premises, the Harlesden Park Nursery, St. Mary's Road, Harlesden, N.W., on TUESDAY NEXT, May 1, at 1 o'clock precisely, a large quantity of well-grown GREENHOUSE PLANTS, and other FERNS, PALMS, GARDENIAS, EUPHORIAs, and also a large quantity of the Tibble's new pure white PELARGONIUM, not yet sent out.

On view the day prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

N.B. The valuable FLORISTS' BUSINESS for DISPOSAL. Full particulars of the Auctioneers.

Tuesday Next.

ODONTOGLOSSUM ALEXANDRE, CHARLESWORTH'S Variety, Certificated April 24 last.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Charlesworth to include the above valuable ODONTOGLOSSUM ALEXANDRE in their SALE OF ORCHIDS on TUESDAY NEXT, May 1. It is a fine plant, with five large bulbs, all of them well-veined.

On view morning of Sale, and Catalogues had.

Tuesday Next.

Yellow ODONTOGLOSSUM PESCATOREI, a very fine spotted form, probably Knox's variety.

MESSRS. PROTHEROE AND MORRIS are instructed to include the above valuable Plant in their SALE OF ORCHIDS on TUESDAY NEXT, May 1.

On view morning of Sale, and Catalogues had.

Tuesday and Wednesday Next, May 1 and 2.

The BRENTHAM PARK COLLECTION OF ORCHIDS. Important two days' unreserved sale of this celebrated collection of ESTABLISHED ORCHIDS, by order of Robert Smith, Esq., who is giving up their cultivation.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from R. Smith, Esq., to SELL by AUCTION, at their Central Sale Room, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 1 and 2, at half-past 12 o'clock precisely, without Reserve, the whole of his well-known collection of ESTABLISHED ORCHIDS, amongst which will be found the following and other rare species:—

Cattleya Bluntii.	Lælia anceps Sanderiana.
„ exoniensis superba.	Oncidium ornithorrhynchum album.
„ Skinneri alba.	Odontoglossum Jenningsianum parvifolium.
„ labiata (autumn flowering var.).	Cologyne Massangeana.
Lycaste Skinneri alba.	
Lælia anceps Dawsoni.	

And many other Plants. Also "Batemann's Select Orchidaceous Plants," two series in 1 Vol., and nine Ferts unbound; and "Batemann's Second Century of Orchidaceous Plants."

The whole of the plants will be found to be in excellent health, and none will be sold privately prior to the Sale.

On view morning of Sale. Catalogues are now ready, and may be obtained of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Tuesday Next.

CYPRIPEDIUM CAUDATUM, Seeger's variety, the entire stock consisting of Four Plants.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Seeger and Tropp to include in their SALE OF ORCHIDS on TUESDAY NEXT, May 1, the entire stock of CYPRIPEDIUM CAUDATUM, Seeger's variety, consisting of four plants, the largest having eight growths. This variety was mentioned in the *Gardeners' Chronicle* for April 7, p. 428; and in the *Garden* for April 21. On view morning of Sale.

Friday Next.

LÆLIA ANCEPS ALBA.

CYPRIPEDIUM GODEFROYÆ.

ONCIDIUM SPLENDIDUM.

ONCIDIUM BIFOLIUM MAJUS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 4, at half-past 12 o'clock precisely, a splendid consignment just to hand of the handsome and rare LÆLIA ANCEPS ALBA, embracing large masses in superb condition, well furnished with sound unbroken eyes. Also a specially fine lot of the rare CYPRIPEDIUM GODEFROYÆ, in the very best condition; a quantity of the showy and extremely beautiful ONCIDIUM SPLENDIDUM, having ample green foliage and enormous Bulbs. Also very fine masses in excellent condition of the pretty and showy ONCIDIUM BIFOLIUM and MAJUS, together with specially selected masses with large Bulbs of ODONTOGLOSSUM PESCATOREI, O. GRANDE, O. HASTILABUM, O. BLANDUM; fine well-veined pieces of CATTLEYA AUREA, CYPRIPEDIUM SCHLIMM, DENDROBIUM NOBILE, fine dark varieties; ODONTOGLOSSUM CORONARIUM, O. TRIUMPHANS, DENDROBIUM ALBO SANGUINEUM, O. SPECIES in the way of LUTEO PURPUREUM SEPTRUM and FACETUM, LÆLIA MAJALIS GRANDIFLORA, L. ACUMINATA MAXIMA, VANDA DENISONIANA, and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

Special Sale of Stove and Greenhouse Plants,

from Sample.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE, as above, will take place on WEDNESDAY, May 9, for which they will be glad to receive notice of entries as soon as possible.

Tuesday and Wednesday, May 15 and 16.

HIGHLY IMPORTANT UNRESERVED SALE OF ESTABLISHED ORCHIDS. The First Portion of the celebrated Selborne Collection, by order of John Southgate, Esq., who is giving up their cultivation on account of ill-health.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from J. Southgate, Esq., to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 15 and 16 at half-past 12 o'clock precisely each day, the First Portion of this well-known collection of ESTABLISHED ORCHIDS, including many very fine specimens.

The plants are in the most perfect health, and comprise, amongst others, the following:—

Cattleya exoniensis	Cologyne Massangeana, 40 leads
„ Triane eboracensis	„ pandurata, 10 leads
„ labiata, autumn-flowering variety	Odontoglossum vexillarium, fine batch of large plants
„ Mossie Southgatei	„ prestans
„ Mendellii Selbornensis	„ polyanthum
„ Warnerii splendens	„ crispum Triane
Lælia anceps alba	„ Dormanianum
„ Lælia	„ Uro-Skinneri
Lycaste Skinneri alba	Oncidium macranthum, Southgate's variety
Phaius tuberosulus, 10 leads	„ tetracopis
Angreum Kotschy	Cypripedium Morganæ
Calanthe Sedeni	„ Schroderi, 6 leads
Dendrobium nobile nobiliss	„ enanthum superbum, 5 leads
„ endocheris	„ euryandrum, grand specimen
„ Falcenerii giganteum	„ albo-purpureum, 12 leads
„ Findleynum giganteum	„ Stonei, 2 grand specimens
Sobralia macrantha, Woolley's variety	„ Spicerianum magnificum, grand specimen
„ „ splendens, grand specimen	„ punctatum violaceum
Vanda anæstis, Veitch's variety, wonderful specimen	„ Læanum superbum
„ Sanderiana	„ grande, fine specimen
„ teres anura	Masdevallia racemosa Crossii, 24 leads
Aërides Lawrenceæ, Southgate's variety	„ Denisouian, grand specimen
„ Fieldingii, grand specimen	„ Harryana magnifica, grand specimen
„ Lobbi	
Dendrobium filiforme	
Brassia antherotis	

No plants will be sold privately prior to the Sale. The plants will be on view the morning of Sale. Catalogues are in course of preparation, and may be obtained of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Thursday Next, May 3.—(Sale No. 7676.)

Valuable ESTABLISHED ORCHIDS, from the Collection of Charles Walker, Esq., of Brettagh Holt, Kendal.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 3, at half-past 12 o'clock precisely, a fine lot of choice ESTABLISHED ORCHIDS, comprising splendid plants of

Cypripedium Sedeni	Cologyne cristata, 4 feet across
„ Spicerianum	Vanda tricolor, 12 spikes
„ levigatum	Cattleya exoniensis
Cattleya gigas Normanii, part of original plant	Oncidium macranthum
Masdevallia Cheloni	„ serratum
„ Veitchii	Lælia purpurata, 18-inch pan

Masdevallia bella, and a number of M. Harryana, including several splendid specimens in 12 and 15-inch pans, and comprising the very finest varieties. Also a fine lot of ORCHIDS in Flower and Bud from other collections; a few specimen STOVE and GREENHOUSE PLANTS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7676.)

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 3, by order of Messrs. J. W. Steel & Co., a fine importation of MILTONIA MORELIANA, M. CANDIDA GRANDIFLORA, ZYGOPETALUM MACKAYI, SOPHONITIS GRANDIFLORA, WARREA TRICOLOR, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7676.)

An Importation of DENDROBIUMS, including many distinct-looking pieces from Thursday Island. Received Direct.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 3, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by the late John Day, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire COLLECTION OF ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest, the whole in the finest possible condition.

Amongst other choice things will be found fine plants of:—

Cypripedium Druryi	Cologyne Massangeana
„ superciliale	„ cristata alba
„ Sedeni candidulum	„ Lowii
„ ananthum	Cymbidium Dayanum
„ Schroderi	Cattleya Skinneri alba
„ albo-purpureum	„ Reineckiana
„ Spicerianum	„ exoniensis
„ Ashburtoniæ	„ Wagneri
„ monophyllum	Masdevallia Harryana, Bull's blood
„ cardinalis	„ regalis
„ euryandrum	„ „ Dennisoniana
„ Swannianum	„ „ conchiferum
„ Arthurianum	„ Veitchiana
„ neo-guineense	„ macrura
„ Charles Canham	„ trochilus
„ Sanderianum	„ Chelsoni
„ Morganæ	Lælia anceps alba
„ Dayanum	Dendrobium Ainsworthii
„ Stonei platytenium	Oncidium macranthum
„ calurum	Odontoglossum Edwardii
„ melanophthalmum	„ Ruckerianum
„ vexillarium	„ muls
„ tonsum	„ Harryanum
„ orphanum	„ Andersonianum
„ Læanum superbum	„ crispum Wolstenholmsii
„ ananthum superbum	„ Wlickianum
„ purpuratum	„ Chesteri
„ politum	„ vexillarium
„ chloroneurum	„ Pescatorei
„ Fairrieanum	„ Alexandræ
„ Dormanianum	

Cypripedium barbatum grandiflorum nanum. Rare Vandas, Aërides, Phalenopsis, Angreums, &c.

The FIRST PORTION of the above COLLECTION WILL BE SOLD on WEDNESDAY and THURSDAY, May 9 and 10, at half-past 12 o'clock precisely each day.

On view morning of Sale and Catalogues had. N.B.—Every Plant in the Collection will be included in these Sales, and none sold privately.

Thursday, May 17.

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SALE OF ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 17, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of entering Plants for this Sale will send List as soon as possible.

Sale Thursday, May 24, Without Reserve. At 38, King Street, Covent Garden, W.C.

CATTLEYA LAWRENCEANA, specially large and fine flowered variety. See dried flowers.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 24, by order of Mr. F. Sander, a specially large and grand importation of CATTLEYA LAWRENCEANA. This consignment has been collected in a quite different district, from whence no Cattleya Lawrenceana have ever been introduced. There is as much difference between this and the ordinary C. Lawrenceana as there is between the starchy variety of Odontoglossum crispum and the broad petalled forms. The dried flowers on view will give some idea of the magnificence of this variety.

On view morning of Sale, and Catalogues had.

Southend-on-Sea.

To FLORISTS, NURSERYMEN, and OTHERS.

MR. A. TALBOT is instructed by the Lessee to SELL by AUCTION, at the Royal Hotel, Southend, on SATURDAY, May 12, 1888, a 4 o'clock precisely, the Valuable long Leasehold NURSERY GROUNDS of about 1 acre, known as "Raven's" Nursery Gardens. The whole to be sold as a going concern. On the grounds are three LARGE GREENHOUSES, two of which are fitted with Hot-water Pipes (with numerous valves) heated from a Weeks' Tubular Boiler, capable of heating 30,000 feet of 4-inch piping; there is also a capital Glass Pit, two Potting-Houses, two Cemented Water Tanks to hold about 1200 and 1512 gallons respectively. The whole held upon lease for 80 years from December 25, 1853, at the low rental of £20 per annum, the estimated rental value being £30 per annum. The whole of the Trees, Plants, &c., in the ground to be included in the Sale, the Purchaser to have the option of taking the choice and extensive stock of potted plants at a price to be quoted previous to the Sale.

Under instructions from the Freeholder, will be offered FOR SALE (immediately after above is sold), the FREEHOLDER'S INTEREST in the above-mentioned GROUNDS, GREENHOUSES, &c.

Descriptive Particulars, giving dimensions, &c., of Greenhouses, and conditions of Sale, can be obtained of the Solicitors, Messrs. BRIGHTEN AND LEMON, 4, Bishopsgate Street Without, E.C., and at Southend, Essex; or of the Auctioneer, Auctioneer's Offices, next the Bank, High Street, Southend, Essex.

WANTED TO RENT, a GARDEN, with Glasshouses suitable for Growing Plants, &c., for Sale. Address, **FLORIST**, Clifton Road, Weston-super-Mare.

RUGBY.—FOR SALE, 9-roomed HOUSE, FARM BUILDINGS, and 19 Acres of rich LAND. Suitable for a good Gardener. £1750.—Apply to **A. ABEL**, Harrogate.

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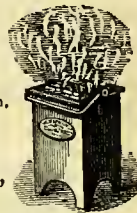
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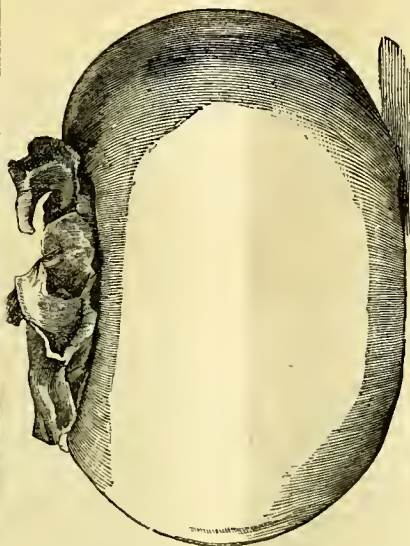
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THE
Gardeners' Chronicle.

SATURDAY, APRIL 28, 1888.

MARKET-GARDENS AND ORCHARDS.

WE have alluded on various occasions to the statistics furnished by the Agricultural Department and to the lessons to be derived from them, and now avail ourselves of a convenient summary of the subject provided in the last number of the *Quarterly Review*, and condensed for us by the writer of the article in question. The statistics of the home crops are first referred to, and it is pointed out that the returns of the Agricultural Department with respect to market gardens and orchards do not include nearly all the land devoted to culinary vegetables and fruit, because both are now grown extensively upon ordinary farms, as well as in noblemen's and gentlemen's gardens, and there are no columns in the schedules sent to farmers in which market garden crops, and large areas of such fruit as Strawberries and Raspberries, can be inserted. Last year the return, for Great Britain, the Isle of Man, and the Channel Islands, gave 63,140 acres for market gardens, 203,702 acres for orchards, and 12,533 acres for nursery grounds. Small fruit grown under trees is included in the figures for orchards, but the great Strawberry and Raspberry fields in Kent and elsewhere are not included. The figures for Great Britain (only) for 1867, 1877, and 1887, are as follows:—

	1867.	1877.	1887.
	Acres.	Acres.	Acres.
Market gardens	36,204	37,840	62,666
Orchards	148,221	163,290	202,234
Nurseries	11,779	11,952	12,473

It will be noticed that the increase in each division was much greater during the last decade than in the preceding ten years. In the ten years ending with 1877 there were increases of 1645 acres of market gardens, 15,079 acres of

orchards, and 173 acres of nurseries; while in the last decade the areas were extended by 24,817 acres for market gardens, 38,944 acres for orchards, and 526 acres for nurseries. It is certain, however, that the increase in acreage of land devoted to fruit has been much greater than is here indicated, as the writer explains. The acreage covered by market gardens in the counties which grow vegetables most extensively is next given, showing, of course, that the greatest areas are in those near London, Birmingham, Manchester, Liverpool, Edinburgh, Glasgow, Dublin, and other large towns. In the case of fruit, climate and soil have more effect upon the selection of districts than contiguity to the great markets.

POTATOS.

The figures relating to the Potato crop are next dealt with, and some people will be surprised to learn that the acreage of this crop in the United Kingdom, including the small islands, has decreased during the last twenty years. It was 1,500,860 acres in 1867, 1,394,553 in 1877, and 1,367,301 in 1887. In England and Jersey there has been an increase; but this has been more than covered by a decrease in Scotland, Wales, Ireland, the Isle of Man, and Guernsey. In spite, however, of the reduction in the area of the Potato crop, there is reason to believe that the produce has increased, not only because the yield in England and Jersey is much greater than it is in Ireland (where the falling-off has been most extensive), but also because more prolific varieties have been grown lately than those previously cultivated, and there has been less loss from disease. The "ordinary average" yield per acre is officially estimated at 6.32 tons for England, 5.43 for Wales, 5.79 for Scotland, and 6.11 for Great Britain, while a ten years' average for Ireland is only 3.30 tons. As to imports, it is surprising to notice how small they are in comparison with the bulk of the home produce. Including the supplies from the Channel Islands, they have amounted to only about 115,000 to 138,000 tons annually for the last three years, whereas we grow 6,000,000 to 7,000,000 tons in Great Britain and Ireland. The imports, moreover, have fallen off from 7,964,840 cwt. in 1877, to 2,762,958 cwt. in 1887, while the decline since 1880, when we imported 9,754,514 cwt. of Potatoes, has been greater still. Deducting the supplies received from the Channel Islands, which cannot be called "foreign," our imports of Potatoes are insignificant as far as quantity is concerned; and although they consist chiefly of new Potatoes, for which high prices are paid, the value of the whole of our foreign supply is less than half a million sterling per annum. In 1886, out of a total of 2,707,889 cwt., valued at £799,265, the Channel Islands sent us 1,288,961 cwt., valued at £459,395. Prices were excessively low in that year, the average value per ton of the imports being £5 18s., whereas in 1887 it was £7 1s. In the latter year the Channel Islands sent us 1,493,638 cwt.; France, 843,708 cwt.; Germany, 425,612 cwt.; and other countries make the total up to the quantity given above.

With respect to a table giving the details of imports and values for 1886, it is interesting to notice that the highest average price—£10 10s. per ton—is credited to Malta, and the next in order—£9 9s. 8d.—to Portugal, while the supply from the Channel Islands averaged £7 2s. 6d. Details for 1887, when prices were higher, are not yet available.

VEGETABLES.

It would be impossible to condense within a moderate amount of space the details given in the article as to the sources and periods of the home and foreign supplies of the various vegetables. Broccoli or Cauliflowers, it is remarked, are to be obtained all the year round. The Broccoli season is supposed to commence in December, or occasionally at the end of November, when considerable

quantities arrive [in London [from] Cornwall and Cherbourg. Cabbages, Coleworts, and Brussels Sprouts are almost exclusively of home growth. Forced Asparagus is to be obtained in London all through December and January by those who do not mind paying 15s. to 20s. a bundle. The first supply of natural growth comes in about the second week of February from the north of Spain, and the French crop is ready early in March, English not being in considerable supply till the end of April. Green Peas have lately been sent to London in increasing quantities through April and May from Guernsey, where they are reared in cool houses. They commonly sell at 1s. per pound in the pod. French Beans, grown in hot-houses with Grapes, come from the Channel Islands as early as January, and some from France about as soon. The extraneous supply is kept up till the end of June, the bulk of the English produce not being ready till July. Mushroom-growing is referred to as highly profitable.

Foreign competition in the supply of vegetables to our markets, it is pointed out, has unquestionably increased. No quantities are given in the official returns for other vegetables than Potatoes and Onions; but the value of unenumerated raw vegetables imported has been almost constantly rising for more than twenty years. In 1859 it was £24,379; in 1867, it was still as low as £68,644, but rose suddenly to £134,376 in the following year. After a brief period of fluctuation, the value stood at £132,124 in 1875; and since that year there has been an unbroken annual increase up to 1887, when the amount was £600,882. In 1886, the latest year for which the full details of imports are available, the value of those received from France was £294,848, out of a total of £540,670. After all, however, the proportion of the foreign to the home supply of vegetables must be extremely small. Home growers complain that foreigners "take the cream off the market," and no doubt this is true, as the foreign produce comes before the English is ready, and commands extra prices accordingly; but it is pointed out that the Paris district, which has scarcely any advantage over the London district in respect of climate, and none over the South of England or Ireland, contributes a large proportion of the foreign supply of vegetables; and that the Paris market gardeners are able to forestall our own mainly by means of the use of glass, including the bell-glasses (*cloches*), which they extensively use. It is remarked, however, that the preference rail rates and superior train facilities offered by the railway companies to foreign producers handicap our own market gardeners unfairly.

FRUIT.

Turning to the fruit supply the writer first refers to Apples, remarking that the great bulk of the consumption is provided for by home growers, though imports, chiefly from the United States and Canada, and to a smaller extent from Paris and Holland, have increased in recent years. It is intimated that imports are encouraged, not only by a deficient home supply of the best sorts of Apples, but also by the neglect by growers of proper arrangements for storing their produce, and by their carelessness in sorting and packing. In a barrel of American or Canadian Apples, it is remarked, the fruit is all of fair size, and there is no difference in the sample at the top and at the bottom of a barrel. This is an instance of honesty being the best policy, for buyers have confidence that when they see a good display of fruit at the top of the barrel, they will find all good alike; whereas they expect to find the bulk in an English package inferior to the Apples on the top. Then, it is added, all but a very small proportion of the large area devoted to Apple orchards in this country is occupied with trees either of inferior sorts or too old to produce remunerative crops. The lack of legal security for planting done by tenants is mentioned as largely accountable for this state of things, though it does not explain neglect on the part of owners. With respect to the imports of Apples,

they have been separately enumerated only since 1881. In 1882 the quantity was 2,386,805 bushels, and in 1886 it was 3,261,460 bushels; while it fell to 1,948,843 bushels in 1887, mainly because of the deficient crop in America. Quoting an estimate given by Mr. Whitehead to the effect that a seven years' average crop of Apples in Kent would be equal to about 130 bushels per acre, the writer says that, at this rate, our imports in 1886 were equivalent to the produce of about 25,000 acres of orchards, producing as much as those of Kent, and that the value of the imports, £857,095, was equal to over £34 an acre on the area just stated. This large foreign supply, he declares, could be profitably superseded by Apples of home growth.

After the principal sources of the supply of other kinds of fruit have been given, reference is made to the greatly increased consumption of Grapes and Tomatoes in this country, and to the success with which it has been met by a few extensive growers in England and Scotland, who are quite able to hold their own against the Guernsey men, by producing the two kinds of fruit in the same glasshouses until the vines completely cover the glass. The approximate London supply of English hothouse Grapes in 1886, according to Mr. Barron, was 400 tons, while the Channel Islands sent over 500 tons. One English grower, Mr. Ladd, of Bexley Heath and Swanley, sent 50 tons in 1887.

The imports of raw fruit, exclusive of Apples, which amounted to 2,614,046 bushels in 1882, fell off in the next three years; rose to 2,822,401 bushels in 1885, and fell to 2,601,334 bushels in 1886, and to 2,479,904 bushels in 1887. Thus it appears that if our foreign supplies of choice fruit have increased, those of common sorts have diminished. The enormous crop of 1886 brought down the prices of most kinds of fruit to a serious extent; and though there was a partial recovery last year, the glut which filled the jam factories in the previous year still had its effect.

HOPS.

The statistics relating to Hops do not embody any very great variations. The area was 64,284 acres in 1867, 71,239 acres in 1877, and 63,706 acres in 1887. Thus there is no increase in the home supply; and the imports during the last two years have been below the average of the previous ten years. The fall in value is well shown by the decrease in the average value of imports, which was £7 per cwt. in 1877, nearly £9 in 1882, £3 15s. in 1885, £2 18s. in 1886, and not quite £3 in 1887. The fall is attributed chiefly to the extensive use of Hop substitutes in brewing.

THE CHANNEL ISLANDS.

Flowers are briefly dealt with, and the concluding portion of the article is devoted to a description of the successful garden farming of the Channel Islands. In Jersey farmers pay commonly £9 to £10 an acre, and sometimes much more, for land on which to grow Potatoes, and yet make a living off small areas of land. Twenty acres is a rather large farm in Jersey, and as much as fifty acres is a very uncommon size for a farm. The average size is about 7½ acres. Last year Potatoes were grown on 6488 acres of land in Jersey, or about one third of the cultivated area. The exports amounted to 50,670 tons, valued at £434,917. Here, then, was an average return of over £67 per acre, from which the expenses of sending to England should be deducted to get at the nett returns. But, on the other hand, part of the seed for another year was reserved, as well as a considerable quantity of tubers consumed as food during the summer. For winter use, Potatoes are imported by the Jersey people. As to Guernsey, the success of the garden-farmers there is mainly due to the extensive use of glass. Many of the smallest of the farmers have glasshouses, in which they raise Grapes, Tomatoes, Potatoes, and Peas without artificial heat. The hothouses are chiefly in the hands of large growers, and of gentlemen who sell what they do not require for their own use. The returns of the Guernsey Chamber of Commerce show that the exports of vegetables, fruit, and flowers have nearly doubled since 1883. In 1887 about 500 tons of Grapes were exported, with 1000 tons of Tomatoes.

The value of the exports of fruit, vegetables, and flowers is put down at £100,550 for 1887, and the list does not appear to be complete. Yet there are only 11,773 acres of cultivated land in Guernsey and the adjoining small islands, and the population is very dense. As in Jersey, though not to the same extent, there is some advantage in Guernsey as to climate; but the enterprise and industry of the people of both islands are remarkable, and chiefly account for their wonderful prosperity.

AUSTRALIAN BAOBAB.

IN our last issue we gave an illustration of one of the giants of the vegetable kingdom in the shape

such nearly allied Bombaceous trees in such widely remote continents as Africa and Australia. The presumption of course is, that in some former state of the world's condition Baobabs or their representatives might have existed in the intervening countries where in consequence of changed conditions none now are found.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM CONSPICUUM ×, *hyb. Angl.*,
orig. dub.

This is an exceedingly stately Cypripedium. Mr. R. H. Measures, the lucky possessor, compares its

which are very conspicuous. The inferior connate sepal is much narrower, oblong, acute, very light green, with thirteen light green nerves. Petals ligulate, broader towards the top, blunt, acute, ciliate on the upper margin, with dark mid-lines. Superior part almost black at the base, then chestnut, verging to reddish-ochre at the top. The inferior half is light brown, dark spotted at the base, verging to reddish-ochre at the top. The lip is nearly like that of *Cypripedium villosum*, but much larger, with much shorter horns, brown in front, ochre-coloured underneath. Staminate with ochre-brown blunt lobes outside, with a green apiculus, and a green callus inside.

This stately plant was purchased long ago by Mr. R. H. Measures, of Streatham, in a sale; its origin is unknown. It stands, no doubt, near the × *Harrisianum* group. It is astonishing in its large dimensions and short-horn on its lip. The varnish of the flower is excellent. *H. G. Rehb. f.*

CYPRIPEDIUM CONSPICUUM PICTUM +, *n. var.*; *hyb. Angl.*

Perhaps this is an offspring from the same seed-pod as *Cypripedium conspicuum*. Its merit is based on a purple wash on both sides of the upper sepal, and a light green inferior base to the petals. It was likewise kindly sent by Mr. R. H. Measures, of Streatham. *H. G. Rehb. f.*

EPIDENDRUM STAMFORDIANUM (Bat.) LEEANUM,
n. var.

Mr. W. Lee sends me a lovely variety of this fine plant, in which the sepals and petals are covered with purple hieroglyphic-like markings on an ochre-coloured ground inside, scarcely translucent outside. The broad lip is of the lightest rose colour, and covered all over with fine purple spots inside. It is very distinct from *Epidendrum Stamfordianum* Wallacei. It was likewise collected by Mr. Alexander Wallace, who appears to have been singularly fortunate as to this fine species. I very gladly dedicate this very surprising plant to Mr. W. Lee, whose grand collection is so duly praised. *H. G. Rehb. f.*

CELOOGYNE LACTEA, *Rehb. f.*, *MSS. in litt. ad beat. exc. J. Day, Ap., 1884.**

My notes of 1884 state this to be an "awkward" plant. My meaning was, it was an awkward one to be named. I had it first from the late Mrs. J. Day, then something quite like it, but with a light brown top to the lip, from Mr. B. S. Williams; and finally I have now splendid materials from Major Lendy. The plant is much like *Celogyne flaccida*, as all the above-named orchidists have told me, and it may be compared to *C. Hüttneriana*, which was sent me as *elegans* by Rev. C. S. P. Parish, as I knew *lutea* after being named though I am not very clear, whether the *C. Hüttneriana* of this gentleman's, or his lady's drawing, may not belong to this. Our plant has plump, short tumid shining light green wrinkled and costate bulbs and short, very thick, petioled cuneate oblong acute leaves (7 to 8 inches long by 1 to 9 inches wide). *C. Hüttneriana* has much longer leaves, the median keel of the lip's disc obliterate, and the bulbs narrower. The side lacinia of the lip are blunt obtuse angled, and the lip has no gay yellow tint. The raceme is rather one-sided (one to eight flowered). The deciduous bracts are very broad, oblong, convex, acuminate. I have only received them from Major Lendy. The flowers are very much like those of the old *Celogyne flaccida*, Lindl., but the inflorescence is correct. Colour cream-white, with a very lightest yellowish hue, with brown veins on the side lacinia of the lip on a light ochre ground, some bright yellow

* *Celogyne lactea*, n. sp.—Pseudobulbo abbreviato crasso fusiformi paucirostato; foliis geminis petiolatis cuneato-oblongis acuminatis valde crassis; racemo porrecto unilaterali 6–8 floro; bracteis cito deciduis late oblongis acuminatis concavis; sepalis oblongis obtuse acutis; tepalibus linearibus lanceolis, lobello trifido, angulis lateralibus obtusatis, lacinia media porrecta, carinis crenulatis ternis a basi in basin laciniae antice; androclasio trilobo seu bilobo. Ex Burmah import. exc. Lendy, Sunbury-on-Thames. *H. G. Rehb. f.*



FIG. 70.—THE AUSTRALIAN BAOBAB, ADANSONIA GREGORII.

of the African Baobab (see *ante*, p. 494). This week we are enabled to represent its Australian brother, *Adansonia Gregorii*. It is a native of the sandy plains of North Australia, and differs from the African species, *A. digitata*, in its smaller fruit with a shorter foot-stalk. It was originally discovered by Mr. Gregory, who records that the largest tree seen by him was 85 feet in girth at 2 feet from the ground. The pulp of the fruit has an agreeable acid taste, like cream of tartar, which is very refreshing to the traveller.

For our illustration (fig. 70), representing "a camp" of West Australian surveyors near Cambridge Gulf in the cool season of 1887, we are indebted to the kindness of Baron Ferdinand von Mueller. It would form the theme of an interesting discussion to inquire into the significance of the presence of two

growth and leaf to that of *Cypripedium Amesianum*. The leaf is ligulate-acute, more than an inch broad in the middle with sharp mid-nerve underneath. Colour of upper side deep green, with very obscure darker markings; underneath the colour is much lighter, and there is at the base a large number of small brownish dark spots.

The peduncle is dark brown, with numerous hairs which are not nearly so long as those of *Cypripedium villosum*. The fine ancipitous bract surpasses in length half the ovary, and is covered with rows of dark lines and spots on the inferior part. Ovary green, with dark ribs, hairy, but not at all comparable to the hairiness of the above-named *Cypripedium*. Upper sepal broad, elliptic, acute, light green bordered with white, with fifteen to seventeen dark blackish nerves, which run nearly to the margin, and

at the base of the mid-lacinia and anterior sinus of the side lacinia very conspicuous underneath. Mid-line of the column and borders brown. Major Lendy imported a couple of small bulbs five years ago from Burmah, which have now flowered for the first time. *H. G. Rehb. f.*

ODONTOGLOSSUM EXCELLENS × **CHRYSEMELANUM**, *n. var.*

It is a remarkable illustration of the most uncommon good fortune that Sir Trevor Lawrence, Bart., M.P., P.R.H.S., after having had the genuine *Odontoglossum excellens* itself, should now be in possession of a new variety, *chrysemelanum*, which is spotted all over, and has neither a white disc on the upper sepal, nor on the petals, while the lip and the column are also yellow. It is a great beauty, and may be unique. There are, however, two other unique varieties, which may belong to *Odontoglossum excellens*. The one is *Odontoglossum excellens eugenes* (eugenes, Hort. Veitchi). It is very like *excellens*, but blotched on the petals. The other is *Odontoglossum excellens maculatum* (Vuystekeanum maculatum, Rehb. f.), which belongs, indeed, rather to *Odontoglossum excellens* than to *Odontoglossum Vuystekeanum*. It is easily discerned by the toothed petals and white column. *H. G. Rehb. f.*

ODONTOGLOSSUM HARRYANUM, *Mr. Wilson's variety.*

I have just received, through Messrs. J. H. Veitch & Sons, of Chelsea, a flower of a most distinct variety of this magnificent Orchid. It comes from Mr. Robert Wilson, of Mayfield, Falkirk, N.B., and may be distinguished as above. It may be briefly designated as a very fine variety, with the colours more intense than in the original form. The sepals are intense blackish-maroon, the yellow transverse markings and the yellow margin being almost entirely absent, while the same may be said of the petals. In the lip the maroon markings of the side lobes are more pronounced than usual. It is quite possible that in this, as well as in so many other Orchids, a considerable range of colour variation may be found to exist. *R. A. Rolfe.*

THE CLIVEAS AND THE AMARYLLIS.

At the Ghent Horticultural Exhibition I had the opportunity of making some interesting observations on the Cliveas. A large number was exhibited grown from seed. Some had fine large heads of flowers, all open at the same time, each flower being large, broad-petalled, of good form, and full coloured; others were of inferior form and colour. There was no great variety. I suppose the reason is, that there is only the one species known to horticulture, and therefore all are bred in and in; so that the degree of variation is small, and it would take years to produce any very striking divergence from the parent plants. [Among seedlings, all intermediate forms between the old China, with narrow pendulous flowers, and the new *Imantophyllum*, may be seen. *Ed.*]

The interest of the Clivea, however, from a morphological point of view, is, in my opinion, this. It might be looked upon as a regularly shaped *Hippeastrum*; the outer petals small, and the inner ones large, but, unlike those of the *Hippeastrum*, all are regularly placed, and of uniform colouring. Curiously enough, although the corolla is regular, the stamens and pistil are to the one side, and, like those of the *Hippeastrum*, mostly bent towards the inner and lower petal. As, however, the number of flowers on the Clivea head is great, some of the flowers, according to position, have their reproductive organs as above, others have them bent towards one of the outer petals, and others bent towards a point between the two. In all, the pistil was bent towards one side, but in some three stamens were bent towards the pistil and three erect; and in others among the central flowers the stamens were scattered, each lying on its corresponding petal.

Here, therefore, we seem to have the regular flower, or one like it, from which the irregular ones of the *Amaryllis* and *Hippeastrum* were developed

through insect agency. Probably in its origin the pistil was erect in the middle; but in such a position insects could get at the nectar without touching it. Once a variation occurred, in which the pistil was bent to the one side, it had a chance of becoming fertilised, and of propagating that variation. Another variation with some of the stamens bent to one side, also would increase the chance of fertilisation. Then the irregularity of the corolla, following the stamens and pistil, and its various colorations and venations, directing the insect's eye to the nectar-tube, would in time come about by the known process of natural selection.

From this point of view, and apart from its intrinsic beauty, I think the Clivea is a very interesting *Amaryllid*. Messrs. Boelens Frères, of Ledeburg, Ghent, are the most extensive breeders and exhibitors of this plant. As to *Hippeastrums*, there was nothing to be compared with those of Messrs. Veitch & Sons, Chelsea. M. Vuysteke and M. Dooghey exhibited seedlings mostly of the species with a large green centre, crimson tips, and streaks of the same colour; and Boelens Frères exhibited seedlings principally of the vittata species. *E. B., Ghent, April 18.*

ON THE USE OF NITROGENOUS MANURES.

FROM a series of investigations by Professor Paul Wagner, Director of the Agricultural Research Station at Darmstadt * endeavours have been made to assist in the solution of those questions on manuring which relate to the nutrition of cultivated plants with nitrogen.

1. *Does the Application of Nitrogenous Manure Produce an Increased Yield of all Crops?*—Different plants were manured with varying proportions of nitrogen per acre. The yields of cereal crops, Carrots, Potatoes, Turnips, Flax, Rape, and grass showed a considerable increase, and the gains were exactly proportional to the increase of manure, while on similar soils no extra yields of Peas, red Clover, Lupines, Vetches, and Lucerne were obtained; proving that leguminous plants obtain their nitrogen from sources inaccessible to the cereals, Potatoes and Turnips, &c.; and these supplies are so copious that under normal conditions of cultivation the plants do not need manuring with nitrogenous salts.

Should the soil, however, be poor, it is recommended to apply, even to leguminous plants, a small quantity of nitrogen in the form of nitrate soda or ammonium salts, to help them over a critical period of their growth, and to assist them in arriving as quickly as possible at that stage of development in which they possess the capacity of obtaining nitrogen from the air and subsoil.

2. *In what way does an increased yield result from the manuring with nitrogenous salts?*—The main object consists in endeavouring, by the supply of ample and easily absorbed nourishment, to bring the young plant as rapidly as possible to that condition in which it can offer successful resistance to all injurious influences, and then to carry it on to perfect maturation.

If the necessary quality of soluble nourishment is wanting in the soil, manuring with even a small amount of nitrogen considerably increases the yield of crop. At the same time it must be remembered that a plant does not live on isolated nourishing materials, but on a "food" composed of nourishing materials. A plant can form no leaves, no stems, flowers, or fruit from nitrogen, phosphoric acid, potash, or lime alone; the different nourishing ingredients must co-operate, and each must be present in proper quantity.

3. *Quantity of Nitrogen to be used.*—Plants require more than mere nutriment; they require water, warmth, and light. If there is a want of water or of light, or of warmth sufficient to produce a growth proportional to the nitrogenous manure given, the

excess of nourishing materials is of no use. Manuring with nitrogen can only take full effect so far as not only the other nourishing ingredients but also water, warmth, and light are present in sufficient amount. All other elements the cultivator gives in excess, but nitrogen should be measured out to the plants; with nitrogen he, so to speak, feeds his plants, regulates their activity of production, and puts them in a position to take full advantage of the favourable conditions of growth presented to them, permanently or at intervals—favourable characters of the soil, the climate, and the weather.

The pamphlet will repay a careful perusal. *John J. Willis, Harpenden.*

LANTANAS.

MR. THOMAS BAINES includes these—and rightly, too—among greenhouse plants. But they make very good summer-bedding plants also; for Mr. Barron frequently uses them with good effect in the gardens of the Royal Horticultural Society; and they can occasionally be seen bedded out in the London Parks and other places where bedding displays are made. M. Victor Lemoine, of Nancy, has been very successful in raising new varieties, and recently Mr. Barron grew a collection of them and others also at the Royal Horticultural Society's Gardens at Chiswick, having them in pots and treating them as greenhouse plants; this afforded a good opportunity of estimating their value as decorative plants under glass. One of the freest and strongest grown is named *Ver Luisante*, orange-red with orange centre, deepening in colour with age; the young flowers open orange, and deepen in colour as they mature. This would make a good exhibition specimen when well grown. *Le Styx* has very fine, rich, deep orange-red flowers, produced in large and bold trusses; it is a very free grower also. *Le Vainqueur* is very like *Le Styx*, but not so good in quality; and the former may be said to be put out of date by its newer *confrère*. *Mons. Boucharlat* has fine and showy pale orange flowers; the individual blossoms are large, and they are produced in very fine trusses that are bright and striking; it is a remarkably good grower also, being strong and robust. Surprise is in much the same way, but paler in colour. *Le Patriote* is a very pretty variety; the flowers open pale golden-orange, changing to pink, and with a rosy-pink centre; a fine and distinct variety. *Venusta* is salmon coloured with orange centre; very fine in the pip and truss; distinct, and very good. *Clio* opens gold, and gradually changes to lovely rosy-purple; fine pip and truss, and a good free grower. *Triomphe du Commerce* is of a pale lilac-pink colour, deepening in colour with age; fine pip and truss, and it can safely be marked very good. *Grisette* is lilac and mauve, tinted with rose; the flowers open pale lemon, and change to the above—a peculiarity with all the Lantanas; it is a good grower and very free. *Rosa Mundi*, rosy-purple, is very pretty indeed. *Souvenir d'un Ami* opens gold; the flowers then become orange-salmon, and finally the salmon deepens to rosy-purple, very fine pip and truss, and good habit. *Comtesse de Beneval* opens yellow, and changes to pale rosy-pink; it is a very pretty and free variety. *Meteore* opens cream, and changes to pink and pale rosy-lilac; it is a pretty and pleasing variety.

Coming now to what may be termed the yellow-flowered varieties, one of the best—probably the very best—yellow is *Reveille*, deep yellow in colour, very fine and free. *Pluie d'Or* is pale golden-yellow; flowers and trusses alike small. *Figaro* bronzy-yellow, is very free of bloom also. *Bijon*, orange and gold, is of dwarf habit, very free, and makes an excellent pot plant. *Grappe d'Or* is of a fine hue of gold, very dwarf in growth, and exceedingly free. *Californie* is of a distinct pale yellow colour, good close habit, and very free indeed.

One of the best whites is *Innocence*, it opens pale lemon or primrose, then changes to white; of good habit and very free. *Bouquet Blanc* is yellow, changing to white. Lastly, comes *Le Lis*, which

* Translated by George G. Henderson, M.A., B.Sc., and published by Messrs. Whittaker & Co., London.

opens pale yellow, and changes to pure white; good habit and very free. Perhaps, taking all things into account, this is the best white grown.

The best dozen varieties, selected from the Chiswick trial, will be found in *Ver Luisante*, *Le Styx*, *Mons. Boucharlat*, *Le Patriote*, *Venusta*, *Clio*, *Triomphe*, *Trompe de Commire*, *Comtesse de Beueval*, *Reveille*, *Bijou*, *Innocence*, and *Le Lis*.

In some parts of the country a very fine and striking rich orange-crimson variety, named *Le Grenadier*, is grown as an exhibition plant, and in much the same style as a *Vinca*. I have seen very fine examples of this clothed with excellent foliage, and largely covered with fine and showy trusses of flowers. It gives a telling colour in a group of twelve or more specimens.

Mr. Baines remarks that the *Lantanas* were "once much more generally in fashion than they are now." They are quick growing evergreen greenhouse shrubs, easily cultivated, and blooming freely and continuously. They are all rapid growers, and should be liberally supplied with moisture when they are forming wood and flowers. *R. D.*

CYTISUS RACEMOSUS AND ITS ALLIES.

THERE is a small group of very handsome early-flowering *Cytisi*, in which some little confusion of names exists, and as I have lately had to look into the matter, it may be of interest to place the following notes on record. *Cytisus racemosus* first appeared in Marnock's *Floricultural Magazine and Miscellany of Gardening* in 1837 (vol. ii., p. 37, t. 19), as follows:—

"Messrs. Fisher, Holmes & Co., of Handsworth Nursery, exhibited, in May last, a handsome specimen of this plant in full bloom. Its appearance is that of a hardy shrub, of moderately robust habit, forming a handsome bush, 3 feet or upwards in height. The leaves are alternate, stalked; leaflets three, ovate-lanceolate, of a somewhat silvery appearance. The flowers are terminal, about 6 inches in length, and of a bright yellow colour. Its flowers are produced during May and June. We have been assured that this plant is quite hardy, and we shall indeed be delighted if it really prove so. We can ascertain nothing more of its history than that it was first introduced into this country by Messrs. Young, of Milford. Solitary plants have found their way into other nursery establishments, but it is reported as exceedingly rare. We hope shortly to give additional and more satisfactory information respecting it."

There is a matter of considerable interest about this record, for which purpose I have reproduced it *in extenso*, namely, that it refers to a different plant from the one now universally known in gardens as *C. racemosus*. The plate represents a plant with larger, more elongated leaflets, and identical, I am convinced, with *Cytisus stenopetalus*, a Canary Island plant, which may now be seen in flower in the greenhouse at Kew. How the name became transferred to its present owner I am not prepared to say; but this plant appears to have a yet earlier record. I believe it to be the one described by Link in his *Enumeratio Plantarum Horti Berolinensis* (vol. ii., p. 224), as *Genista bracteolata* as long ago as 1822. Link's description is rather short, but there is a specimen so named in the herbarium of the late Thomas Moore, now at Kew, which agrees in every respect with this description, and which on the other hand is apparently identical with the *Cytisus racemosus* of gardens. Perhaps our Berlin friends may have Link's authentic specimen, and will be good enough to say if I am right on this point.

Cytisus Atleeanus of gardens (or *Atleyanus*, as spelt in Koch's *Dendrologie*) is a very old plant, the *C. ramosissimus* of Poiret. It has smaller, more rigid leaflets than *C. canariensis*, and a more compact habit; but I doubt if it represents more than an extreme form of that well known species, although Webb keeps the two distinct. The origin of the garden name I do not know.

C. Everestianus is said to have been raised in some garden; it is very similar to the garden *C. racemosus*, but the flowers are of a deeper colour, the leaflets more silky, and the habit a little more compact. It is well figured in the *Revue Horticole* for 1873, p. 390.

Genista Spachiana, Webb, *Bot. Mag.*, t. 4195, is another Canary Island plant of the same group. Webb, who contributed the text of this plate, remarks that the plant is indigenous to the high mountains of the north-west of Teneriffe; and that it was omitted from the *Phytographia Canariensis* because the author had seen only fruiting specimens, and could not decide on the specific value of the plant. It had now flowered from seeds formerly sent by him to Europe, both at Mr. Young's nursery at Milford, near Godalming, and at the *Jardin du Roi* at Paris. He also mentions two other new species, one of which he calls *C. discolor*, and which had also flowered in Mr. Young's nursery. This was in 1845, and it is a significant fact that Marnock's *C. racemosus* originated in the same nursery some few years before. It is possible that Webb may have sent seeds of all three species to Europe. This would throw a further side light on the identity of *C. racemosus*, Marnock, with *C. stenopetalus*, a well-known Canarian plant; while of *C. racemosus*, Hort., I have not as yet been able to discover any wild specimens.

The species of this group were formerly included under *Genista*; afterwards elevated by Webb to the rank of a distinct genus, called *Teline*, but now regarded as a section only of *Cytisus*. The group comprises about twelve species, three of which are limited to Madeira, six more to the Canary Islands, two are common to the Canary Islands and the western Mediterranean region, while the remaining one is only found in the region last named.

I am unable to identify *C. racemosus*, Hort. (*Genista bracteolata*, Link.) with any of the above, which is rather singular, considering how long it has been in cultivation. In habit it closely resembles *C. canariensis*, but it has not the spreading pubescence of that species, and in this respect it rather approaches the silky pubescence of *C. stenopetalus*. So that, after all, the plant may be a very old garden hybrid. If there is anyone interested enough in the question to try the result of hybridising these two species together, it might perhaps help us to arrive at some more definite conclusion on the point, for it is unfortunate that the origin of so useful a plant should be involved in so much obscurity. *R. A. Rolfe*.

PLANT NOTES.

PLEUROTIALIS INSIGNIS.

THIS distinct and handsome plant, whose flowers are quite gigantic for the genus, is again flowering in the Kew collection, this time the raceme bearing four flowers. It was described by me in these pages about a year ago, and a figure may also be found in the *Botanical Magazine*. Three of the four buds are unexpanded at the moment of writing, and, singularly enough, in each of them may be seen through the semitransparent tissue at the sides of the buds numerous glistening drops of water. I do not know if the feature is constant, but do not remember to have observed it before. In any case it has been deposited there as a result of ordinary nutrition, not by extraneous means. *R. A. R.*

BROWNEA MACROPHYLLA.

Flowers and leaves of this remarkable plant have been sent to Kew by W. H. Crawford, Esq., of Cork, who has long possessed plants of it, as is shown by the description and figure published in the *Gardeners' Chronicle* in 1873 (p. 779), and in the *Garden* in 1879. The plant is large, with a thick woody stem, and the flower-heads, some of which have been described as being over 3 feet in circumference, are similar in shape to those of *B. grandiceps*, but the stamens are much longer; they are bright scarlet in

colour. The head is almost sessile on the woody stem, and Mr. Crawford states that the flowers are developed most freely on those parts of the stem which are shaded. It is just possible that *B. macrophylla* is a hybrid, *B. grandiceps* and *B. coccinea* being the parents. The latter species produces its flowers on the woody stem and branches. The large shining green foliage of *B. macrophylla* suggests the idea that it is a hybrid from these two. A figure of it has been made for the *Botanical Magazine*, W.

HARDY PERENNIALS FROM SEED.

OF late years the cultivation of hardy perennials has increased to such an extent that it is no idle phrase to say, the man who has charge of a private garden and who fails to study their cultivation and nomenclature, is not abreast of the requirements of the times, and the sooner he recognises this fact in a practical form the more it will be to his advantage. The subject of nomenclature we need not enter into here; suffice it to say, it will be found to be good mental exercise, and to persons possessed of a fairly good retentive memory, its acquirement is easy. The raising of perennials from seed is but little practised at the present time in private gardens, and has been hitherto confined chiefly to trade growers, curators, and superintendents of botanical gardens and public parks—a circumstance due to the fact, that this method of increasing stock of any plant is the best and most expeditious. In many gardens the prevailing mode of increasing the stock of a recently purchased plant is either by division or cuttings, and this in some cases is a very slow process indeed, and with certain species of plants it will take years to obtain a sufficient quantity; whereas if seed were sown and properly treated, enough and to spare might be obtained in half the time required by other methods. It may sometimes happen with new introductions that seed cannot be purchased for some time afterwards; when this is so, plants should be obtained, and no pains spared to induce them to ripen seed after their first flowering. Seed saving, however, is a large subject, upon which we cannot now enter into many details, but it should not be done in a haphazard manner, but both care and forethought must be brought to bear on the operation. For instance, to reproduce a species true from seed, the parent plant should be isolated; but ought not to be grown near other species belonging to the same genus which may be flowering about the same time, or hybrid varieties would probably result—a circumstance which might prove to be a disappointment, or the reverse; but the probabilities are that the original object in view would be defeated. With regard to sowing the seed, the best time, generally speaking, is from the middle of March to the end of April, and for some kinds in September and October.

It may be mentioned, for the benefit of those hasty persons who would throw a pot of seed away because no plants appeared in a few months, that much patience is wanted; and it will be found that some will germinate in a few days, whilst others again will remain apparently dormant for a whole year, and longer, and no definite time can be stated for any particular species. The most suitable compost will be found to be finely sifted loam, leaf-mould (not much for seeds slow to grow), and silver-sand, mixed in the proportion of two parts of the first-named to one each of the two latter, care being taken to pick out all worms or grubs from the soil before using it.

As regards pots the most convenient size to use are 32's, and these should be well drained, filling them quite one-third of their depth with broken potsherds, over which place a layer of moss of rough siftings. In making them up with compost press the latter down moderately firm, and fill to within half an inch of the rims, so as to allow room for sufficient water to moisten the whole of the soil at each watering, which should always be given through a fine rose for the first few times. In sowing, the thickness of soil over the seed is of much importance; as a rule, the

smaller the seed is the nearer the surface it should be; and in practice it is found a safe plan to cover each kind with about its own thickness of soil. After the seed is sown the pots should never be allowed to get quite dry, therefore shading should be resorted to on bright sunny days; on the other hand an excess of moisture must be avoided, or the result will be the appearance of moss on the surface of the soil, which is very injurious to all seedlings. Do not place the pots of seed in artificial heat, with the idea that germination will be accelerated thereby; the best places for them are unheated brick pits, and if these are in a damp situation they should have some hard drainage material placed at the bottom to the depth of a foot, and over this a bed of sifted cinder-ashes of sufficient depth to allow the pots to stand a few inches clear of the glass. The young plants, when large enough to handle, should be potted off into thumb-pots, or pricked out round the sides of small 60's, three plants in each, shifting into larger pots as soon as more root space is required; in some cases this second shift will be sufficient, and the plants may be planted out in the borders the following autumn or spring; but with some species another year in pots will be required before they are large enough to plant into their permanent quarters.

Young plants in frames must be guarded from the ravages of snails and woodlice, or the young seedlings of some species will disappear with rapidity; the first-named should be ensnared by baits of tender vegetable leaves, or better still to examine the interior of the frames after dark with a lantern. Woodlice are best caught in small pots half filled with hay or moss, a small piece of Potato being put at the bottom. When moss grows on the soil, on its first appearance it should be removed with a pointed stick, or it will overrun the surface soil, when its removal is fraught with much risk to the young plants or seeds. When the young plants have made their appearance, free ventilation must at once be afforded them, and all kinds of coddling, such as overhead syringing early in the afternoon, and shutting up the frames with plenty of sun-heat, with the object of hastening growth. It is better to take off the lights in the day-time, and to leave a little air on all night. We have known some gardeners raise young plants by sowing seed in outside borders at the end of April, or in pots standing in the open air, but generally we do not commend this practice, for it causes a large percentage of losses. *J. Horsfield, Heytesbury*

NOTES FROM BELGIAN NURSERIES.

JULES DE COCK'S NURSERIES, LEDEBERG AND MEIRELBEKE.—This establishment may certainly be considered one of the most prosperous in Ghent, and it reflects all the greater credit on its proprietor, that he has built it up to its present condition by dint of hard work and perseverance. M. de Cock is not content with the labours of the immense culture which is necessitated in connection with the raising and growing every year of some 300,000 Palms, such as *Kentias*, *Coryphas*, *Latantias*, &c., many thousands of *Azaleas*, *Camellias*, *Spiræas*, and other things in great quantities, but on him falls also the weight of the plant sales of Belgium, and for the convenience of them extensive sale-rooms are fitted up at the Ledeborg nursery, the first sale taking place in them in February of this year. So far, the result has been eminently satisfactory, and it is anticipated that, in Orchids especially, these sales will prove a good thing.

Cypripediums now seem the fashion in Orchids, and at Ledeborg there are a goodly number of them, most of the rare varieties being represented. In flower were some good specimens of *C. vernixium*, *C. Daubieri marmoratum*, various forms of *C. Argus*, some of them very handsome; different varieties of *C. barbatum*, *C. callosum*, *C. Harrisianum* and *C. H. ingrum*, the latter with very dark and shining

flowers; a new form of *C. Lawrenceanum*, with very narrow segments. Many other rare species are in bud, and the collection is already a tolerably complete one. Among the other Orchids we noted in bloom *Dendrobium Ainsworthii*, and a few *Cattleyas*.

Cliveas here, as in most other Ghent nurseries, are a good feature, their orange-scarlet flowers making just now a fine show. Bromeliads, too, are in great force, *Kentias* in all sizes in large quantities, *Aspidistra lurida variegata* in plenty, *Ficus elastica*, many thousands in small pots; *Pritchardias*, good; *Araucaria glauca robusta*, in fine specimens; *Camellia alba plena*, large specimens, covered with flowers; and *Strelitzia augusta*, *Cocos* and other Palms, and Cycads in seemingly countless numbers.

The large establishment at Meirelbeke has 20,000 *Azalea mollis*, large quantities of cold-house Palms, *Azaleas*, *Camellias*, *Deutzias*, *Hydrangea paniculata*, Bay trees, and all the usual run of those plants denominated decorative, and which meet such a heavy demand in Belgium.

MR. CHAS. VUYLSTEKE, LOOCHRIJSTY-LEZ-GAND.

Here also a very large quantity of Orchids is cultivated, and Orchid lovers especially should visit the nursery. Some idea of the extent and quality of the stock may be formed by the sample that M. Vuyksteke sent to the Exhibition, which occupied a whole house, while the same exhibitor contributed fifty distinct *Odontoglossums* to one competition, thirty to another, and fifteen to another. In this nursery *Azaleas*, *Rhododendrons*, *Cliveas*, and many other things, will be found cultivated to a fine pitch. *Amaryllis*, too, are well represented for the Continental strain. The *Azalea mollis* are especially fine, and the *Azalea mollis* hybrids with double flowers comprise some remarkable and beautiful things.

(To be continued.)

THE BULB GARDEN.

DAFFODILS AND THE FROST.

WE are accustomed to think Daffodils amongst the hardiest of plants; but I am sorry to say that instead of "taking the winds of March" this year, the winds of March have taken them to an extent I never saw before. I have always found that a south or south-west aspect suits Daffodils best, on account of the usual prevalence of north-east winds at their flowering time, which are apt to stunt their growth. But this year they have been killed outright by hundreds in beds exposed to the north-east without any shelter. They do not seem to suffer where they grow through grass, and I believe the mischief is caused by the violent wrench given to the leaves and stalk during the hard freezing of the wet soil. The action is the same as that which ejects wooden labels and weakly-rooted plants out of the soil; the Daffodil bulb being too deep to be ejected, the upper growth gets so violent a strain as to kill it. On examination of the dead tops it is evident that the mischief is just at the ground line. The destruction is greatest amongst the forward Daffodils, the common *Telamonius* having suffered equally with *Ard-Righ* and *Pallidus præcox*. Wherever these are protected from the north and east they remain unhurt. *Iris reticulata*, of which the stalk is less succulent, is nowhere hurt. *C. Wolley Dod*, *Edge Hall*, *Mulpas*, April 12.

THE TIME OF LIFTING DAFFODILS.

In the very interesting paper you reproduce (p. 488) from Mr. Walker, of Whitton, on Daffodils, he pointedly speaks of "the time of lifting;" and further, "I wish to lay particular stress on the matter of storing." I merely draw attention to the point, as hitherto in my own limited, though representative collection, except to renew a bed or border, I never think of lifting or storing every year. One of the largest and most complete collections in Ireland is that in Trinity College Botanic Gardens, and I believe I am correct in saying Mr. Burbidge does

not lift every year, and I believe Mr. Hartland's custom is similar. However, my main object is to ask your readers, Is the evidence in favour of lifting every year? I have *cernuus moschatatus* planted out three years—not naturally robust—and it never, even in Holland, bloomed finer than this year. The same is true of *N. incomparabilis Leedsii*, *N. I. Mary Anderson*, *N. I. Stella*, *N. "Leda"*, *Grand Monarque*, *Diomedes*, *biflorus*, *Capax*, *Emperor*, *Empress*, but especially bicolor *Horsfieldii*. *W. J. Murphy, Clonmel*.

DOUGLASIA.

ONE of the most charming and appropriate "exhibits" at the first meeting of the Royal Horticultural Society in its new quarters was the humble little plant selected to bear the name of its discoverer, David Douglas. All gardeners who know plants well, and all botanists, will remember the debt of gratitude we owe to the intrepid Douglas, who conferred so much honour on the Royal Horticultural Society by the value and interest of the plants introduced by him from North-west America, and who subsequently met with so sad a fate in the Sandwich Islands. A short notice of Douglas' career and a portrait appeared in our columns on August 8, 1885. The *Douglasias* are little alpine plants, closely allied to and representing the *Androsaces* of the European Alps, and both being included among the *Primulaceæ*. The present species, *D. levigata*, was exhibited from the Royal Gardens, Kew, and has broader leaves than most of its competitors, and pretty rose-coloured flowers. All lovers of alpine plants who were fortunate enough to see this little gem at the Drill Hall will be desirous of growing the plant, the other species of which present no special difficulty in their cultivation. For the drawing, whence our illustration (fig. 71), we are indebted to Mr. Thiselton Dyer.

SCOTLAND.

FERGUSLIE.

This unpretentious structure was the family residence of the late Thomas Coats, an ardent patron of horticulture, and one of the founders of that wonderful industry of thread-making, which along with shawls, has made the name of the township of Paisley famous throughout the civilised world. This industry, judging from the immense piles of buildings that are being periodically reared as adjuncts to the old works, must have quintupled itself within the last ten years. The founder of this branch of the family has joined the majority, but Mrs. Coats and her family seem to be carrying out the late gentleman's hobby (horticulture) most energetically.

Ranges of houses for plant-growing, houses for fruits and forced flowers not less conspicuous, have been added to the existing structures. The new fruit-house is used partly for Peach and partly for Rose-culture; and no expense seems to have been spared to make good and useful houses. The vinerias are span-roofed, running north and south, and, bearing in mind the time they have been planted, show excellent returns. In addition to excellent Black Hamburg and Muscat Grapes here were some specially fine Pearson's Golden Queen, of amber finish and even-sized berries that would please any fruit grower. Mrs. Pearson was also good, and Gros Maroc particularly noticeable for its large berries and fine colour. The borders were chiefly inside, but doubtless they will be extended as time goes on. Peaches and Nectarines have been planted—good-sized examples, and their bearing capacities were not in any way affected by removal. *Maréchal Niel* Roses are in much request, and so is *Heliotrope*, both of which are to be found on the back wall. There were pits behind the house where Melons, Cucumbers, Tomatoes and flowering plants could be grown. The Orchids

are limited in number, but comprise among them, as is well known, some choice species of *Vanda* and a particularly fine *Angræcum sesquipedale* with a centre of twenty-four leaves surrounded with five strong breaks. Then there are the usual species and varieties of *Cattleyas* and *Lælias*, *Pleiones*, &c., intermixed, in some cases, with *Ferns*, making up an interesting house.

The new range adjoins the house itself, and has in the front a fine well-kept lawn and some carpet-beds. It is 160 feet long, 50 feet wide at the centre, and narrows to about 24 feet at the ends. The central portion is about as lofty as it is wide, in order to afford head-room for some great *Alsophilas*, *Dicksonias*, and *Cibotiums* that had been grown in time past in the old houses and required more space. They are planted in tubs, and surrounded by a border, which separates the footpaths of mosaic work from the pillars that surround the house. Climbers cover the columns with leafy embroidery,

maintained had a pleasing appearance. In the lower houses were good *Eucharis*, *Pancratiums*—two very useful plants, where large supplies of cut flowers must be furnished; with *Crotons*, *Acalyphas*, *Sonerillas*, and some well grown and flowered young plants of *Gardenia*, bedded out alongside the boundary wall, along with which were some promising plants of *Cœlogyne cristata*. In one of the houses adjoining the large *Camellia*-house were some veterans, which are in demand at Ferguslie—*Begonia manicata* and *Euphorbia jacquiniflora*—staple plants forty years ago, and not to be overlooked now.

The *Camellia*-house is a spacious one, and at the present time not overcrowded. The varieties comprise many of the well-known ones, and here is a good specimen of an Orange tree. *Lapagerias* are here the chief climbers, and both white and red varieties were growing well, and bore large quantities of flowers. The wood employed in the

meeting of the Scottish Horticultural Association by Mr. Robertson Munro.

The genus *Ilex*, the author said, comprised upwards of 150 species which were widely distributed throughout tropical and temperate regions. Europe could claim but one species, the so-called species, *I. balcanica*, being only regarded as a variety of the extremely variable *I. aquifolium*. In China and Japan about a score of species were found, in the East Indies about two dozen, and about sixty in South America which is the great centre of the genus. A few solitary species are also found in Fiji, Australia, Tropical and Southern Africa, Madagascar, &c. For general decorative and shelter purposes in Britain the most important of all *Hollies* was our common native one which merited all the praise bestowed upon it by the enthusiastic Evelyn, who thought nothing "under heaven more glorious and refreshing than such an impregnable hedge glittering with its armed and varnished leaves, the taller standards at orderly distances blushing with their natural coral." Quoting Johnson, the author said Evelyn had a *Holly* hedge at Say's Court, which was planted at the suggestion of Peter the Great, when he resided there while working in Deptford Dockyard. The hedge was 400 feet long, 9 feet high, and 5 feet broad. A paper read to the Royal Horticultural Society by the Secretary, Joseph Sabine, more than sixty years ago, and published in vol. vii. of the *Transactions* of that Society, gave a full description of the remarkable *Holly* hedges at Tynningham, Haddingtonshire; Colintow House Midlothian; Hopetoun House, Midlothian; and at Gordon Castle. Were the present conditions and measurements of these plantations put on record, it would be of general interest. Regarding the well-known variability of sexuality in the *Holly*, some flowers being male, others female, and others again hermaphrodite—many individual plants varying from year to year—the author said it would lead to valuable and interesting data if those having collections of *Hollies* would note, and put on "record, season by season, for a number of years, the observations of the behaviour of the different varieties." The remainder of the paper was devoted to an interesting and detailed account of the uses of the *Holly* at home and abroad, its propagation in this country, and its culture, transplanting, and an enumeration of species and varieties. Seventy-two species and varieties were enumerated, and specimens of most of them were placed on the table for inspection by the members.

SOME VEGETABLE PRODUCTS FROM MINCING LANE.

To those acquainted with vegetable economic products, but who at the same time have no commercial training, it is interesting to watch the reports from the principal centres of commerce, showing, as they do, the fluctuations to which certain products are liable. The reports of the London drug sales are peculiarly striking in this respect; for though, like other trade reports, they are clothed in the usual technical language, they give a pretty good idea of the value of some regular articles of trade which in the course of the year make up a considerable total.

Under the head of Essential Oils, for instance, we find, perhaps, the widest range of prices, from oil of Sweet Almonds, at 1s. 6d. per pound, to Mitcham Peppermint oil, at 32s. per pound, and oil of Cubebs, at 58s. per pound, or Ylang-Ylang, at 20s. per ounce, besides many at intermediate prices, all of which, however, are liable to considerable fluctuation according to the supply and demand. Thus, at the close of last year it was stated that the shipments of Citronella oil from Ceylon were the largest on record, having amounted, from October 1 to November 17, to 1,657,752 ounces, against 313,632 ounces in the previous year. This oil always fetches a low price here, being quoted at the present time at about 2d. an ounce. It is largely used in perfumery. This forms a striking contrast to another perfume



FIG. 71.—DOUGLASIA LEVIGATA; HARDY ALPINE. FLOWERS ROSE COLOURED (SEE P. 524).

and hang from the ironwork that binds the roof together. The climbers consist of *Tacsonia Volxemi* and *T. exoniensis* ×, which have the advantage of covering spaces greater than most of their compeers.

At either side of the great centre house are span houses, longitudinally divided, and having at either end spans with octagonal ends, thus making handsome structures. No. 1, at the west wing, contains Heaths and New Holland plants; No. 1, at the east, is the Palm-house. Here were good samples of *Phoenix dactylifera*, *Thriox argentea*, one of the best; *Phoenix rupicola*, *Kentia Fosteriana*, *Areca sapida*, and its *nole-mc-tangere* neighbour, *Areca horrida*—a grim-looking subject among its fellows. Nothing was finer than *Pritchardia pacifica*, with the fine silvery sheen on both rachis and fronds as seen in subdued light. The climbers here were *Stephanotis*, *Clerodendron Balfourii*, and *Bougainvillea glabra*. The whole of the centre groundwork was carpeted with *Selaginella cæsia*, which owing to the temperature

crections is Teak, and the glass 21 or 26 oz.; and taken as a whole it is one of the most commanding ranges of horticultural glasshouses in the West of Scotland, and for construction, style, and finish, heating and internal fittings it is unequalled.

The grounds have been laid out for some years, and although the plants are increasing in bulk there is not that general vigour about either shrubs or trees that we expected to see in a locality uncontaminated by smoke. All manufacturing towns are more or less baleful in their way to tree life, and some kind of indoor plants, notwithstanding all precautions, are affected by a begrimed atmosphere. The whole place is under the superintendence of Mr. McDonald, a painstaking and thoughtful gardener, who appears to command the full confidence of his employers. A.

"A CHAT ABOUT HOLLIES."

A paper by Mr. G. Nicholson, of the Royal Gardens, Kew, with the above title, was read at a recent

oil, Patchouly, which ranges from 2s. 3d. to 3s. per ounce.

Amongst other well known products that have attracted much attention of late may be mentioned Coca leaves (*Erythroxylon coca*), Kola nuts, the seeds of *Cola acuminata*, and *Ipecacuanha*. Of Coca leaves it was reported in December as follows:—"Of forty-eight bales of Iuanoco leaves, mostly rather dark, five bales, the best of the lot, good greenish, of new import, sold at 1s. 4d. per pound, one penny more than was recently paid; fourteen bags of low brown, badly sea-damaged, 1 cwt. each, were offered at 2s. 6d. for half the lot, but could not find a buyer. A commission which was appointed some time ago to report upon a scheme for assisting the development of minor planting industries in Guadeloupe, has recommended the introduction of Coca cultivation into the island, and suggests that loans upon easy terms of repayment be granted to planters embarking in this industry. It is suggested that 400 francs per hectare (equal to about £7 per acre) should be the maximum amount lent." The latest quotation for fair Iuanoco was 1s. 4d. per pound. Regarding Kola nuts, very large quantities of freshly gathered seeds have recently found their way into the market, realising 9d. per pound for very fine quality, 4½d. to 5d. per pound for good, and 2½d. to 3½d. for ordinary mouldy.

Some time since four bales—in all about 400 pounds—of a root imported from Bombay as "Medicine Root," appeared at Mincing Lane, and was sold for *Ipecacuanha* at from 1s. 11d. to 2s. per pound. It was soon found, however, not to be *Ipecacuanha*. The root occurs in pieces about an inch long, and an eighth of an inch in diameter. It is not so regularly annulated as *Ipecacuanha*, and is apparently more branching, or with stronger root fibres; internally it is nearly white, with a very pale ring, and apparently very starchy. It has very little taste when first chewed, but shortly reveals an acrid and biting taste. The root has been proved to contain neither emetine nor any other alkaloid, and its botanical affinity cannot, at present, be determined. This false *Ipecacuanha* has created a good deal of interest amongst pharmacists, and all those interested in the purity of drugs. The *Ipecacuanha* supply has been exclusively brought from Brazil until a short time since, when a sample of very good quality found its way to the London market from Singapore, where it had been cultivated. It having thus been established that the drug can be grown in the East no doubt led the buyers to believe that this new root was Indian grown *Ipecacuanha*.

Speaking of adulteration, we may refer to the fact that Cubebs are now so frequently mixed with various other berries having so similar an appearance externally, that it is difficult to ensure the purchase of the genuine fruit. Quite recently it was reported that the supply of genuine berries is very small, and that as much as £29 has been privately paid for them.

Regarding Vanilla, it was stated during December that the cultivation of the plant in Madagascar was progressing, and that a splendid crop had been secured during the past season on two new plantations in the island, one of which is owned by an Englishman, and the other by a Frenchman. The former is laying out plantations on a very large scale, and it may now be considered certain that, under favourable circumstances, Madagascar Vanilla will ere long be placed on the European markets in considerable quantities. The beans cured last year are said to be by far the best ever produced in Madagascar. In connection with the spread of Vanilla culture, we learn from Zanzibar that it has been successfully tried at one of the East African German settlements, and that 55 lb. of Vanilla from the Knigaru (Usanbara) settlement are ready for shipment to Germany by the first steamer.

Some time since a good deal of interest was excited by the statement that 537 packages, amounting to about 50 tons, of gum of the Arabic character, had been received in London from Para, under the name of Brazilian Gum Arabic. We now

learn that only an overland sample has been received, and that the bulk is shortly expected. Referring to this gum, *The Chemist and Druggist* said:—"Since the great advance took place in values of gums generally, certain varieties of gums found in Brazil have received considerable attention at the hands of merchants in that country, who recognised in the product an article well worth collection and exportation. Accordingly, during the past two years, regular supplies of gum have been received at Liverpool from various Brazilian ports—Maranhão, Parahybu, and Para. These imports at first realised as much as 85s. per cwt., but it was found on trial of the quality that this was too high a value compared with other descriptions of gum, and as the imports increased, the price declined to 65s. per cwt. for good quality, at which figure the article sold very readily, until latterly the supply has somewhat exceeded the demand, and stocks have accumulated to about 95 tons, the market value of good quality being thereby reduced to 55s. or 55s. 6d. per cwt. Hitherto the Brazilian gum has been chiefly bought up by export druggists, but recently consumers in this country have turned their attention to it, and employed it successfully for various purposes. The tree yielding Brazilian Gum Arabic is called 'Angico' by the natives of that country."

The writer of the foregoing in *The Chemist and Druggist* suggests the source of the gum as *Bowdichia major*, but the Angico tree is referred to *Acacia angico*, Martius = *Piptadenia rigida*, Benth., which is described as yielding a gum very similar to Gum Arabic. *John R. Jackson, Museum, Kew.*

THE HERBACEOUS BORDER.

HEPATICAS.

ALL my clumps of Hepaticas that are growing in the open air are blooming with remarkable freedom this season. They are under an east wall, in the full blaze of the summer sun for a considerable portion of the day, but they do remarkably well. The single blue, especially, makes a great display; the clumps are very strong; they have rooted deeply into the soil, and they produce an immense quantity of blossoms. Next to the single blue, the single red is the most striking. I find this variety varies a little, probably because seminal varieties; one that I have is of very fine form—a clear bright rosy-pink hue. The single white variety varies also. I have one with stout well-formed flowers, and dark stamens, which affords a pleasing contrast.

All the seedlings from the single white I have raised myself, or have seen raised by others, are of indifferent form. When I was at Highfield Park, Heckfield, Hants, at Easter, I saw in the gardens there some clumps of the single white, and among them one of large size, stout, and well-formed; but Mr. Davidson was not quite certain whether this came among a number of seedlings he had raised, or not.

One may justifiably rave over the Hepaticas, for they are among the earliest and the prettiest of spring flowering hardy plants. I may state in reference to the outdoor clumps, I give them a top-dressing of good and rather fine soil just as they are coming into bloom, and add a little more when the seed-pods are formed, so that when the seeds are shed they may have something to root into. In the autumn I scatter a little litter over them, such as short dung and leaves, which serves as a useful winter protection. I also grow a number of plants in pots, and they are plunged to their rims in cinder-ashes on a north border, where they do very well. When winter approaches a layer of cocoa-fibre is laid over all, the advantage being that the frost is kept out of the pots to some extent, and I do not lose so many pots by breakage from frost as I used to. I find I get more seedlings from the plants in pots than I do from those in the open ground, the reason being, in all probability, that the position in which the outdoor plants are growing is a very hot

one, and the seeds shed on to the surface soil no doubt become quite roasted up during the summer.

For decorative purposes I decidedly prefer the single varieties. There is a refinement about them one does not get in the double types, of which, however, there are but two that I am acquainted with—the double red and the double blue. I have some difficulty in getting the latter to make much growth planted out with the others; perhaps cooler quarters are necessary. It does better in pots.

Hepaticas do best when planted in suitable places and let alone. Then when they become thoroughly established they grow into size. Frequent divisions of the roots are certain to occasion losses, unless the divided plants have tender treatment. I place the divided pieces round the sides of pots, and plunge them in the ash-bed, and in a year or two, according to their strength, pot them singly, taking care to have as much soil as possible adhering to the roots. *R. D.*

FORESTRY.

ORNAMENTAL VARIETIES OF OAK.

QUERCUS CONCORDIA for brightness of the decaying foliage—a beautiful golden tint—is excellent. For autumn effect this charming Oak can hardly be over-valued, the whole tree during the latter part of August being one mass of gold—a clear and bright yellow. Planted in close proximity to a Purple beech, the effect is surprising.

Being but a form of the English Oak, grafting must be resorted to if the colour of the leafage is to be retained.

The Lucombe Oak (*Q. Lucombeana*) is a sub-evergreen tree, and a form of the well-known Turkey Oak (*Q. cerris*). It was raised fully a century ago at Exeter, and since that time has been extensively circulated, particularly on account of its rapidity of growth and ornamental nature. Generally the Lucombe Oak has an erect habit of growth, and both in young and old trees a pyramidal outline is noticeable while it is regularly furnished with branches. In many parts of the country large specimens of this Oak are to be found, and it is always a notable tree on account of its semi-evergreen habit—the leaves, when the winter is not too severe, being retained until the new ones are pushing forward.

The Fulham Oak (*Q. fulhamensis*) is another form of the Turkey Oak, and is, unless in the most typical specimens, hardly distinguishable from the Lucombe. The only real differences in habit are the Lucombe, as we have said, being semi-fastigate, while the present form branches widely, and has much less inclination to form a straight main stem. Grafting of this particular Oak must be resorted to if its distinct qualities are to be retained. The leaves in shape and size are a counterpart of those of the Lucombe form, and are also retained throughout the winter. It is a highly distinct and ornamental tree, of very free growth, and perfectly hardy in any part of Great Britain.

The cut-leaved Turkey Oak (*Q. cerris laciniata*) is perhaps the handsomest and most-to-be-desired of the many forms of this rather variable tree. In it the leaves are deeply and irregularly cut, which imparts to a goodly-sized specimen a very distinct and graceful appearance.

The variegated Turkey Oak (*Q. cerris variegata*) has its leaves margined with creamy-white, and as this is perfectly constant and on all the foliage, the tree may be described as one of the most ornamental of deciduous variegated hardwoods. *A. D. Webster.*

DESTRUCTION OF SHOOTS OF SPRUCE FIR.

I wrote you some time ago in regard to the destruction of the young shoots of the Picea Smithiana in the Policies of Cullen House. I, however, received no answer in regard to the depredations complained of, and no enlightenment as to the cause. Since then, however, I have been vigilant almost day and night, and have at last been rewarded for my labour by discovering the depredator in the common starling. Simultaneously with that discovery, however, I am concerned to find the Silver Firs in the neighbourhood shorn of their year's shoots. Under two Silver Firs of about seventy years' growth, and from 50 to 100 feet in height, the small twigs completely cover the ground

beneath, so that basketfuls of them could be raked up. The shoots are severed as cleanly as if cut through with a scissors or knife, and are generally about 2 inches in length. To say that I have actually seen the starlings employed on this destructive work would be an over statement, but I am so far able to connect them with it as to leave no doubt in my own mind as to their identity with the depredators. They are the only birds of sufficient size or numbers in the district to be at all likely to do the mischief. They inhabit the injured trees daily, and congregate in them, especially in the morning. On approaching the trees the birds fly off, and thus it is that so far I have been unable to see them actually nipping off the twigs, which I hope, however, by adopting some mode of concealment to be able to do. The starling till within the last twenty years was a comparatively rare bird in this part of the country, and various were the means adopted to encourage them to breed hereabouts. The case is now, however, changed, and the starling is by far the most plentiful species of bird. Looking at the future by the light of the injury done to the trees, one is prompted to ask what means may be adopted to prevent the loss. One method thought of is the use of bird-lime at the mouth of the holes in which they make their nests; but as this can only be done during a limited period of the year, the gun must be brought to our aid. It is to be hoped that this starling pest may be rare in other places, otherwise we may not only hear of these two species of trees suffering but of others being similarly affected. *C. I. Michie, Cullen House.*

THE CORK OAK (QUERCUS SUBER).—How is it that we so seldom meet with this curious and withal handsome tree? Is it that it is considered too tender for our climate generally, or that it is not sufficiently ornamental to merit attention? As regards hardihood, we may say that, having seen it flourishing in several places from Carnarvonshire southwards to Kent, and in the latter place attaining to large dimensions, and likewise never having known it to suffer from the effects of even the coldest winters, its capabilities of withstanding the rigors of an English winter are pretty conclusive. That it is an ornamental tree few who have seen even a fair-sized specimen will care to deny; the sombre evergreen leaves, and deeply furrowed ashy-grey bark, being as unusual as they are interesting. Unless it be the evergreen Oak (*Q. ilex*), few trees or shrubs have the same stiff and brightly green foliage as the Cork Oaks. Perhaps it is wrong to say brightly green, for there is a sombreness attached to the shining appearance that renders description a not at all easy matter. There are two handsome specimens of the Cork Oak growing on the lawn in front of Holwood House, in Kent, the largest of which girths 7 feet 5 inches at 2 feet from the ground, and has a spread of branches covering 42 feet in diameter.

Judging from the growth of this tree in several districts and in a variety of soils, we should say that it succeeds best in a gravelly loam, and where sunshine is freely admitted; it also grows well within the influence of the sea, as may be seen at Rhianfa, on the Menai Straits. *A. D. W.*

PLANTS AND THEIR CULTURE.

AQUATIC PLANTS.—These are usually regarded with much interest by visitors to gardens. Where they are grown apart from this, a representative collection is worthy of a place in any garden where the plants can be accommodated. Their characteristic modes of growth, and distinct habit form a relief from the monotony of habit of growth observed in other plants; and where there is an aquatic house their cultivation is much simplified. A choice collection may nevertheless be grown by putting the water tanks in other houses to this use, when these are in such a position as to command a large share of light. Should this not be the case, suitable small neat tanks could be arranged in any light place. Cement or wood are the best materials for the tanks. Indeed we know of a garden where a good collection is grown in barrels sawn in half, and where *Nymphaeas* and *Nelumbiums* regularly flower. These last-named plants, and *Eichornia azurea*, *Vallisneria spiralis*, *Lilaocharis Plumieri*, the *Sagittaria montevidensis*, should be potted in good loam and immersed in the water to the depth of a few inches; but the *Nymphaeas* grow better if there is a greater depth of water to grow in. There are also many small growing floating plants, viz., *Pistia stratiotes*

(the Water Lettuce), *Pontederia crassipes*, with its curious inflated petioles; *Trianea bogotensis*, *Salvinia natans*, *Marsilea* of sorts, *Azolla pinnata*, and *Myriophyllum proserpinacoides*: the last two are hardy in favoured situations, having lived outside in the ponds here and elsewhere in Surrey, during the winter of 1886-87, and no doubt they will again make their appearance on the water. These two last are the prettiest of floating aquatics.

It is very essential that the water in which aquatics grow should be kept sweet by frequent renewals, and the plants should be copiously syringed. The highest temperature allowed for the water is 75° with sunshine, and in water of this warmth the *Victoria regia* will thrive quite well. A suitable temperature for the aquatic-house is from 75°—80° during the day; do not use shading of any kind, and shut up the house early, while the sun is still on it, damping down thoroughly, and allowing the temperature to run up to 90°.

Primula sinensis.—A sowing of these should now be made, for early flowering; cover the seed lightly, as if it is exposed on the surface, as some advise, it is liable to be more affected by the fluctuations of heat and by dryness. A good plan is to plunge the seed pans in some moisture-holding material—sifted coal-ashes, spent tan-bark, or sawdust answer well—in a temperature of about 55°, with plenty of moisture. Under this treatment the seed takes a little longer to come up, but the seedlings are sturdier and get along faster afterwards than they would by using greater heat.

Pelargoniums.—Specimens of the show and fancy section should have attention paid to staking out the shoots, and bringing them into the desired shape; for if this operation be delayed too long the leaves have not sufficient time to right themselves before the flowers begin to form, when growth becomes less active, and the operation is not so completely hidden. Decorative plants in 48's and 32's require little in the way of staking, the object being to keep the few shoots together so as to form a nice even head. Give plenty of air, as much light as possible, and weak liquid manure twice a week; periodical syringing with weak tobacco-water will keep down greenfly. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

WALKS AND CARRIAGE-DRIVES.—These should be kept scrupulously clean, and free from weeds at all times, even although it be at the expense of some less important matters. In some gardens it is customary in the spring to give them a light dressing of salt for the purpose of keeping down weeds, but this is a practice which cannot be recommended, for the simple reason that its effect is that of a manure to a certain extent, the weeds after a time appearing numerously. The best method of killing weeds that I am acquainted with is to water the walks with a solution of arsenic at the rate of 3 lb. to 40 gallons of water, and which should be boiled for 20 minutes before using it. The remedy is one that requires great caution in its use, and strict orders should be given to those employed in its preparation and use, to prevent any mishap. They should not inhale the steam from the mixture whilst boiling, or afterwards; they should also be careful not to allow any of it to come in contact with their boots and clothes; and lastly, all utensils must be thoroughly cleansed, and the men should wash their hands with a scrubbing-brush after the work is done, or before taking their meals. These directions may seem trivial, but the poisonous nature of the mixture obliges me to lay stress on them. After some few years' trial, I can confidently recommend the method to all who wish to have clean walks and carriage-drives without much labour or expense. Two applications in the course of the year will generally be found sufficient, viz., in spring and autumn. With grass and Box edgings boards should be placed against each side before watering, and the operator should walk backwards.

The Rockeries.—This part of the garden should be put in neat and trim order before the season gets further advanced. Cut off all fronds from Ferns, stir and cleanse the surface soil with a fork. *Primulas* will be benefited by a light top-dressing of leaf-soil, to which may be added a third part of sifted decayed stable manure. Many subjects growing on rockeries require severe cutting back to keep them within bounds, and this is best done now or in the autumn; indeed, some species require to be cut in three or four times during the summer

months, to prevent encroachment on their neighbours. Among these strong growers are *Hutchinsia alpina*, *Antirrhinum pallida*, *Arenaria bialearica*, *Herniaria glabra*, and many kinds of *Sedums* and *Saxifragas*. We do not mean that they should be cut so as to form small tufts; to do so would simply amount to robbing many species of half their characteristic beauty. Many of the *Sedums* and *Saxifragas*, for instance, are seen to the best advantage when they are growing in large patches of half a yard across, but whatever space is allotted to a plant, whether it be 6 inches or more, it ought not to be allowed to extend beyond these limits. The present time is also opportune for cleaning the stones in the rockery, and freeing them from lichens and mosses, where such are objected to. Personally, I think their presence on rockeries not objectionable, and never of my own choice destroy them. The whole matter, however, is one of taste, and had better be treated as such.

Herbaceous Borders.—Ply the Dutch hoe freely on these to keep down weeds, and rake over the surface to give a neat and clean appearance. Keep a vigilant outlook for slugs amongst young plants and all choice subjects, as it usually will happen that these are the first to be attacked. Beyond this little will require to be done on herbaceous beds and borders until the plants have sufficiently advanced in growth as to render staking and tying necessary, and watering the spring planted stuff when it becomes necessary.

Miscellaneous.—Cut back Ivy growing on walls or other buildings if necessary. Neglected plants contain usually a superabundance of breastwood; and there need be no hesitation about cutting it in close to the wall, as it will soon make a presentable appearance with its new foliage. The majority of half-hardy bedding-out plants should now be put out-of-doors in frames, or other temporary shelter, to get gradually hardened off. Give ventilation on all favourable occasions, removing the lights entirely as soon as it is safe to do so. Remove to nursery quarters, or to the reserve garden, all evergreen shrubs that have served the purpose of temporary embellishment of the flower-beds, and prepare these beds forthwith for their summer occupants. *J. Horsfield, Heytesbury.*

THE HARDY FRUIT GARDEN.

WATERING APRICOT BORDERS.—The weather, having proved all that could be desired in this district during the time the trees were in bloom, has resulted in a heavy set of fruit, so that there will be much to thin off at a later period. Where there has been little or no rain, it will be advisable to give the borders a good soaking of water, and if the drainage of the border is in proper condition nothing but good will result. It will be necessary, where the fruit tree alleys are rendered compact, and impervious to water by the trampling caused in attending to the blinds, to prick up the surface before watering. After watering, the alleys may be mulched with long manure, preferably that from the cow-stalls. This is the best kind of manure for Apricot trees, and I can confidently recommend its use. Special attention will have to be given in dry districts to all fruit tree borders this spring, for although there were heavy falls of snow during the winter the thaws generally have not been accompanied with rain, so that the borders have not received a thorough moistening for a long period of time, and unless heavy rains should ensue before long, a great deal of labour will have to be expended in artificial watering. Keep a sharp look-out for the Apricot maggot, which shows itself by the leaves having a rolled and twisted appearance. The surest method of destroying these troublesome depredators is by pinching the leaf between the finger and thumb. After this date the blinds need only to be used on cold nights, when they will act as a protection to the tender foliage. *A. Ward, Stoke Edith Gardens, Hereford.*

THE LINNEAN SOCIETY.—At the meeting of this Society to be held on May 3, at 8 p.m., the following papers will be read:—1, "Researches into the Life-histories of *Glyciphagus domesticus* and *G. spiniper*," by A. D. Michael, F.L.S.; 2, "Note on Root-pressure," by C. B. Clarke, F.L.S.; 3, "On Ovicells of some Lichenopores, &c.," by Arthur W. Waters, F.L.S.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, MAY 3—Linnean Society.

SHOW.

TUESDAY, MAY 1—Royal Botanical and Horticultural of Manchester.

SALES.

MONDAY, APRIL 30—Imported Orchids, at Protheroe & Morris' Rooms.

TUESDAY, MAY 1—The Celebrated Brentham Park Collection of Orchids, at Protheroe & Morris' Rooms (two days).

THURSDAY, MAY 3—Established Orchids, from the Collection of C. Walker, Esq., at Stevens' Rooms.

FRIDAY, MAY 4—Greenhouse and Stove Plants at the Harlesden Park Nursery, Harlesden, N.W., by Protheroe & Morris. Imported Orchids, at Protheroe & Morris' Rooms.

Schools of Horticulture.

If the race is to the swift and victory with the strong, it is equally true that commercial success and the highest amount of financial prosperity will be reaped by the best and most appropriately trained people. It is as true of work of all sorts as of other things, that ignorance is weakness, if not worthlessness. Knowledge is power, that is, value in buying, selling, producing, conveying, as well as in literature, art, politics, science, philosophy. The superior education of the well educated German, French, Belgian, and Danish gardener endows him with the power of obtaining better work and higher wages than the less educated Britisher. Through systematic education in schools of horticulture for periods of two or three years lays the best possible foundation for the acquisition of fuller and higher knowledge; it will also give a death-blow to one of our most mischievous fallacies, seldom heard on the Continent, viz., that a little knowledge is a dangerous thing. As if the little were not only the very best but the only possible way of converting the little into much. Granting that the systematic knowledge taught in schools of horticulture may be little, this germ may, by natural force of evolution, broaden and expand till it covers the entire field of knowledge. If these schools did little more or better than establish habits of sustained and systematic thinking they would confer an enormous advantage on the youths that pass through them. For this art thoroughly formed can never be wholly lost. Every day's additional experience but the

more firmly establishes the truth, that the value of all but the merest mechanical work is but the measure of the thought put into it. And this is as true of the worker as of the profound thinker. In fact, this distinction can hardly be sustained, for well-directed thought and profitable work are virtually synonymous terms. Hence the absurdity of the prejudice against educated gardeners not being practical, and the impression that they have not much work in them. If they are really suitably trained, the very converse of this is true. The scamped work, the starveling products, all too common in horticulture as in other departments of our national industries, are not the results of education, but the sure and irrefragable proofs of the lack of it. Never was the cry more loud and urgent than now, from almost every field of British industry, for higher general, special, or technical education, to enhance the power of the workers and the value of their products.

Mere plodding perseverance—physical force—may suffice to pick oakum, break stones, lift, drag, or push heavy weights, but such forces are totally inadequate either to dig, sow, or mow, propagate, prune, pot, and water plants, or skilfully foster the profitable culture of either fruits, flowers, or vegetables. And yet these are but the A. B. C. of horticulture. Without dwelling on its higher branches, such as botany, vegetable physiology, and the relations of plant-life and products to light, heat, earth and water, electricity, chemistry, &c., it is only needful to glance at the decorative side of horticulture to see what illimitable scope it furnishes for the loftiest thought, and the most cultured taste.

Not a few of our landscapes are already very beautiful, and doubtless the garden-artists of the future will aspire to combine the happiest conceptions of poets and painters, and their bolder and more emphatic expression in living forms and more exquisite colours in our gardens. But to reach to such heights of cultured taste, or, indeed, hold our own in the severe commercial and monetary competition to which we are now exposed, a higher general technical and practical education is needed.

In regard to many of our horticultural products our climate is against us. It would be the height of folly, and sure to bring about failure, to handicap ourselves with ignorance in addition. This we seem in imminent danger of doing; for not only have we no national schools of horticulture, but the thirst for knowledge and the practice of self-improvement are on the wane.

The cry of young gardeners some twenty or more years ago was for improvement. Is it or is it not true, that for that brave cry, amusement has been very generally substituted? If so, possibly this ominous fact may account for the only partial success of the few tentative schemes that have been put forth at Sydenham and Chiswick to forward the higher education of horticulturists. It is to be hoped that this sphere of labour will not be overlooked in the many plans on foot for the reconstruction and resuscitation of the Royal Horticultural Society.

It is never too late to mend, and it is hoped that the reconstructed Society will prove one of the best teachers of horticulture alike to horticulturists and the nation. It is only by such means that we can expect to hold our own in the keen competition of products we are already engaged in, and in that coming competition with the living German, Belgian, French, and Danish gardeners, who, if wiser and better than the home article, are sure to come over in increasing numbers.

Looking at the manufacturing forces employed

for the turning out of fully equipped, well educated foreign gardeners, and to the other fact that we have virtually nothing to oppose to all this well-organised machinery, the outlook for our young men is anything but cheerful. As we stated some time since, there are thirty-three horticultural schools in Germany alone, two in Belgium, one or more in France (one only with a President and nine Professors, forty scholars taught free for three years), and others in Denmark—let no one say that these are mainly for the teaching of propagation and the nicer knife manipulations of horticulture. Why, on the next page (178) it was announced that a Landscape Gardening Committee had just been added to the National Horticultural Society of France, of which M. CH. JOLY—to whose courtesy and kindness so many English gardeners visiting Paris are much indebted—is the able and indefatigable Vice-President.

Whatever it may have been in the past, it is shown that in the future no department and no product of horticulture will be free from the strain of foreign competition. Now the only sure and certain means of their holding their own in the contest is that they start as even as possible in the mental, moral, and physical equipment. With that equality of power that equivalence of knowledge confers, no one need fear for the future of our horticulture or horticulturists. But higher or more thorough education must be obtained; and if neither the Government nor our public societies will move in the matter, it is the more incumbent on every young gardener to become a school or school-master to himself, and thus do his best to solve the knot of foreign competition by his higher culture and self-improvement.

PHALANOPSIS SCHILLERIANA.—The accompanying illustration (fig. 72), is taken from a photograph of plants in the collection of FRED SCHOLES, Esq., of Brooklyn, New York, who has been called the PARTINGTON of America—a compliment that is richly deserved as our engraving undeniably proves. The two plants here depicted are fair representative examples (one being 3 feet in height), and only three years since were very small pieces. Mr. SCHOLES is very liberal in the use of cow-manure in liquid form when his plants are making active growth. That he has practically demonstrated the efficacy of his treatment is proved by the luxuriance both in foliage and flowers of his Phalanopsis, one plant in his collection having no less than fourteen leaves from 8 to 15 inches long, and of remarkable substance. This plant carried three large branching spikes, and when in flower would be a marvel of beauty.

THE ROYAL HORTICULTURAL SOCIETY.—It is very satisfactory to note during the last week (1), that not only was there a good show—for that there has been any time for the last three years—but that there was a good gathering to see it; (2), that "Covent Garden" has been enlisted in its support; and (3), that the members of the Auricula Society have shown a sense of loyalty not too conspicuous in other quarters. As the national representative of all sections of the horticultural community the Royal Horticultural Society has a great future before it if it will only see that its duties and responsibilities are not confined, as heretofore, to one or two channels only. Hence we are particularly glad to have to record the presence at both the meetings we have alluded to of the President and some members of the Council of the Society.

SUCCESSOR TO MR. WOODBRIDGE.—We believe the question of a successor to Mr. WOODBRIDGE on the Council of the Society is under consideration. There are several competent men, if they could be induced to act, and, in truth, we want, not one practical gardener only, but many, on the Council; and,

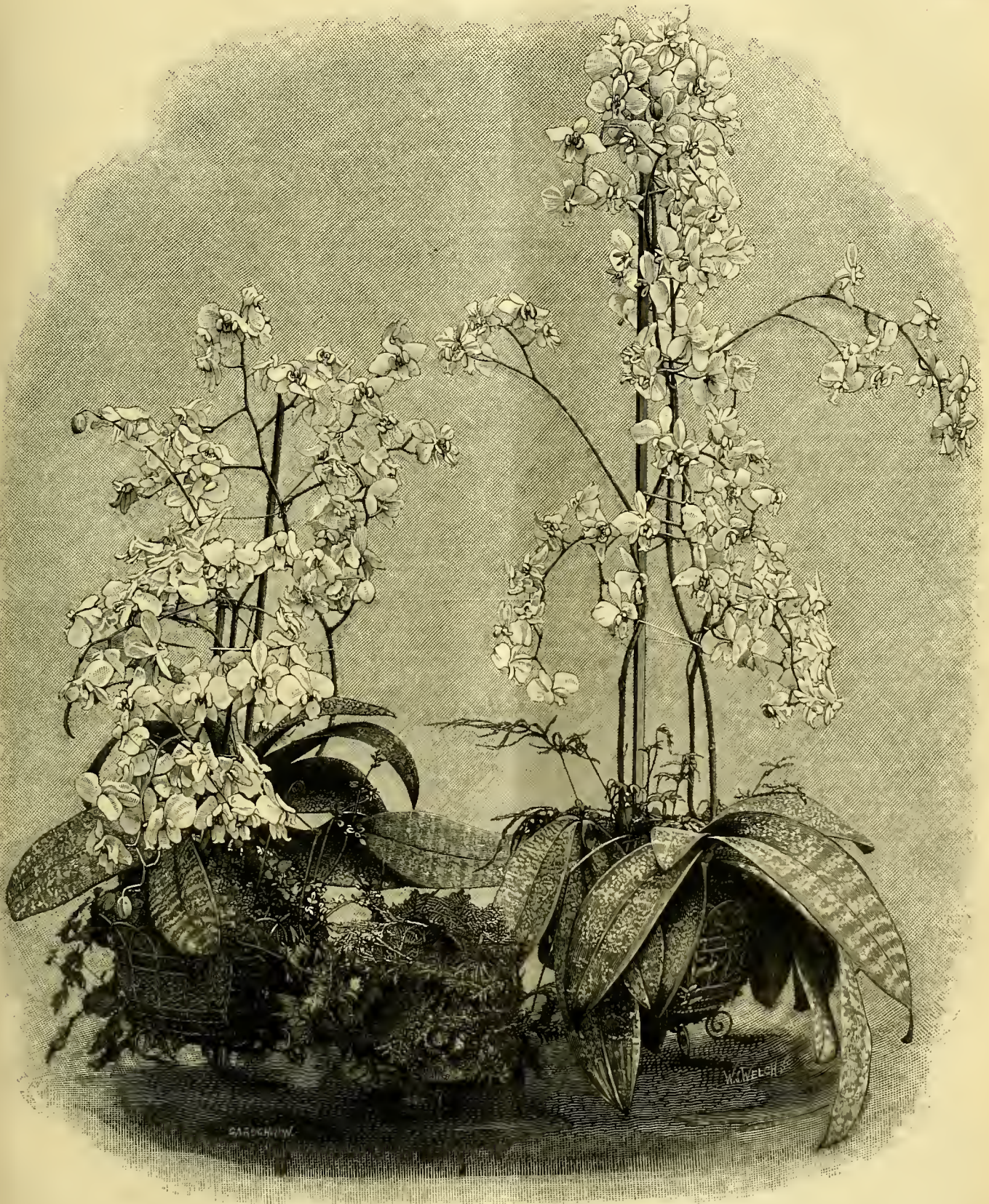


FIG. 72.—*PHALAENOPSIS SCHILLERIANA*, REDUCED. (SEE P. 528.)

moreover, they should be elected in subsequence, if not in form, by their fellow gardeners—being subscribers, of course. In future we hope no good gardener, who is able to do so, will fail to become a supporter of, and an active worker in the Society. If the Society in future fail in its duty to the gardeners, it will be their own fault.

THE EXHIBITION IN THE INNER TEMPLE.—As previously announced, an exhibition of Orchids, Azaleas, &c., will be held in the grounds of the Inner Temple, on Thursday, May 17 next, under the patronage of the LORD MAYOR. The Council has decided to offer £100 in prizes which are not specified in the schedule (now before us), but awards will be made according to the merits of the exhibits at the discretion of the judges. There are twenty-four classes, six of which are devoted to Orchids. One class for a group of plants, arranged for effect in 150 square feet, is open only to market growers. Great variety is shown in the schedule, and if well taken up by exhibitors, the show is likely to be a success.

"KEW BULLETIN."—The April number of this periodical has, to use the slang of the day, inaugurated a new departure. Since the discontinuance of Dr. Hogg's *Year Book* there has been no complete list of new garden plants published in this country. The Federation of the Belgian horticultural societies has published a full list up to a certain date in Belgium. In our own columns most if not all of the plants of the year are chronicled in each year; but since 1886 there has been no complete list in separate form issued. On this account we welcome the list now issued from Kew, and trust it may be perennial. Of course it is not to be expected that the Kew authorities are to be held responsible for the correctness of the nomenclature of which they furnish a record. The list is arranged alphabetically, but we would suggest that in another issue the names of the plants be not only given in alphabetical sequence, but that a list of the genera mentioned be also given ranged under their respective natural orders.

COLOGNE INTERNATIONAL HORTICULTURAL EXHIBITION.—This exhibition is announced to take place from August 4 to September 9, in celebration of the twenty-fifth anniversary of the establishment of the Flora Society. The subjects of exhibition are the following:—Plants of various categories, horticultural products and appliances, tools, &c., together with bee-culture, and literature. There are in all 750 classes in the schedule, with medals to correspond. Dr. P. ESSER, Cologne, is the Secretary.

BRUSSELS EXHIBITION.—We have received the programme of this International Exhibition, which will remain open from May till October. So far as the Horticultural Exhibition is concerned, the programme comprises a permanent exhibition in the gardens, including trees and shrubs, isolated and in groups, hardy plants, bulbs, annuals, &c. On July 1 and 2 a special exhibition of Roses will be held. On August 11 and 12, bees and their products will receive attention. From August 19 to 23 a general horticultural exhibition will be held. From September 30 to October 2 there will be an exhibition of fruits and vegetables, together with Dahlias and autumn flowers. Those who are desirous of further information on the subject should address themselves to M. LÉNENS, Botanic Gardens, Brussels.

THE HARDINESS OF FRUIT BLOSSOMS.—We publish the following communication with the hope of directing to it the particular attention of fruit growers—that is to say of all who grow hardy outdoor fruits—Apples, Pears, Cherries, and Plums. The writer of the letter in question has for many years past taken much interest in the cultivation of these fruits, and the purpose he has in view in asking for the information specified in his letter is either to confirm or upset a theory he has had forced on his mind as to the steps it is necessary to take if hardy

fruit growing in this country is to be placed on a more satisfactory footing than it at present can be said to have. We feel justified in saying that all who may respond to our correspondent's request—and we trust that many who read these lines will do so—will help an honest endeavour to confer a great public benefit:—

"To FRUIT GROWERS.—I shall be much obliged for information on the following points, and I make my request known at this particular time in the hope of inducing fruit farmers, amateur fruit growers, and gardeners to carefully observe and accurately note during the present season—

"1. The dates of blooming of the various kinds of Apples, Pears, Cherries, and Plums under their care, of which they know the correct names, for on accuracy of names much of the value of the observations will depend.

"2. The dates on which frosts occur during the blooming period, the degrees of severity and duration of such frosts, and their effect on the blossom of trees respecting which observations may be recorded.

"3. The crops borne this year by the several trees under observation.

"4. What varieties of the above-named fruits are least affected by the spring frosts.

"5. What varieties are most injuriously affected by the frosts.

"6. Whether the early or late bloomers bear the best crops of fruit this year.

"Any one who has made notes on these points, or any of them, in previous years, and will communicate them to me, will lay me under a great obligation.

"I am collecting this information for the purpose of testing a theory I have formulated on the subject of hardy fruit growing in this country, and I shall publish it in this journal as soon as I am able to collate the several answers I may receive.

"Gentlemen who may favour me with answers to the above questions will please state the exact locality where their observations are made, and if they are able to give precise information as to the crops borne in former years by the trees under observation this year the information will be most acceptable. *Edward W. Budger, Moseley, near Birmingham.*"

PHENIX CANARIENSIS.—This noble Palm, which may be seen in such profusion in the Ghent nurseries, is, according to M. André, in the *Revue Horticole*, a true native of the Canary Islands. It is a Palm which thrives well along the Riviera, producing a very short thick stem and a dense tuft of pinnate, arching leaves, each attaining a length of 9 or 10 feet. The inflorescence is like that of the common Date Palm, and the golden-yellow flowers are succeeded by small acorn-like yellow drupes. It is one of the handsomest Palms for conservatory decoration.

SPECIAL SOCIETIES.—Those who are interested in the progress of horticulture will see with pleasure that the Primula Society has again held its show under the auspices of the parent society. Specialisation is said to be one of the tendencies of the age, and so no doubt it is from the operation of the law of subdivision of labour, but care should be taken not to carry this so far as to create danger of a race of quacks usurping the position really due to the Faculty. If the members of the special societies would contribute their quota to the parent society, and secure representation on its Council, or (as the charter may stand in the way of that) on the general committee of advice, a sufficient income might be accorded to the parent society, while the requirements of specialists might be met by means of special prizes and special committees. Under existing circumstances we must remind specialists, who are not members of the parent society, that their position is rather anomalous and their patriotism weak.

STATUE TO PARMENTIER.—In the town of Neuilly a statue has been erected to the memory of PARMENTIER, who was the first to introduce the culture of the Potato into France. Such are the differences in national characteristics that we suspect a similar proposal here would be met with ridicule, and even those who introduced Cinchona

into India are not likely to be honoured in this fashion.

COLLEGE OF AGRICULTURE, DOWNTON, SALISBURY.—The winter session ended Thursday, April 19. The Certificate of Membership and the Certificate of Proficiency in Practical Agriculture were awarded to Mr. A. W. C. Bower, Broxholme, Scarborough; Mr. D. W. Collyer, Craig Nethan, Weston-super-Mare; Mr. C. E. M. Desborough, Headington, Oxon; Mr. F. O. Solomon, Southfield House, Dartford; and Mr. W. A. Watson, B.A., 65, Eccleston Square, London, W. The Certificate of Proficiency was granted to Mr. J. B. Fielding, Stapleton Rectory, Shrewsbury; Mr. R. F. Grimes, Fern Bank, Balham Hill, S.W.; and Mr. Crofton Kent, Rippington, Sevenoaks. The Scholarship, offered amongst first-year students, was won by Mr. P. C. Burton, 43, Mount Park Crescent, Ealing. Prizes, either in class subjects or in practical competitions, were awarded to Mr. W. H. Carver, Polefield House, Prestwick; Mr. A. H. Douglas, 15, Albion Terrace, Aberdeen; Mr. V. S. Galsworthy, 11, Waterloo Place, Pall Mall, S.W.; Mr. W. E. Genge, Waterston House, Dorchester; Mr. A. G. Lascelles, Sion Hill, Thirsk, Yorkshire; Mr. T. G. Leatham, Hemsworth Hall, Pontefract; Mr. W. D. Linsell, Bevors Hill, Southampton; Mr. W. Montgomery, Careysville, Fermoy, Co. Cork; Mr. F. Turbchin, Kennet House, Newberry, Berks. The external examiners in practical agriculture were Mr. Joseph Carpenter, Burcomb, Salisbury, and Mr. William Stratton, Kingston Deverill, Warminster.

THE FRUIT GROWERS AND THE SALESMEN.—There has been some amount of complaint recently on the part of the Hampshire fruit growers, more especially in reference to the salesmen's commission rates. It appears from a circular addressed to these fruit growers by Mr. J. B. THOMAS, Covent Garden Market, and now before us, that he, a salesman charging a commission at the rate of 10 per cent., can not afford to supply the growers with empties in which to pack their goods because the latter do not look after his property but allow it to be converted into all sorts of uses other than those for which it was intended. Hence has arisen of late a disinclination on his part, and doubtless on that of other salesmen, to look after the interests of the growers; but he now comes forward with new offers, viz., 1st, a 10 per cent. commission, to cover the loan of boxes, market tolls, portage, and guarantee, all boxes supplied, those not returned being paid for; 2nd, a 5 per cent. commission, besides a market toll of 2d., portage 1d., the senders to provide their own boxes.

THE SCOTTISH PRIMULA AND AURICULA SOCIETY.—It is the intention of the above Society to hold a show of Primulas and Auriculas in the Calton Convening Rooms, Waterloo Place, Edinburgh, on Wednesday, May 9 next.

ORCHID AND OTHER PEAT.—Some excellent samples of peat have been forwarded to us by Messrs. Eves & Co., Ringwood. In many parts of England good peat for Orchids and hard-wood plants is difficult to procure, but in the neighbourhood of the New Forest there are still large deposits upon which gardeners in the future may rely.

MARCH AT THE ANTIPODES.—As showing what our countrymen grow on the other side of the globe, and how they proceed with garden operations, the following directions for the flower gardener are culled from the *Mildura Irrigationist and Murray River Agricultural Times* for March 7 last:—

"Free sowings of all sorts of hardy annuals should now be made in seed-boxes or pans, to be afterwards planted out. In the meantime the beds may be prepared for their reception by thoroughly turning over the manuring. The beds should also be kept moist; so that all seeds of weeds may germinate and be destroyed as they appear above the surface. Roses which were not budded last month may still be treated so long as the bark separates freely from the

wood. Many herbaceous plants, such as Primroses, Polyanthus, Daisies, and others may now be lifted and replanted, and cuttings of Verbenas, Pentstemons, Antirrhinums, and others, should be put in sheltered positions. Remove the young rooted plants of Carnations which have been layered and transplant into beds: layering may still be done if required. Take up Dahlias and Gladioli that have finished flowering as soon as the stalks have withered, and store in a warm dry shed or cellar. Sowings may be made of Pansies as well as Primulas, Cinerarias, Calceolarias, and Mimulus. They should be sown in seed-pans in fine rich soil, in a sheltered position, and may be pricked out as soon as the seedlings are sufficiently advanced to bear handling. French Poppies must be sown where they will be wanted, as they will not bear transplantation. Evergreen shrubs should be overhauled and trimmed into a slightly shape. No attempt should be made to give them a fixed or uniform shape, but straggling branches and dead wood should be cut out."

FRUIT EXHIBITION IN VIENNA.—The Fruit Society of Lower Austria has determined to hold an exhibition of fruits in the autumn, on the occasion of the Jubilee of the Emperor. The exhibition has for its purpose the placing before fruit-growers, fruit farmers, and the public, the newest technical discoveries for turning fruit to account; and will divide the various exhibits into four classes—I, Table and market-fruits; 2, fruit-preservation, in conjunction with a fruit-drying competition; 3, a fruit market; 4, fruit trees, and appliances for growing fruit (nursery goods). The classes 2 and 3 are international.

COMING SHOWS.—Kettering and District Horticultural Society will hold its fourth annual show on "Feast Monday," July 2, when handsome prizes are offered for groups of plants, cut Roses, vegetables, &c. The annual exhibition of Chrysanthemums will take place on November 17. The Stratford, Forest Gate, and Ilford Horticultural Society intend to hold a show in Cranbrook Park, Ilford, on Thursday and Friday, June 28 and 29 next, in connection with the Essex Agricultural Society.

THE APIARY.

Bees may now be overhauled if necessary, but let this be done cautiously or the brood may be chilled. As for myself I shall wait a little, as during the last few days the bees have been vigorously carrying pollen into the hive—a sign that all is well with the queen; but as bees are now breeding fast, and therefore consuming a great deal of food, take care they have it, and if they are taking in pollen it is far better to feed gently than overhaul them. Remember that more bees die in April than during the winter. If you begin to feed, keep on feeding until the honey season. Better never feed at all than begin and leave off too soon.

Should bees be listless, something has probably happened to the queen, and, in this case, thoroughly examine the hive. If the queen be dead join the bees to another hive at once. If from any cause the bees in the hive have dwindled away, do the same thing, *i.e.*, join them to another stock at once.

The time will shortly arrive for intending bee-keepers to buy swarms. First swarms are the best to buy, and endeavour to buy a first swarm from a hive which swarmed last year; thus you will have a fertilised queen aged one year, and this will be a great advantage, as the second year is the best. Swarms may be bought of a neighbour, but if you should make up your mind to buy stocks, then purchase them from somebody who lives at least two miles off, or the bees will fly back again.

Get ready all appliances and order everything you want, or by-and-by you may be left in the lurch. If your bees are near a stream you need not give them any water, but if not give them some at once. Wet tea leaves or cork dust completely covering the surface of a pan of water are two very simple and effectual methods. *Rec.*

HOME CORRESPONDENCE.

ROYAL HORTICULTURAL SOCIETY.—I fully endorse what your correspondent, "F. R.," says on p. 498 as to the hour of meeting. The present one, viz., 11 o'clock, is very inconvenient to any Fellow or exhibitor living more than 100 miles from London. He must either come up the night before, thus doubling his expenses, or he must leave home soon after 4 a.m. A man must have a great love for horticulture to do this! The success of all undertakings, whether public or private, depend largely, nay, chiefly, on the care bestowed on details, and if the Council wishes the Royal Horticultural Society to succeed, it must not think any practical detail below its notice. Either they wish country members to exhibit and attend or they do not. If the former, they will take all possible steps to make everything as convenient as possible to them. Our Council is, I am sure, amongst the most ardent supporters of the old Society: would they personally like to have to rise at 4, 5, or even 6 a.m. every time they attended a meeting? *Henry J. Pearson.*

LARIX PENDULA.—In reply to the remarks of Sir C. W. Strickland, p. 469, I am pleased to make known to your readers all the information which I possess about the tree figured (see Supplement, April 7). The plant was bought with other weeping Larches some thirty years ago, and is, I think, a sport from *L. europæa*, but if it be a seedling variant, or a sportive form of the species perpetuated by grafting, I know not. I do not suppose it to be identical with the variety of the weeping Larch mentioned by Loudon as growing at Dunkeld, as it does not form an erect leader, or show any inclination to make one. *Maurice Young.*

FRUIT RATES OF TRANSIT, &C. (SOUTH HANTS).—"Spade's" remarks under the above heading (p. 499 of your last issue), and more especially his figures, are exaggerated, or he has not properly mastered his facts. The rate of salesmen's commission is 5 per cent., exclusive of market tolls, not "12½ per cent.," railway charges are 25s. per ton, or 2½ per cent., not "7½ per cent.," on the estimated value of "£51 per ton." The total is £3 15s., not £10 per ton expenses. The charge for a single box, even by passenger train, is only 1s. 3d. for 56 lb., not "2s.," and I venture to think that consignors of less weight than 56 lb. are not worth the consideration of an association. An appointed agent who is a stranger to the trade, the market, and the buyers is, as a sales man, likely to lose in the prices realized more than double the usual commission of a London salesman who does not labour under these disadvantages. *J. B. Thomas.*

THE LATE MR. WOODBRIDGE.—It is, perhaps, a propitious moment for a suggestion with respect to the perpetuation of the memory of one whom we shall indeed miss; Mr. Woodbridge held strong views concerning the education and professional advancement of young gardeners, and which he earnestly hoped his novel, yet eminently appropriate position, as a member of the Council of the Royal Horticultural Society would enable him to put into practical shape. The suggestion is, that the gardeners and horticulturists of the kingdom be invited to contribute to a memorial which would take the shape of one or more annual prizes to be awarded to candidates who should the most efficiently pass such examination in practical and theoretical horticulture, as may be thought desirable by the Council of the Royal Horticultural Society. If such a memorial to a leading gardener, one of the most eminent men in the profession, and who in life has recently been specially honoured because of his singular fitness, could be established, it should, like that raised to the memory of the late Charles Turner, be terminable, say in ten years, the sum raised being so apportioned that it would furnish some one or two desirable prizes annually for that number of years. It was my fortune to have had a very recent conversation with our lamented friend concerning the subject he had so much at heart, for no longer ago than March 31 he called here when passing, and fully detailed his views, and that, too, with much earnestness. His mind was specially set upon the promotion of some form of examination through which the young gardeners of the country might rise to higher things, although, so far, that height in relation to honours

had not gone beyond that of Associateship with the Royal Horticultural Society. Mr. Woodbridge, in response to the suggested difficulty with respect to conducting examinations because of the wide-spread and yet isolated habitations of gardeners generally, thought that, whilst a series of questions might be set of an uniform character for the entire kingdom, which might be replied to on given days or evenings, and within a prescribed time, the actual supervision of that time and work of replying might well be left to the various head gardeners, most of whom, he thought, could be fully trusted to carry out faithfully the instructions sent with the examination-papers. In cases where other young men, not connected with large gardens, wished to be examined in the same way, it was thought that arrangements locally with various head gardeners [who, in the future, it is hoped, will become Local Secretaries of the Society. *Ed.*] could easily be made to that end. All the local work of the Society of Arts, and the Science and Art Department examinations in many subjects, are conducted through the instrumentality of one or two persons, and the same could easily be done through the various local head gardeners. It was also Mr. Woodbridge's belief that numerous employers of gardeners would be not only induced to take active interest in this educational movement, but would render help and encouragement also. Very distinctly did he declare that it was in no way wished to set up any educational tests for the gardeners of mature years. Such men have already won their status in the profession, and to place them in leading-strings now would be intolerable. It was rather to the growing generation of gardeners the tests were to be applied, not only with the object of giving young practical gardeners an improved professional status, but also that young men might be induced to see fairly early in life how far their knowledge, both theoretical and practical, had fitted them for the ranks of gardeners. That the supply of young gardeners considerably exceeds the demand there can be no doubt, and Mr. Woodbridge hoped that with some form of educational test in the elements of gardening, considerable weeding out would be accomplished, as those who failed would, after a second or third year's trial, probably find that they had, in entering gardening, mistaken their vocation. I think the detailing of these facts—dry, perhaps, but clear and precise—will tend to show that Mr. Woodbridge, in becoming a member of the Council of the Royal Horticultural Society, had in no way become inflated or impractical in his ideas. I am sure that in accepting such a position, our deceased friend had only one desire, and that was to do something beneficial for gardeners and for horticulture. The same genial warmth of expression and of thorough honest friendliness continued to animate him, just as those social features had marked his character from the first. He was always kind, courteous, and considerate, as well as genial, and found a host of friends in every direction. Whenever it was my good fortune to have him for a fellow judge I always found him to be specially anxious to do that which was right, his work being performed with exceeding conscientiousness. In one case, when in judging he had reflected critically upon the culture of some plants before him, he was afterwards intensely annoyed to find the gardener's employer when the plants were under consideration, had, with great impropriety, stood at the judge's elbows, and expressed himself with exceeding indignation later. This was but one of many instances which might be produced to show how strongly his soul rebelled against anything unfair or dishonest, whilst his sympathies were ever with the class of which he formed so admirable an example. *A. D., Bedford.*

FOLIATION OF TREES.—For some years past I have made a practice of watching the Lime avenue here, and noting the opening and falling of its leaves. I send you the result below. It shows a great uniformity in the fall, not varying in the twelve years recorded more than twelve days, save in one instance of 1887, which, owing to the exceptionally dry summer, shows sixteen days as the extreme limit of variation. In the opening of the leaves a much greater divergence is observable, nearly a month occurring between the earliest and the latest date. May not this be owing to the much greater climatic variation, both in temperature and moisture, that characterises our English spring, than that which ever prevails in the autumn? Cold and dryness seem the influences most adverse to the opening of the buds, while wind is generally the cause of their early

destruction in the autumn. In the exceptional year of 1887, a long hot summer drought caused their fall so soon. It is difficult to note the exact day of these silent operations of Nature, or to fix them, but I think they are fairly correct, and they relate to the same trees throughout. As to the order of Mr. Marsham's observations, on comparing them with some of mine, I can only add that here in

1877. I noted Hawthorn blossom only fully out by June 10.

1879. I heard the cuckoo on April 7; and that the Beech was not in leaf on May 16.

1880. The thrush was singing delightfully from December 2, the weather being extremely mild.

Fall of the Leaves.

1874. October 31.—Lime avenue to-day quite bare of leaves; Hornbeams still covered—like globes of gold.

1875. November 7.—Limes bare of leaves only to-day; on October 31 still clothed with thin yellow leaves—fully a week later than last year.

1876. November 10.—All off by November 10 or 12, although they began to fall on October 15, and were falling fast on November 5.

1877. October 28.—Quite bare on October 28, and nearly so on 21st. A storm of wind on the 14th made great havoc with them, and on the first week in September a severe frost.

1878. November 8.—Leaves all off; almost so on the 1st.

1879. November 7.—Gone about this time; falling during the last three weeks of October, and about two-thirds off on November 2.

1880. November 2.—All the Lime leaves gone.

1881. October 30.—Limes quite bare; the storm of the 14th hastened their fall.

1882. October 28.—Limes bare of leaves; heavy winds prevailing; a dry spring and wet autumn.

1883. November 8.—Bare; on October 27 not more than half off, although they began to fall in middle of September, the summer being dry.

1884. November 5.—Quite bare; almost so on October 31.

1885. } Records mislaid.

1886. }
1887. October 23.—Leaves all off; half gone by the 16th; more than a week earlier than usual from the summer drought and heat.

Opening of Leaves.

1874. May 1.—Lime leaves coming out only now since the rain; the weather for a month or six weeks remarkably dry and cold.

1875. April 28.—Limes just opening and showing green.

1876. April 20.—Limes just coming into leaf; weather cold, but for some time showery.

1877. May 7.—Lime leaves just appearing by the 18th, only the lower branches showing green.

1878. April 20.—Leaves beginning to come out; quite green on May 1. A mild spring and a very wet April, May, and June. Good crop of grass.

1879. May 4.—Limes just opening—not more than half out on the 18th. A cold spring. April 13 (Easter Sunday) ground covered with snow, and in first week of May every one wearing his great coat as though it were Christmas.

1880. April 10.—Limes just now beginning to show green leaves. Dry spring till April came in showery.

1881. Records mislaid.

1882. April 9.—Limes opening their leaves in places. A mild, beautiful winter here.

1883. May 3.—Limes beginning to show their leaves, but yet hardly looking green; dry cold weather during March and greater part of April kept vegetation stationary.

1884. April 12.—A few leaves beginning to show, looking quite green by May 5, but not covered fully till 17th. Early spring very mild, but late spring very cold.

1885. April 25.—Leaves showing; quite green on 29th, and in full leaf only on May 17. A late spring.

1886. Records mislaid.

1887. May 7.—Leaves just appearing, but hardly perceptible; a dry spring and backward season, but little rain till last week.

1888. April 12.—Not a leaf out yet. *G. M. H., Bagshot Sands.*

LOMARIAS.—There are two of the Lomarias mentioned on p. 429 of your issue of April 7, by "Pteris" (whose present address I do not know), about which I would like to offer a few suggestions. *Lomaria discolor bipinnatifida*, so named, is an exceedingly handsome Fern, and should by all means be correctly named. I send you herewith several fronds, viz., one of *L. falcata*, one barren frond of this species slightly but very definitely bipinnatifid, and a fertile frond from the same plant; two barren forms of the variety known as *discolor bipinnatifida* accompanied by a contracted and apparently but not really fertile frond from the same plant, and a barren and fertile frond of *L. discolor*. I think an examination and comparison of these fronds will show that the so-called *L. discolor bipinnatifida* is a variety of *falcata* and not of *discolor*, and is what may be called an improvement upon the slightly cut variety of *falcata*, of which a frond is sent. The colour, form of frond, and habit of growth show the bipinnatifida variety to be related to *falcata*, but very unlike *discolor*, and I offer the suggestion that it should be so far as possible spoken and written of and described as *L. falcata bipinnatifida*. I also send you a frond of the variety described as *L. gibba platyptera*, and would point out that the fructification is along the midrib of uncontracted pinnae, and would thus appear to be more correctly classed as a *Blechnum*. If I am not mistaken when Messrs. Veitch sent out this capital decorative Fern as *L. gibba platyptera* they had not seen it in fructification. I would venture to suggest that henceforth it should be known as *Blechnum platyptera*. *J. Birkenhead, Sale.* [Mr. J. G. Baker, Royal Gardens, Kew, to whom we forwarded the Fern fronds above mentioned, remarks as follows:—"I. Many of the Lomarias run into blechnoid forms, especially punctulata and volubile. The later German Fern systematists all unite Lomaria and Blechnum as one genus. This is evidently a blechnoid form of Lomaria gibba. We have exactly the same thing from Veitch laid into the Herbarium in 1869, and then labelled *L. gibba* var. *blechnoides*. 2. There are two varieties of *L. discolor*, viz., *nuda* and *falcata*. Mr. Birkenhead is quite right in referring this bipinnatifid monster to var. *falcata*. It quite agrees with Mueller's original specimens described. *Fragm.*, v., 121, and again by T. Moore, *Gard. Chron.*, 1877, ii., 488. *J. G. B.*"]

GROUPS OF CHRYSANTHEMUMS FOR COMPETITION.—The committee of the National Chrysanthemum Society are to be commended for permitting for the future a belt of Ferns and foliaged plants to be used as a margin to groups of Chrysanthemums in pots arranged for effect; and this edging need not trench upon the space set apart for the Chrysanthemums, as it can occupy an additional space provided it does not exceed a foot in width. These groups afford masses of brilliant and striking flowers of varied colour, but they are generally borne on plants grown on a single stem; and they are invariably tall, so that hitherto when the groups have been completed they have presented to view 2 feet or so of pots and naked stem, which circumstance detracts greatly from the effect produced. This is a step in the right direction. It would be well if the practice could be generally followed. It is something to have the lead of the National Society in such a direction, and there is reason to believe that what some Chrysanthemum exhibitors unwisely regard as an innovation will be adopted at all Chrysanthemum exhibitions. *R. D.*

RHODODENDRON-HOUSE AT LYTHER HILL, HASLEMERE.—In order to show his appreciation of the beauties of the Sikkim and other Rhododendrons, J. Stewart Hodgson, Esq., had a house built for them about two years ago. Rhododendrons were cultivated under glass before this was done, but only in small numbers, but now many more plants of various species and varieties have been added to the existing collection. Borders have been carefully made in which the plants will be placed, and it is intended to cover the walls, columns, &c., with them as well as to grow specimens in the middle part of the house. Some of the plants reach a height of 8 feet, and all are growing freely, as the foliage I send with this note will show. [The leaves and flowers were very fine. *Ep.*] The hybrids of Rhododendron are grown in that part of the house which is warmer, and the intention of Mr. Hodgson is to fill the houses altogether with such varieties as have large flowers, these being so much in request for room and other domestic

decorative purposes; noble form, delicate colour, and fragrance being all combined. It is surprising that so small an extent of glass is devoted to this class of plants in most gardens. The species, &c., which we possess are *Brookianum*, *calophyllum*, *ciliatum*, *Countess of Haddington*, *Dalhouseianum*, *Edgeworthii*, *Gibsoni*, *Duchess of Connaught*, *Duchess of Edinburgh*, *Duchess of Teck*, *Fosterianum*, *fragrantissimum*, *javanicum*, *Lady Alice Fitzwilliam*, *Maiden's Blush*, *Nuttallii*, *Princess Alexandra*, *Princess Alice*, *Princess Frederica*, *Princess Royal*, *Queen Victoria*, *Sesterianum*, *suave*, *Taylorii*, *Veitchii*, and *Veitchii lavigatum*. Some of these Rhododendrons are grown in pots for the purpose of filling up the house till the planted out specimens are large enough to occupy the space. Mr. Evans, the gardener at Lythe Hill, takes great interest in hybridising this species of plants, and has already succeeded in obtaining seed from several species, of which he has great hopes. *H. G.*

PEPPERMINT AS A DISINFECTANT.

It is a fashion with some people to treat with contempt the traditions handed down by our forefathers. Before, however, we discard valuable drugs which have been used for generations past, it is always well to search for any new properties which can perhaps be added to their past history.

Many of your readers may not be fortunate enough to have copies of the *Lancet* or *British Medical Journal*, or would care to wade through their contents. I therefore wish to chronicle in your widely read journal the results lately arrived at in favour of Peppermint Menthol.

It has been found, after laborious research, that of all substances and chemicals yet discovered there is nothing known more fatal to bacterial germs of diseases, &c., than Peppermint (*Mentha piperita*). It is found that one three-hundred-thousandth-part of Menthol is sufficient to destroy the bacterial germs. It must be known to many of your readers, by the letter from Mr. E. M. Holmes, F.L.S., of the Pharmaceutical Society, that after a long search the home of the true Menthol plant was discovered to be in Japan. This plant I have discovered largely throughout Europe and America. Mr. J. W. Coleord, of the Pharmaceutical Society of Massachusetts, U.S.A., writes me that Peppermint has withstood 10° below zero of frost; this will prove that the plant is a hardy one. Some correspondents write to tell me they tried the Menthol by pouring hot water upon the foliage, and drinking the infusion in the hottest weather. They experienced great relief to their fatigue, and it was as refreshing as Tea, and they thought it more stimulating. I have had letters asking me if I could supply any of the foliage, so that experiments might be tried by boiling it, and bringing the infusion into a sick-room for its perfume and antiseptic properties, but on looking over my large beds of roots I found none sufficiently advanced to cut. I have no plants being forced, and regret that these experiments must be deferred until later in the spring. One experiment made with the Menthol crystals, which can now be bought of any chemist at a few pence per ounce, will show how preferable is its perfume to the objectionable smell of carbolic acid when exposed in the usual manner in an open vessel.

Medical men, when they come to ponder over these facts, will welcome the results of the experiments showing that Menthol can now be safely relied upon as yielding better results than carbolic acid. *Thomas Christy.*

PEOPLE'S PALACE, MILE END.—The trustees of the Beaumont Trust, the Chairman of which is Sir Edmund Hay Currie, Bart., entertain the laudable desire of furnishing the inhabitants of the Eastern portion of the metropolis with three flower shows within the People's Palace during the course of the ensuing summer. So beneficial a proposal should meet with the approval and ready assistance of all who regard "sweetness and light" for the toiling millions as being something more than a phrase.

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, APRIL 24.—The Drill Hall, James Street, Westminster, presented a gay appearance on this occasion, the incoming harvest of flowers of the season, forced and otherwise, having been abundantly represented by amateurs and the trade; and still further to add to the attraction of the day were the refined products of the florists' skill in the display of *Auriculas*, *Polyanthus*, and other sections of the large order of *Primulas*, brought together under the auspices of the Southern section of the National Auricula Society.

Roses in pots were shown in goodly numbers of dwarf, freely flowered examples; *Daffodils* in great variety occupied a considerable amount of space, likewise *Cyclamen* and *Alpines*. Orchids were few in numbers, but not so the visitors, for so many persons as were in the Hall during the afternoon have not been observed at the Society's meetings for many a day.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. W. Wilks, W. Goldring, H. Herbst, W. Bates, W. H. Lowe, C. T. Drury, R. Dean, G. Paul, C. Noble, C. Pilcher, J. Dominy, H. M. Pollett, J. O'Brien, A. F. Lendy, B. Wynne, E. Hill, J. Walker, and Dr. Masters.

Orchids.—F. A. Phillbrick, Esq., Oldfield, Bickley (gr., Mr. Heims), exhibited a bright *Mitonia vexillaria rosea*, the richly coloured *Oncidium Crasus*, colours pure yellow and brown, the lip of the former colour; *Cattleya Lawrenceana* concolor. A small flowering piece of *Angræcum arcuatum*, bearing a short spike of white blossoms, came from H. J. Buchan, Wilton House, Southampton (gr., Mr. T. Osborne).

The beautiful *Odontoglossum Humeanum* was sent by Mr. Pollett, Fernside, Bickley: the lip and petals are primrose-yellow, the latter spotted at the base with brown spots arranged in a circle; the dorsal sepal is closely dotted with dark brown over the whole area.

Mr. J. Charlesworth, Heaton, Bradford, showed the brightly coloured *Odontoglossum crispum* variety Charlesworth's, the ground colour of which is white, but which is almost disguised under the numerous crimson spots and suffusion.

One of the largest collections came from the gardens of A. H. Snee, The Grange, Carshalton (gr. Mr. Cummins), and included numbers of rare *Masdevallias*, such as *ludibunda*, *Estradae*, *Houtteana*, *xanthocorys*, some well flowered *M. ignea*, *Angræcum Sanderianum*, &c.

Cypripediums were extensively shown by F. C. Tautz, Esq., Studley House, Goldhawk Road, Shepherd's Bush (gr., Mr. Cowley). Amongst those observed, were *Cooksoni grande*, *Hookera majus*, *Argus*, *Lawrenceanum album rubrum*, a heavily marked flower, with claret coloured pouch, which was glabrous, dorsal sepal purple and marked with hues of a darker tint the petals are bronzy, narrow, with hairy warts on the edges. Of *C. selligerum majus* there was one plant bearing three blooms of great size. The other plants shown consisted of *Odontoglossum Harryanum*, *Dendrobium fimbriatum oculatum*, *Mitonia vexillaria*, *Cattleya Lawrenceana concolor*, pale lilac; and *C. L. rosea*, *C. Schroderi*, with a lip prettily frilled; several *Odontoglossums*, &c. A Silver Banksian Medal was awarded.

Mr. B. S. Williams, Upper Holloway, showed *Odontoglossum F. L. Ames*, a curiously marked flower with white lateral petals, having a patch of a brown colour at the base. The sepals are brown, and brown with green spots, and the lip white. Other plants were *Oncidium undulatum* and *Cattleya Mendelii grandiflora*—the latter a very fine thing.

A bright patch of colour was found in Messrs. J. Veitch & Sons' exhibit of new varieties of hardy *Azaleas*, hybrids between *A. mollis* and *A. pontica*; *Belle de Gand* and *Coronet* have flowers of primrose-yellow and white; *Etoile de Flandre*, pink and yellow; and *Comte de Kerchove*, orange. The plants were of dwarf growth, and very freely flowered. From the same exhibitors came tree *Pæonies Comtesse de Endort*, yellowish-salmon; *Queen Elizabeth*, vivid rose. Both bore flowers of great dimensions.

Amaryllis Black Prince, a flower of medium size but good form and of crimson colour, came from Mr. B. S. Williams, Victoria Nursery, Holloway.

Roses in groups were very well shown by three different exhibitors. Messrs. Paul & Son, Waltham Cross, were awarded a Silver-gilt Banksian Medal, for a highly creditable group of standard and bush plants in pots. Catherine Souper, Hippolyte Jamain, Moiret, Edward Morren, *alba rosea*, *Magna Charta*, and *Innocente Pirola*, were conspicuous varieties, the plants bearing several large and well-formed blooms; the same firm also sent a basket of small Rose trees, each bearing a single flower of rich colour. Mr. Wm. Rumsey, Waltham Cross, received a Silver Banksian Medal for a group of pot bushes, in excellent condition, and well flowered; *Madame H. Jamain*, *Perfection de Montpellier*, *Francesque Rêve*, *Duchesse de Valombrosa*, and *Magna Charta* being noticeable sorts.

Messrs. H. Lane & Son, Great Berkhamstead, contributed on this occasion, as at the two previous shows, a collection of bushes in pots, all well flowered, and were given a Bronze Banksian Medal for the exhibit. Her Majesty was well represented, and there were also good examples of *Madame Margottin*, *Coquette des Blancches*, *Devoniensis*, *Souvenir d'un Ami*, *Duchesse de Valombrosa*, among others.

From Mr. T. F. Rivers, Sawbridgeworth, came a new Tea Rose, named *May Rivers*, which received a Certificate. It is a flower of the form and size of *Niphetos*, creamy-white, very double, handsome in the bud, and half-opened state, and possesses good substance in the petals. Another Certificate was granted to a climbing form of the *Niphetos* Rose sent by Messrs. Keynes, Williams & Co., Salisbury, who showed a large, well-flowered plant in a pot.

Miscellaneous.—Messrs. Kelway & Son staged a rather large group of double *Cinerarias* and new *Amaryllis*. Of the former the majority of the forms were of light shades, one named *Queen Victoria*, being pure white with a faint reddish-violet tinge at the tip of each segment—it was a very good variety. *Beatrice Kelway* was white with bold rose tips, giving a very pleasing effect. Numerous other varieties were also shown. The *Amaryllis* were dwarf, and the flowers rather small in most instances. There was a great range of variation to be seen in this collection, some being very striking, especially so was *Miss Ainslie*, very dwarf habit, fairly large flower, open and flat, of a scarlet colour, with a white margin and mid-nerve. Other noticeable sorts were *Mont Blanc*, yellowish-white or cream colour throughout, and *Lord Rothschild*, a rich deep red.

Cinerarias (double) were also shown by Messrs. H. Cannell & Sons, Swanley, Kent, showing very rich deep reds and blues. *Aspara* was the finest deep blue; and *Faust*, the best red variety, with large full heads; a peculiar purple-violet variety was named *Advance*; it is a dull colour, and would be likely only to find place as a curiosity. Out blooms of the beautiful rich creamy-yellow *Carnation Pride of Penshurst*, vigorous plants of *Mignonette*, with large sturdy spikes, and *Begonia Carrièrei villosa*, were also shown by this firm. The *Begonia* was a hairy form of the *B. Carrière*, a good decorative sort with white flowers, freely produced. Several pots of *Violet Victoria*, a sort with large, full, and richly coloured dark flowers, very floriferous; two were shown by Mr. J. C. Chambers, Isleworth—it had already been certificated; and from the same exhibitor were shown pots of *Viola Snowflake*, a good white, with a few white lines at the eye.

Daffodils, &c., were numerous shown by Mr. Walker, Whitton, Middlesex, who, for a splendid lot of blooms effectively set up, received the award of a Silver-gilt Banksian Medal. Messrs. Barr & Son, Covent Garden, and Messrs. Collins Brothers & Gabriel, Waterloo Bridge Road, each received a Silver Banksian Medal for a large group of cut blooms of *Daffodils*; and for a similar collection a Bronze Banksian Medal was awarded to Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. Of the numerous varieties shown in these groups, the following were conspicuous:—*Albicans*, *Emperor*, *Horsfieldi*, *Leedsii* and its varieties, *odoros*, *pallidus præcox*, *moschatus*, *Ard Righ*, *Mary Anderson*, *montanus*, *spurius*, *Yellow King*, *Duchess of Westminster*, *Poiteicus*, *Nelsoni*, and many others.

Mr. T. S. Ware also showed a few hardy plants, &c., including *Isis pumila corulea*, delicate cobalt-blue; *Trillium erectum*, *Pothos fetida*, various *Primulas*, *Androsace carnea*, *Megasea Stracheyi*, *pubescens alba*, a pretty variety with pure white flowers; and also a white Dog's-tooth *Violet*, *Erythronium grandiflorum* var., with large pure white flowers.

Messrs. Paul & Son, Cheshunt, N., showed an attractive collection of alpine and rock plants, among which were good pieces of *Androsace Lagerri*, the

pale rose flowers of which are very pretty. *Primula pubescens nivalis* was represented by large plants with large heads of flower; *Primula similis*, bright yellow, and a large head forming a conspicuous object; *Bellis rotundifolia cornescens*, the "blue" Daisy, which was white, with a pale lilac tinge; *Soldanella minima*, *Gentiana verna atrocerulea*, *Draba Haynaldii*, with numerous yellow flowers, very pretty; *Anemone palmata*, like a yellow Buttercup; and numerous species of *Primula*, *Saxifraga*, &c. Silver Medal.

From the Royal Gardens, Kew, there was sent a most interesting collection of hardy plants and alpine, interesting on account of the number of species shown. One of the most prominent of the subjects shown was *Anemone Fannini*, a South African plant of recent introduction, figured in these columns; it is apparently a vigorous plant, and bears large flowers of pure white; it is somewhat after the habit of *A. japonica*. *Bejaria glauca* delicate rose petals with a narrow dark line down the centre, was also shown; it is much like an *azalea* but more delicate in appearance. *Bougainvillea spectabilis*, rich reddish purple, was very pretty and would be a desirable plant. There were also *Rhododendron arboreum*, *R. Aucklandiæ* × *Hookeri*, and *R. niveum*, which created much prominent. *Pinguicula grandiflora*, a pink variety, collected on the Alps above Grenoble, at 3000 feet altitude; *Echium calithyrsum*, *Corydalis* interest. *Nymphæa tuberosa*, *Marliac's* variety, *Marliacea*, an open flower about 6 inches in diameter, with segments of very pale yellow; the stamens, which are bright yellow, are very tuberosa, *Dicentra canandensis*, *Cerens Mallisoni*, *Narcissus rupicola* and *N. triandrus* vars., with *Saxifraga latipetiolata*. *Primulas* in a great variety of species were also in the collection. *P. × venusta*, with peculiar red-brown flowers, was a very peculiar one; *P. hirsuta* Allioni was well shown; it is a good dwarf plant, with good sized flowers of a lilac hue; *P. pubescens*, white variety; *P. Balbisii*, *P. Wulfeniana*, *P. Obstrittii*, with a head of large yellow flowers, borne on a stout stalk—rather a coarse plant, &c. There was also shown *Iris canescens*, a small yellow-flowered sort.

Cyclamens were represented by a collection of well-grown plants from Mr. Clarke, Twickenham. Good, vigorous plants of *Mignonette*, were sent by Mr. Sullivan, gr. to D. B. Chapman Esq., Roehampton. A plant of *Begonia glaucophylla* was sent by Mr. J. Crook, The Grange Gardens, Farnborough, Hants, who also showed a few *Primulas*, one of which—an alpine *Auricula*—named *Crimson Beauty*, was specially noticeable on account of its rich claret-coloured flowers.

J. T. Llewellyn, Esq., Penlegare, Swansea, showed cut trusses of blooms of six or eight species of Indian *Rhododendrons*, all flowered in the open ground at his estate in Swansea; they were very creditable, the colours bright and flowers of good size, but it is a pity that no names were attached to the specimens. Mr. S. Ford, Leonardslee, Horsham, showed *Passiflora racemosa*, evidently a very free flowerer, bright red in colour; and from the Civil Service Co-operative Society, 28, Haymarket, W., were shown *Daffodils* arranged in basket frames representing a pocket supported on three legs, also a large bouquet of *Daffodils*. Messrs. A. Hart & Son, High Street, Guildford, exhibited a fine *Coleus*, with large thick leaves coloured light and dark crimson, the base of the leaf being yellowish.

FIRST-CLASS CERTIFICATES.

To Messrs. Kelway & Son, for *Cineraria* Queen Victoria.

To Messrs. Kelway & Son, for *Cineraria* Beatrice Kelway.

To Messrs. Cannell & Sons, for *Cineraria* Faust.

To Messrs. Cannell & Sons, for *Cineraria* Aspasia.

To Messrs. Cannell & Sons, for *Cineraria* Advance.

To Messrs. Kelway & Son, for *Amaryllis* Miss Ainslie.

To Mr. T. S. Ware, for *Erythronium grandiflorum* albiflorum.

To Messrs. Keynes, Williams & Co., for climbing *Niphetos* Rose.

To Mr. B. S. Williams, for *Odontoglossum* Rossi F. L. Ames.

To J. Charlesworth, Esq., for *Odontoglossum crispum*, Charlesworth's var.

To Messrs. J. Veitch & Son, for *Pæony* (Tree) Comtesse d'Endort.

To H. M. Pollett, Esq., for *Odontoglossum Humeanum*.

To H. J. Buchan, Esq., for *Anagracum arcuatum*.
To Mr. J. Crook, for *Primula Crimson Beauty*.
To Messrs. T. Rivers & Son, for *Rose May Queen*.

Fruit Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. J. Wright, G. Norman, J. Cheal, G. W. Cummins, T. F. Rivers, J. Lee, T. J. Saltmarsh, P. Crowley, R. D. Blackmore, J. Marshall, S. Ford.

There was not much worthy of note placed before the committee, the best exhibit consisting of Cucumbers, shown by Mr. T. Lockie, Oakley Court Gardens, Windsor, which were of good shape, even, and had not too much neck. Mr. Cummins, Grange Gardens, Carshalton, showed well kept samples of Pear Pinx IX., green, with brown spots.

NATIONAL AURICULA AND PRIMULA (Southern Section).

APRIL 24.—The twelfth Auricula exhibition took place in the Drill Hall of the London Scottish Rifles, Westminster, in connection with the ordinary meeting of the Royal Horticultural Society. The dull weather and the darkness of the building failed to show up the flowers to the best advantage; the light and warmth of the Conservatory at South Kensington were wanting, and there was in consequence a lack of expression in the Auriculas. Even the brilliant alpine varieties looked dull in the gloom. It was on the whole an extensive exhibition, despite the retarding character of the season.

Show Auriculas.—In the class for twelve dissimilar varieties, the Rev. F. D. Horner, Lowells, Burton-in-Lonsdale, maintained his supremacy, and set up some flowers having, on the whole, fine quality; they were of green-edges: Seamew (Horner), very bright; Kestrel (Horner), Edith Potts (Bolton), a flower of great merit, having a bright green deep edge, good tube, very fine paste, and black body colour, full of life and expression—selected as the premier show Auricula in the whole exhibition; Prince of Greens, and Headley's George Lightbody, in its green form, or as a heavy grey. Grey-edged: Atalanta (Horner), a heavy grey, of fine quality. White-edged: Maggie and Hypatia, both raised by Mr. Horner; and selfs, Heroine, Laura, a very fine maroon self, shaded with magenta; and Sapphire, all raised by the exhibitor. 2nd, Mr. J. Douglas, gr. to F. Whitbourn, Esq., Great Gearies, Ilford, whose flowers lacked their usual high quality, seemed to bear traces of too much forcing. The collection consisted of green edges: Abbe Lizst (Douglas), Neatness (Douglas), and the Rev. F. D. Horner. Grey edges: Mabel (Douglas), Frank Simonite, Marmion (Douglas), a promising new variety of considerable merit; and Mr. Moore (Douglas). White edges: Beauty and Reliance (Mellor); and selfs: Sir William Hewett, Dignity (Douglas), a dark variety of good quality; and Sapphire. 3rd, Mr. T. E. Henwood, Hamilton Road, Reading; 4th, Mr. W. Bolton, Warrington, who staged a highly promising seedling, deep blue self. There were five collections in this class.

In that for six dissimilar varieties there were seven competitors, the Rev. F. D. Horner being again 1st. Green edges: Neptune (Horner), a fine new variety, and Prince of Greens. Grey edged: George Lightbody. White edged: Miranda (Horner). Selfs: Melanie (Horner), dark, very fine and smooth; and Heroine. 2nd, Mr. T. E. Henwood, with green edges, Rev. F. D. Horner. Grey edged: George Lightbody. White edges: Acme and John Simonite. Selfs: Black Bess (Mellor), and Horner's Sapphire. 3rd, Mr. J. Douglas; 4th, J. D. Llewellyn, Esq., Penllergare, Swansea.

In the class for four varieties there were five competitors, Mr. G. W. Wheelwright, Oxford Road, Reading, being 1st, with—Green edge: Rev. F. D. Horner. Grey edge: George Lightbody. White edge: Reliance (Mellor); and Self: Heroine. 2nd, Mr. C. Phillips, Earleigh, Reading, with—Green edge: Oliver's Lovely Ann, this old green being seen in unusually fine form. Grey edge: Lancashire Hero. White edge: Acme; and Self: Heroine. 3rd, Mr. W. L. Walker, Erleigh, Reading. 4th, Mr. A. J. Sanders, gr. to Viscountess Chewton, Cohan.

In the class for two dissimilar varieties there were seven competitors, Mr. G. Wheelwright being 1st with—Green edge: Rev. F. D. Horner; and Self: Black Bess. 2nd, Mr. C. Phillips, with—White edge: Acme; and Self: Othello. 3rd, Mr. A. J. Sanders; 4th, Mr. W. L. Walker.

In the classes for single plants fewer were staged

than usual, and by at least one the regulation had been overlooked which states that exhibitors may not stage more than two specimens in each class. Green edges: 1st, Mr. T. E. Henwood, with Prince of Greens; 2nd Mr. C. Phillips, with Rev. F. D. Horner; 3rd, Mr. G. W. Wheelwright, with Lancashire Hero in its green state; 4th, Mr. C. Phillips, with Prince of Greens. Grey edges: 1st, Mr. A. J. Sanders, with George Lightbody; 2nd, Mr. G. W. Wheelwright, with Lancashire Hero; 3rd, Mr. J. Douglas, with Mabel; and 4th with the same. White edges: 1st and 2nd, Mr. J. Douglas, with Conservative; 3rd, the Rev. F. D. Horner, with Heather Belle; and 4th with Pearl, both of his own raising. Selfs: 1st and 2nd, the Rev. F. D. Horner, with Heroine; 3rd, Mr. W. Bolton, with Sapphire; 4th, Mr. G. W. Wheelwright, with Black Bess.

As is usual there were but two competitors with fifty plants each; for it is only those who grow hundreds, that can compete in such a class as this. Mr. J. Douglas was 1st with Green edges, Rev. F. D. Horner, and Abbe Lizst: Grey edges, George Lightbody, Frank Simonite, Richard Headley, Colonel Champney, Miss Prim, Marmion, and Ajax. White edges: Earl Grosvenor, Conservative, Acme, and Smiling Beauty; and selfs, Sapphire, Mr. Douglas, Duke of Albany, and Negro. 2nd, Mr. Charles Turner, with green edge, Mr. Knighton, Turner, and Imperator; grey edge, Confidence, Beauty, and William Brookbank; white edge, Acme, Mr. W. Brown, Dr. Kidd, and Conservative; selfs, Mr. Smith, Clipper, Vulcan, Black Bess, Lord of Lorne, Lord Clyde, Meteor, Flag, and C. J. Perry. In this class any number of duplicates are admitted.

Premier Auricula.—This was Bolton, Edith Potts, shown by the Rev. F. D. Horner, in class A.

Seedling Show Auriculas.—Green edges: a 1st prize was awarded to the Rev. F. D. Horner, for Monarch, in the way of the Rev. F. D. Horner, good tube, paste, black body colour, and smooth green edge. Grey edge: a 1st prize was awarded to Irreproachable, raised and shown by the Rev. F. D. Horner, a large flower, with a broad edge of grey. White edge: no award was made. Selfs: 1st, the Rev. F. D. Horner, with Constance (Horner), a large crimson maroon flower, of good properties; 2nd, Mr. William Bolton, with Mrs. James Tinsley (Bolton), a maroon flower of decided promise.

Alpine Auriculas.—As is usual, these were largely shown, and were highly attractive, Mr. Turner being invincible with his splendid new varieties. The best twelve from Mr. Turner consisted of Ernest, Charles Turner, very fine indeed, and a worthy memento of this celebrated florist; John Laing, Fred Bates, Sensation, Sunrise, Sir H. Darvill, Marguerite, and George Wheelwright, very fine—all golden centres; Edith, Lady H. Grosvenor, and Lady Harpur-Crewe, white centres. 2nd, Mr. J. Douglas, with Hebe, Lovebird, Miss Mollie, Emperor Frederick, and Toujours Gaie, all raised by Mr. Douglas; Unique, Miss Moore, Renown, and seedlings. 3rd, Mr. G. Wheelwright.

With six varieties Mr. Turner was again 1st, with Sunrise, Reginald, and Madonna, gold centres; Edith, Mrs. Stafford, and Lady H. Crewe, white centres. 2nd Mr. T. E. Henwood, with Mariner, Mrs. Dodwell, Mrs. Llewellyn, Mrs. Ball, Miss Blackburn, and Homer—all very fine; 3rd, Mr. J. Douglas. There were seven exhibitors in this class, and three in the former.

There were five lots of four varieties, Mr. T. E. Henwood being 1st, with Hotspur, Mrs. Ball, Princess of Wales, and Edith; 2nd, S. Barlow, Esq., J. P., Stake Hill House, Castleton, Manchester, with Vesuvius and three very fine seedlings, one a large and striking flower afterwards named Sir Trevor Lawrence. In this class Mr. Barlow certainly had reason to question the decision of the judges. 3rd, Mr. W. L. Walker.

The best single specimen with gold centre was Pallas, from Mr. C. Turner; 2nd, Mr. S. Barlow, with Mrs. Meiklejohn; 3rd, Mr. C. Turner, with T. E. Henwood; 4th, Mr. J. Douglas, with Hebe. White centres—1st, Mr. S. Barlow, with Susie Matthews, a charming variety that it is somewhat difficult to grow; 2nd, Mr. J. Douglas, with Queen Victoria; 3rd, Mr. T. E. Henwood, with Lady-love; 4th, Mr. T. E. Henwood, with the same.

Seedling Alpines.—Mr. Turner exhibited a few, but none were considered sufficiently advanced over named varieties. A first-class Certificate was awarded to Mr. S. Barlow for Sir Trevor Lawrence, large and of the finest form, golden centre, with black ground and rosy-salmon edge.

Polyanthuses.—The gold-laced varieties certainly lacked the fine quality we have seen in previous

years, and they bore the impress of the untoward effects of the season. Mr. S. Barlow had the best six out of three exhibitors, having Exile, Cheshire Favourite, and Prince Regent, dark grounds; Sir Sidney Smith, Lancer, and George IV., red grounds; 2nd, Mr. J. Douglas, with George IV., John Bright, Sanderson's Naxara, Exile, Lancer, and Elliot's Red Rover; 3rd, Mr. J. T. D. Llewellyn.

There were five exhibitors of three varieties, Mr. S. Barlow being again 1st, with Cheshire Favourite, George IV., and Exile; 2nd, Mr. J. Douglas, with George IV., Lancer, and Cheshire Favourite; 3rd, Mr. R. Dean, Ealing, with seedlings.

The best single specimen was George IV., from Mr. J. Douglas, and he was 2nd with the same; Mr. S. Barlow being 3rd, with William IV., and 4th with Lancer.

In the class for twelve fancy Polyanthuses, Mr. R. Dean was 1st, with a good bright lot of seedlings, but not yet at their best, owing to the cold, dull weather; 2nd, Mr. J. Douglas.

Fancy Auriculas.—It is difficult to describe these with accuracy, as they constitute a kind of floral *olla podrida* into which almost anything of an eccentric and not always lovely character may come. Mr. S. Barlow was 1st with a number of seedlings including two or three golden selfs; and Mr. J. Douglas was 2nd with quite a distinct strain. But it is very unlikely any of these will ever be propagated and put into commerce.

Primroses.—The single varieties were as usual bright and effective, even amid the gloom which hung over the hall. Mr. R. Dean was 1st with twelve pots of fine high coloured seedlings; Mr. J. Douglas being 2nd with a good lot also; and Messrs. Paul & Son, 3rd.

Double varieties.—There were but two collections of these, Messrs. Paul & Son being 1st with large made-up pairs of Crousi, white, platypetalaplena, Sulphur, Negro, large, deep purple, and Harlequin, a mottled variety. 2nd Mr. R. Dean with old Crimson Blush, White Lilac, Sulphur and Pale Yellow.

Species of Primula.—These were numerous shown, and they proved very interesting. Mr. J. T. D. Llewellyn was 1st, with a fine collection, consisting of P. japonica, Auricula, verticillata, rosea, denticulata, viscosa, cortusoides, involucreta, cashmiriana, erosa, officinalis var. suaveolens, and obconica. 2nd, Mr. J. Douglas, with P. japonica, verticillata, rosea, intermedia, denticulata, nivea, Auricula, Nelsoni, &c. 3rd, Mr. W. Harper, gr. to H. S. Leonard, Esq., St. Catherine's, Guildford. With six specimens Mr. S. Barlow was 1st, with P. obconica floribunda, rosea, nivea, viscosa, and denticulata; 2nd, Messrs. Paul & Son, with P. Auricula, Canary Bird, ciliata purpurea, ciliata nivea, &c.

There was no entry in the class for a basket of Primrose plants arranged for effect: probably in consequence of the lateness of the season.

ROYAL BOTANIC.

APRIL 18.—The second spring show was held on the foregoing date amid depressing circumstances, for rain fell in torrents, and prevented the company from assembling; but it was an exceedingly bright and pleasing exhibition—probably one of the best of its kind the Society has ever held.

Collections of alpine plants in pots were a good feature, the best coming from Mr. J. Douglas, gr. to F. Whitbourn, Esq., Great Gearies, Ilford, who had many species of Primula, named Auriculas, and Polyanthus, bulbous plants, &c. Messrs. Paul & Son, Old Nurseries, Cheshunt, were 2nd, with Primulas of various types, charming pots of Soldanelles, &c.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was the only exhibitor of a collection of hardy herbaceous plants.

Auriculas were in fairly good form. Mr. J. Douglas was 1st, having Abbe Lizst, Conservative, Acme, Marion, a good new grey-edge, with mealed foliage; C. J. Perry, and Sir W. Hewett. 2nd, Mr. C. Turner, Royal Nursery, Slough. Mr. Turner had the best twelve alpine varieties, the best being Edith, Shirley Hibberd, Mango McGeorge, and Mrs. Thompson. Mr. J. Douglas was 2nd.

Polyanthuses were shown in poor force, especially the gold-laced varieties.

Roses in pots were an attractive feature. Messrs. Paul & Son had the best nine, Mr. Rumsey, Waltham Cross, being 2nd. In the amateur's class the plants were small, and the flowers poor.

Greenhouse Azaleas were bright and effective. In the amateur's class Mr. R. Scott, gr. to Miss Foster, The Holme, Regent's Park, was 1st, with nine good

half-specimens; Mr. H. Eason, gr. to B. Noakes, Esq., Highgate, being 2nd. In the open class Mr. Turner was 1st with the same number of plants—Roi d'Hollande, Apollo, and Madeline, the two last white varieties being especially noticeable for their high quality. 2nd, Mr. R. Wills, Loughton Nursery, Sydenham.

Messrs. H. Lane & Son, Berkhamstead, were the only exhibitors of twelve Hardy Rhododendrons, and the same number of Azalea mollis, both were valuable and showy groups.

Amaryllis were a fine feature. Mr. J. Douglas was 1st with twelve, the leading varieties being Monarch, Empress of India, Albert Victor, Enchantress, Hector, and Lady Hulse; 2nd, Messrs. Paul & Son, with some very good seedlings.

Cinerarias made a good feature also. Mr. J. James, Farnham Royal, Bucks, was 1st, with named varieties of his own seedlings; Mr. J. Douglas being 2nd. Mr. D. Phillips, gr. to R. W. Mawo, Esq., Langley Place, was the only exhibitor of nine Pelargoniums—well-grown and bloomed half-specimens.

Miscellaneous.—Under this head there were a number of exhibits. Mr. T. S. Ware had a large collection of cut Daffodils, and so also had Messrs. Barr & Son, Covent Garden, and Messrs. Collins, Bros. & Gabriel, Waterloo Road. Messrs. W. Cutbush & Son, The Nurseries, Highgate, had several boxes of charming Epacris in bloom. From Mr. John Odell, Gould's Green, Millington, came a fine collection of Cyclamen persicum; also from Mr. W. Hibbert, gr. to W. Clay, Esq., Kingston. Mr. B. S. Williams Victoria Nursery, Holloway, had a fine group of foliage and flowering plants; and a smaller one was staged by Mr. Kemp, gr. to H. Barry, Esq., Winchmore Hill. Mr. J. Chambers, Westlake Nurseries, Isleworth, had a number of plants of his new double blue Violet, Victoria, a good grower and very fine. Messrs. H. Cannell & Sons, nurserymen, Swanley, had about fifty plants of double Cinerarias, admirably grown and bloomed—Aspasia, deep blue; Faust, rosy-magenta; Rosina, in the same way, but deeper in colour; Dante, violet-rose; Nemesis, like Faust, but not so good, were the best.

Mr. C. Turner had a box of twenty-four blooms of very fine winter-blooming Carnations.

Messrs. Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea, had Phalenopsis gloriosa, Rhododendron Unique and R. La Belle, and a group of very fine Amaryllis.

FLORAL CERTIFICATES OF MERIT.

To Mr. J. Odell, for Cyclamens Lord Hillington and Dixon Hartland.

To Mr. J. Chambers, for Violet Victoria.

To Messrs. H. Cannell & Sons, for double Cinerarias Aspasia, Rosina, and Faust.

To Messrs. Veitch & Sons, for Amaryllis Aspasia, Exquisite, and Thackeray.

To Mr. J. Douglas, for Amaryllis Monarch and Albert Victor.

To Mr. H. Bennett, for H.P. Rose Duchess of Rutland and R. minutiflora alba.

To Mr. J. Douglas, for show Auriculas Marmion, and alpine Emperor Frederick.

To Messrs. Barr & Son, for Narcissus bicolor Rev. J. B. M. Camm and seedling Duchess of Westminster.

THE WEATHER.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MAY 5. (AVERAGE OF FORTY-FOUR YEARS.)

April 29	50°.4	May 3	51°.5
" 30	50°.7	" 4	51°.7
May 1	51°.0	" 5	52°.0
" 2	51°.3	Mean for the week ...	51°.2

THE PAST WEEK.

The following summary record of the weather for the week ending, April 23, is furnished from the Meteorological Office:—

"The weather was mild and seasonable as the period commenced, but afterwards became cold and dull very generally, with some falls of sleet at some of our eastern and northern stations, and heavy rain over the south-east of England. During the earlier days of the week thunder and lightning were experienced in some parts of Great Britain.

"Temperature has been below the mean in all districts, the deficit ranging from 2° in the 'Channel Islands' to 3° or 4° in the other parts of the kingdom. The highest of the maxima, which were recorded in most places on the 17th, ranged from 56° in 'Scotland W.' and the 'Channel Islands' to 62° in 'England E.' Towards the end of the period the maxima were much lower, being below 50° at nearly all stations, and in several instances below 45°. The absolute minima were generally registered either on the 21st or 22nd, when the thermometer fell to between 26° and 31° in Scotland, 34° and 36° in Ireland, and 33° and 36° over England. In the 'Channel Islands' the lowest reading was 40°.

"Rainfall has been more than the mean in all the 'Wheat-producing' districts; but in the 'Grazing' districts the amount has not differed materially from the normal.

"Bright sunshine has been very deficient in all districts, the percentage of the possible amount of duration ranging from 10 in 'England N.E.' to 27 in 'Scotland N.' and to 31 in the 'Channel Islands'."

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for an twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	ACCUMULATED.				Above or below the Mean for the week ending April 16.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	
Principal Wheat-producing Districts.					
0. SCOTLAND, N. ...	3 below	23	14	— 69	+ 181
1. SCOTLAND, E. ...	1 above	38	15	— 91	+ 129
2. ENGLAND, N.E. ...	0 (aver.)	37	10	— 100	+ 82
3. ENGLAND, E. ...	2 below	43	13	— 151	+ 153
4. MIDLAND COS. ...	1 below	43	9	— 161	+ 164
5. ENGLAND, S. ...	3 below	38	9	— 188	+ 215
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	0 (aver.)	29	4	— 107	+ 110
7. ENGLAND, N.W. ...	1 below	31	4	— 135	+ 127
8. ENGLAND, S.W. ...	2 below	31	1	— 202	+ 260
9. IRELAND, N. ...	1 above	39	0	— 115	+ 69
10. IRELAND, S. ...	2 above	52	0	— 147	+ 128
— CHANNEL ISLANDS	2 below	38	0	— 191	+ 155

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
	Tenths of Inch.	Ins.		
Principal Wheat-producing Districts.				
0. SCOTLAND, N. ...	6 more	73	11.6	17
1. SCOTLAND, E. ...	1 more	63	7.7	24
2. ENGLAND, N.E. ...	0 (aver.)	57	6.3	24
3. ENGLAND, E. ...	1 less	59	5.7	23
4. MIDLAND COS. ...	0 (aver.)	51	5.1	23
5. ENGLAND, S. ...	0 (aver.)	53	6.3	23
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	6 more	49	10.1	28
7. ENGLAND, N.W. ...	2 more	58	5.7	21
8. ENGLAND, S.W. ...	1 less	56	8.0	19
9. IRELAND, N. ...	1 more	56	8.0	20
10. IRELAND, S. ...	2 less	49	8.4	20
— CHANNEL ISLANDS	0 (aver.)	70	8.1	20

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending April 23.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	3 below	14	20	— 69	+ 187
1. SCOTLAND, E. ...	3 below	15	20	— 107	+ 157
2. ENGLAND, N.E. ...	3 below	19	8	— 111	+ 78
3. ENGLAND, E. ...	4 below	32	5	— 156	+ 150
4. MIDLAND COS. ...	3 below	29	4	— 171	+ 154
5. ENGLAND, S. ...	4 below	26	0	— 205	+ 207
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	3 below	25	8	— 117	+ 109
7. ENGLAND, N.W. ...	3 below	25	4	— 145	+ 121
8. ENGLAND, S.W. ...	4 below	28	2	— 215	+ 255
9. IRELAND, N. ...	4 below	24	6	— 130	+ 67
10. IRELAND, S. ...	3 below	28	0	— 162	+ 123
— CHANNEL ISLANDS	2 below	39	0	— 195	+ 154

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
	Tenths of Inch.	Ins.		
Principal Wheat-producing Districts.				
0. SCOTLAND, N. ...	1 more	78	12.1	57
1. SCOTLAND, E. ...	3 more	69	8.5	15
2. ENGLAND, N.E. ...	6 more	61	7.4	10
3. ENGLAND, E. ...	5 more	65	6.6	14
4. MIDLAND COS. ...	4 more	57	6.0	15
5. ENGLAND, S. ...	6 more	59	7.3	16
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	0 (aver.)	53	10.5	19
7. ENGLAND, N.W. ...	0 (aver.)	63	6.1	17
8. ENGLAND, S.W. ...	1 more	62	8.7	20
9. IRELAND, N. ...	0 (aver.)	60	8.5	19
10. IRELAND, S. ...	1 less	53	8.9	21
— CHANNEL ISLANDS	6 more	77	9.2	31

Obituary.

ERNEST WINFIELD MARKHAM.—We regret to record the death of Mr. E. W. Markham, grandson of the late Sir Joseph Paxton. Mr. Markham was born on October 3, 1867, and died April 21, 1888. The funeral took place at Brimington Cemetery, and was attended by a large concourse of people.

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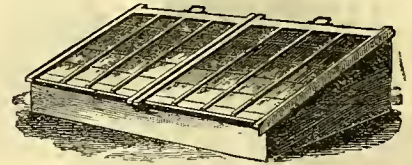
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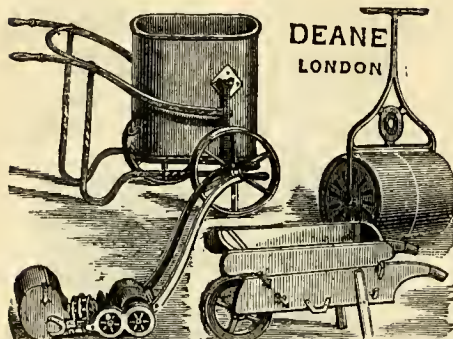
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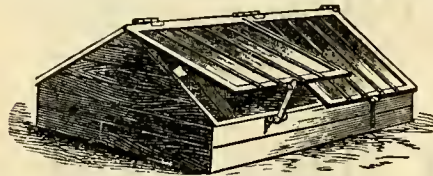
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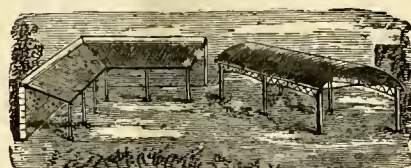
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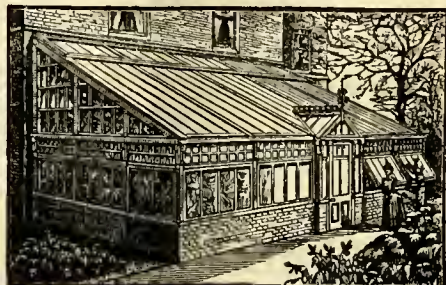
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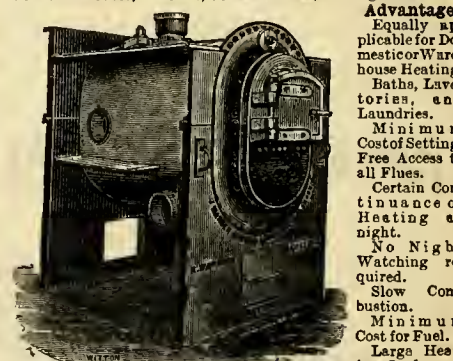
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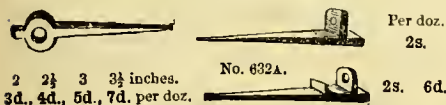
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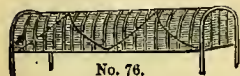
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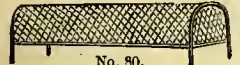
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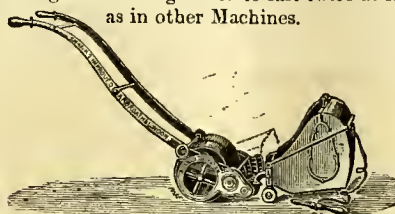
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To Nurserymen.

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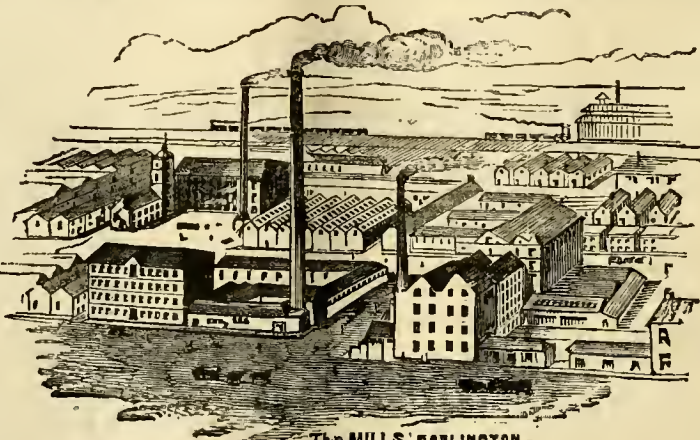
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ROYAL BOTANIC SOCIETY

Gardens, Regent's Park, N.W.
FIRST SUMMER EXHIBITION OF PLANTS AND FLOWERS, WEDNESDAY, May 16. Gates open at 2 o'clock. Schedules of Prizes now ready. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society. Price 5s. each, or on the day of Exhibition, 7s. 6d. each.

THE SCOTTISH PRIMULA AND AURICULA SOCIETY'S SECOND SHOW will be held in the Caltan Convening Rooms, Waterloo Place, Edinburgh, on WEDNESDAY, May 9. Schedules and Members' Tickets may be had on application to

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Amongst the open Classes are—12 Greenhouse Azaleas, £1, 1st; £3, 2nd; £4, 3rd. 12 Store or Greenhouse Plants, £1, 1st; £3, 2nd; £4, 3rd. Group of Pot Roses arranged for effect on a space 8 feet in diameter, £1, 1st; £2, 2nd; £1, 3rd. Group Orchids arranged for effect on space 12 feet by 6 feet. Ferns and Foliage Plants allowed, £3, 1st; £5, 2nd; £2, 3rd. 6 Orchids, £1, 1st; £3, 2nd; £2 3rd. Entries Close May 12.
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July 6 and 7 ... Grand Rose Show.
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MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., his entire COLLECTION OF ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest, the whole in the finest possible condition.

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" Ashbartoiae	" Wagneri
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" cardinale	" blood
" euryandrum	" regalis
" Swonianum	" Denisoniana
" Arthurianum	" conchiferum
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" Saoderianum	" trochilans
" Morganiae	" Chelsoni
" Dayanum	Laelia anceps alba
" Stoei platytanium	Dendrobium Ainsworthii
" calurum	Oncidium macranthum
" melanophthalmum	Odontoglossum Edwardii
" vexillarium	" Ruckerianum
" tosum	" mihus
" orphanum	" Harryanum
" Leeanum superbum	" Andersonianum
" ceananthum superbum	" crispum Wolstenholmie
" purpuratum	" Wilkianum
" politum	" Chestertonii
" chlorocephalum	" vexillarium
" Fairrieanum	" Pescatorei
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Cypripedium barbatum grandiflorum osium.
Rare Vandas, Aërides, Phalenopsis, Angreccums, &c.
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N.B.—Every Plant in the Collection will be included in these Sales, and none sold privately.

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Instead of date previously announced.
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Grand importation.

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Sale Monday, May 14.

ODONTOGLOSSUM NEVADENSE.
MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on MONDAY, May 14, very fine plants of ODONTOGLOSSUM NEVADENSE. This fine Odontoglossum is extremely rare and beautiful, and very few exist in collections.

On view morning of Sale, and Catalogues had.

Sale Monday, May 14.

LÆLIA ANCEPS, White.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on MONDAY, May 14, a splendid lot of white LÆLIA ANCEPS, consisting of very fine masses in the best condition, the eyes being sound and unbroken.

On view morning of Sale, and Catalogues had.

Thursday, May 17.

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SALE OF ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 17, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will send List not later than Thursday next.

On Monday Next, May 7.

SPECIAL SALE OF ORCHIDS.

Extensive Importations received direct.
Important to the Trade and large buyers.
3000 ODONTOGLOSSUM ALEXANDRÆ.
500 CATTLEYA TRIANÆ.
1200 various ORCHIDS.

The whole for absolute Sale without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, May 7, at half-past 12 o'clock precisely, 3000 ODONTOGLOSSUM ALEXANDRÆ (Pacho variety), including numerous large masses; 500 CATTLEYA TRIANÆ, collected in a new district; 300 ODONTOGLOSSUM PESCATOREI, 300 O. TRIUMPHANS, 200 ADA AURANTIACA, 100 ONCIDIUM SPLENDENS, and other ORCHIDS.

The whole received in fine condition, and for Sale without reserve.

On view morning of Sale, and Catalogues had.

Tuesday Next, May 8.

ODONTOGLOSSUM ALEXANDRÆ.

CATTLEYA TRIANÆ from Ibague.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Charlesworth, of Heaton, Bradford, to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, May 8, at half-past 12 o'clock precisely, a very fine importation of ODONTOGLOSSUM ALEXANDRÆ from the best known districts in splendid condition, also CATTLEYA TRIANÆ from Ibague, in beautiful condition and well leaved. The CATTLEYS will be sold without the least reserve.

Also by order of Mr. G. T. White, without reserve, CATTLEYA MOSSLE, PHALÆNOPSIS SCHILLERIANA, ODONTOGLOSSUM HASTILABUM, ONCIDIUM MARSHALLIANUM, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday Next.

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, May 8, at half-past 12 o'clock precisely, about 350 lots of ESTABLISHED ORCHIDS, the greater portion selected from a well-known private collection.

On view morning of Sale, and Catalogues had.

Wednesday Next.

10,000 LILIU AURATUM from Japan.

6,000 FRESIA REFRACTA ALBA.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE at their Rooms on WEDNESDAY NEXT, May 9.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIU AURATUM from Japan, and other LILIES, GREENHOUSE PLANTS in variety, FERNS, PALMS, AZALEAS in flower, CARNATIONS, PICOTÉES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 9, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

SALE OF GREENHOUSE PLANTS, &c., from Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, May 9, at half-past 12 o'clock precisely, a large quantity of GREENHOUSE PLANTS from Sample, MAIDENHAIR FERNS, PALMS, CHRYSANTHEMUMS, CARNATIONS, PICOTÉES, &c.

Samples will be on view morning of Sale.

Catalogues forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ODONTOGLOSSUM GRANDE, fine masses, in splendid condition.

CATTLEYA TRIANÆ IBAGNE variety.

ODONTOGLOSSUM CRISPUM (ALEXANDRÆ) of the best type.

The whole for Sale, without reserve.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth Carder & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 11, at half-past 12 o'clock precisely, without reserve, the above ORCHIDS, in splendid condition. Also ONCIDIUM SARCODES, O. FORBESII, LYCASTE SKINNERI and others. The Sale will also include an importation of SOPHONITIS GRANDIFLORA, from Messrs. J. W. Steel & Co.

On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUM BELLATULUM, Rehb. f.
CYPRIPEDIUM HIRSUTISSIMUM.
DENDROBIUM SUAVISSIMUM.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, May 11, by order of Messrs. Hugh Low & Co., a large quantity of the new and lovely CYPRIPEDIUM BELLATULUM, recently named by Professor Reichenbach; it will prove a gem amongst Cypripediums; leaves as finely marked as those of Phalenopsis Schilleriana, some 10 inches long by close on 3 inches wide; the grand flower, 11 inches in circumference, is most profusely spotted; its nearest ally is Cypripedium Godfroya, which it promises to far exceed in beauty; many of the specimens offered will bloom shortly. Also a grand lot of the rare and lovely CYPRIPEDIUM HIRSUTISSIMUM, equal in condition to the best plants in established collections, amongst them many splendid masses. 800 DENDROBIUM BENSONIÆ, D. SUAVISSIMUM, fine specimens, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday and Wednesday, May 15 and 16.
HIGHLY IMPORTANT UNRESERVED SALE OF ESTABLISHED ORCHIDS.

The First Portion of the celebrated Selborne Collection, by order of John Southgate, Esq., who is giving up their cultivation on account of ill-health.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from J. Southgate, Esq., to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 15 and 16, at half-past 12 o'clock precisely each day, the First Portion of this well-known collection of ESTABLISHED ORCHIDS, including many very fine specimens.

The plants are in the most perfect health, and comprise, amongst others, the following:—

Cattleya exoniensis	Cologyne Massangeana, 40 leads
" Triane eboracensis	" podurata, 10 leads
" labiata, autumn-flowering variety	Odontoglossum vexillarium, fine batch of large plants
" Mossie Southgatei	" Mendellii Selborneensis
" Warnerii splendens	" prestans
Laelia anceps alba	" polyanthum
" Dawsoni	" crispum Triane
" flammea	" Dornianum
Lycaete Skinneri alba	" Uro-Skinneri
Phaius tuberosus, 10 leads	Oncidium macranthum, Southgate's variety
Angreccum Kotschyi	" tetracops
Calanthe Sedeni	Cypripedium Morgans
Dendrobium nobile nobiliss	" Schroderi, 6 leads
endocharis	" amanthum superbum, 5 leads
" Fulcnerii giganteum	" euryandrum, grand specimen
" Findleyanum giganteum	" albo-purpureum, 12 leads
Sobralia macrantha, Woolley's variety	" Stonei, 2 grand specimens
" splendens, grand specimen	" Spicerianum magnificum, grand specimen
Vanda suavis, Veitch's variety, wonderful specimen	" punctatum violaceum
" Sanderiana	" Leeanum superbum
" teres aurora	" grande, fine specimen
Aërides Lawrenceæ, Southgate's variety	Masdevallia racemosa Crossii, 24 leads
" Fieldingii, grand specimen	" Denisoniana, grand specimen
" Lobbia	" Harryana magnifica, grand specimen
Dendrobium filiforme	
Brassia antherotes	

The plants will be on view the morning of Sale. Catalogues are now ready, and may be obtained of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Orchids in Flower.—Special Sale, May 29.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE OF ORCHIDS in FLOWER, will take place as above, for which they will be glad to receive notice of entries as early as possible. 67 and 68, Cheapside, E.C.

Established Orchids.

Unreserved SALE of the First Portion of ESTABLISHED ORCHIDS formed by Dr. Duke, of the Glen, Lewisham.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Dr. Duke to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, June 5, at half-past 12 o'clock precisely, without Reserve, the First Portion of his Collection of ESTABLISHED ORCHIDS, comprising, amongst others, splendid plants of the following:—

Cologyne Massangeana	Cypripedium Lideni candidum
" Lowii	" dulum
" tomentosa	" Sanderianum
" Parishii	Laelia elegans
Odontoglossum mullus	" amanda
" Uro-Skinneri	" anceps, white, true
" Edwardi	" Dawsoni
" Cervantesi decorum	" candida, true
Cattleya Wagneri	" Morelana atro-purpurea
" gigas	" Regoelli purpurea
" Sanderiana, &c.	

No plants will be sold privately prior to the Sale. Catalogues will be ready in due course, and may be obtained of the Auctioneers, 67 and 68, Cheapside, E.C.

The Broomfield Collection of Established Orchids. Important Unreserved Sale of the Second Portion of the celebrated collection of ESTABLISHED ORCHIDS, formed by Robert Warner, Esq., who is giving up their cultivation in consequence of long continued ill health.

MESSRS. PROTHEROE AND MORRIS are instructed by Robert Warner, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., at an EARLY DATE, the Second Portion of his well-known collection of ESTABLISHED ORCHIDS, without reserve. Further particulars will shortly appear.

Sales by Auction continued on p. 548.

FRIDAY NEXT—

CYPRIPEDIUM BELLATULUM, Rehb. f.,
CYPRIPEDIUM HIRSUTISSIMUM,
DENDROBIUM SUAVISSIMUM.

MESSRS. PROTHEROE & MORRIS

Will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT,
May 11, by order of Messrs. Hugh Low & Co.,

A Large Quantity of the New and Lovely CYPRIPEDIUM BELLATULUM,
recently named by Professor REICHENBACH.

It will prove a gem amongst Cypripediums. Leaves as finely marked as those of *Phalænopsis Schilleriana*. Some 10 inches long by close on 3 inches wide, *the grand flower, 11 inches in circumference*, is most profusely spotted. Its nearest ally is *Cypripedium Godefroyæ*, which it promises to far excell in beauty. Many of the specimens will bloom shortly.

Also a grand lot of the rare and lovely **CYPRIPEDIUM HIRSUTISSIMUM**, equal in condition to the best plants in established collections, amongst them many splendid masses.

800 DENDROBIUM BENSONIÆ,
DENDROBIUM SUAVISSIMUM, FINE SPECIMENS, & OTHER CHOICE ORCHIDS.

ON VIEW MORNING OF SALE AND CATALOGUES HAD.

Sales by Auction continued.

Preliminary Sale of Greenhouse Plants.

MESSRS. PROTHEROE AND MORRIS desire to call attention to the following SALES:—
THURSDAY, May 17.—At the CHILD'S HILL FARM NURSERY, Finchley Road, N.W.
WEDNESDAY, May 23.—At the BARNES NURSERY, High Street, Barnes.
SATURDAY, May 26.—At the AMERICAN NURSERIES, Leytonstone.
MONDAY, May 28.—At the PRIORY NURSERY, Chaucer Road, Acton.

Catalogues forwarded on application.

Southend-on-Sea.

To FLORISTS, NURSERYMEN, and OTHERS.

MR. A. TALBOT is instructed by the Lessee to **SELL BY AUCTION**, at the Royal Hotel, Southend, on **SATURDAY, May 12, 1888**, a 4 o'clock precisely, the Valuable long Leasehold NURSERY GROUNDS of about 1 acre, known as "Raven's" Nursery Gardens. The whole to be sold as a going concern. On the grounds are three LARGE GREENHOUSES, two of which are fitted with Hot-water Pipes (with numerous valves) heated from a Weeks' Tubular Boiler, capable of heating 30,000 feet of 4-inch piping; there is also a capital Glass Pit, two Potting-Houses, two Cemented Water Tanks to hold about 1266 and 1512 gallons respectively. The whole held upon lease for 80 years from December 25, 1884, at the low rental of £20 per annum, the estimated rental value being £99 per annum. The whole of the Trees, Plants, &c., in the ground to be included in the Sale, the Purchaser to have the option of taking the choice and extensive stock of potted plants at a price to be quoted previous to the Sale.

Under instructions from the Freeholder, will be offered FOR SALE (immediately after above is sold), the FREEHOLDERS' INTEREST in the above-mentioned GROUNDS, GREENHOUSES, &c.

Descriptive Particulars, giving dimensions, &c., of Greenhouses, and Conditions of Sale, can be obtained of the Solicitors, Messrs. BRIGHTON AND LEMON, 4, Bishopsgate Street Without, E.C., and at Southend, Essex; or of the Auctioneer.

Auctioneer's Offices, next the Bank, High Street, Southend, Essex.

To Florists, Nurserymen, and Others.

At a nominal reserve.—Lewisham, Kent, 10 minutes' walk from Station.
COLLEGE PARK NURSERY, comprising nearly 3 acres, with 500 feet run of Glass (stocked with Camellias, Stephanotis, &c.), and an excellent Residence. Lease seventy years. Ground Rent, £55.

MR. WM. HODSOLL will **SELL BY AUCTION**, at the Auction Mart, E.C., on **THURSDAY, May 31**, the above DESIRABLE PROPERTY, with the Goodwill of the Business, by order of the Proprietor, who is relinquishing, owing to ill-health. The Nursery is within easy reach of Covent Garden, and in the heart of a good residential district, and an excellent opportunity is offered for the acquisition of a business of a pleasant and profitable character.

Particulars of Messrs. HUGHES AND GLEADOW, Solicitors, 41, Gracechurch Street, E.C.; and of the Auctioneer, Farningham and Gravesend.

Home Counties.

OLD ESTABLISHED GENERAL NURSERY BUSINESS.
MESSRS. PROTHEROE AND MORRIS have for SALE by PRIVATE CONTRACT an Old Established General NURSERY BUSINESS requiring a capital of between £4000 or £5000. Specially recommended.
 Particulars at 67 and 68, Cheapside, London, E.C.

TO BE DISPOSED OF, a Small FLORIST and FRUITERER'S BUSINESS, together with Glass-houses, Propagating-house, Cold Frames, &c. The above are situated in a pleasant Market Town, and it offers a rare opportunity to a practical man with a small capital, as it is a genuine concern, and could be considerably increased by attention and perseverance. Satisfactory reasons given for disposal.
 Apply by letter only to **BOUQUET**, care of Messrs. Hurst & Son, Houndsditch, London, E.

To Nurserymen and Others.

TO BE SOLD, valuable LEASEHOLD PROPERTY, comprising detached Residence, with Nursery Grounds in the rear about an acre in extent, having 1800 feet of Glass Houses, consisting of Palm, Forcing, and Propagating Houses, Potting Sheds, &c., fitted with all the necessary Hot-water Apparatus, together with a convenient Stabling. Situate within half-an-hour's drive from Covent Garden Market. For particulars, apply to
C. A. ANGLER, 60, Chancery Lane, W.C.; and to Messrs. **FURBER, PRICE, and FURBER**, Warwick Court, Colborn, W.C.

TO BE SOLD, the unexpired LEASE of a Small Country NURSERY. Useful Stock, no glass. Easy terms.

J. G. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

TO LET, a NURSERY, in S.E. district, within 7 miles of Covent Garden Market, containing 5 acres of LAND (walled in), 12 GREENHOUSES and PITS. A good private trade can be done.
 For further particulars, address A.A., 231, High Road, Lee, S.E.

TO BE LET, a GREENGROCER'S, SEEDSMAN, and FLORIST'S BUSINESS, established upwards of 50 years, through the present Tenant retiring. About an Acre of ground, in first-rate cultivation. Income £300, including Glass, Stock, and Fixtures.
 Apply to **W. SUTTON, Florist, &c.**, Kenilworth.

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

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

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

HAVE JUST RECEIVED

Grand Importations of

ORCHIDS,

FROM

THE EAST INDIES, COLOMBIA, MEXICO, and BRAZIL,

All in the best possible condition.

Full particulars will be sent on application.

The Company have just completed a new List of their

ESTABLISHED ORCHIDS,

which will be sent post-free on application.

THE VINEYARD AND NURSERIES, GARSTON, near LIVERPOOL.

GARDENIA FLORIDA.—Six Specimen

Plants, over-stocked, clear from bug, from 2 to 600 buds on, in 12 and 14 inch pots. Inspection invited.
W. AND G. DROVER, Florists, Fareham.

F O R S A L E.
 9 AZALEAS, averaging 4½ by 5 feet, some in full bud but not in bloom—all finest sorts.
 1 CYCAS REVOLUTA, 4 feet 8 inches by 7 feet.
 2 RYCHOSPHERUM JASMINOIDES, 4½ by 3 feet.
 1 PIMELEA SPECTABILIS, 4½ feet through, and other plants.
 All the above are splendid Specimen Plants for Exhibition. Offers are requested and will meet with every consideration. Purchaser to pay packing and carriage from Dublin. Terms cash. For particulars apply to
W. DRUMMOND AND SONS, Nurserymen, 58, Dawson Street, Dublin.

EUG. VERVAET and CO., Indian Azalea Nurseries, Swynaerd, near Ghent, Belgium, are preparing their CATALOGUE of Indian Azaleas, Azalea Mollis, Hardy Azaleas, Camellias, Rhododendrons, and Decorative Plants, which will be sent gratis to all applicants.

DAHLIAS—DAHLIAS—DAHLIAS.
 Best sorts, including Cactus, Show, &c., my selection. CONSTANCE, best white Cactus, 20s. per 100. [18s. per 100.] JUAREZ, best scarlet, 30s. per 100.
TROPEOLUM. Vesuvius, from cuttings, 8s. per 100.
HELIOTROPE, Miss Nightingale, best dark, 6s. per 100.
WALLFLOWER, Transplanted, Bushy, Covent Garden Dark, 5s. per 100.
G. WATTS and SONS, Palace Nurseries, Bournemouth.

SPECIMEN HOLLIES.—Now is the time to plant. LIST, containing heights and prices of the finest Green and Variegated varieties in cultivation free.
 N.B. These trees are perfect, and very cheap.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Begonia a Specialty.

LAING'S BEGONIA SEED.—Awarded Four Gold Medals, Saved from Prize Plants. Unequalled quality. Choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Order direct from us, to procure the genuine seed. The best and cheapest combined procurable.
JOHN LAING and SONS, Seedsmen and Begonia Growers, Forest Hill, S.E.

PRIMULA OBCONICA.—Splendid new Seeds, 1s. 6d. to 2s. 6d. per packet. Post-free. Trade price on application.
JAMES DICKSON & SONS, 108, Eastgate St. Chester.

STRAWBERRIES.—"Paxton" "President," and "Napier," fine autumn-bedded Runners, will bloom this season, 2s. 6d. and 3s. 6d. per 100, 20s. and 28s. per 1000.
ASPARAGUS.—True Giant, strong, transplanted, 2s. 6d. and 3s. 6d. per 100, 20s. and 28s. per 1000.
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

BERMUDA EASTER LILIES.—Before ordering elsewhere buyers are invited to write for prices to **JAMES CARTER, DUNNETT, and BEALE**, 237 and 238, High Holborn, London, W.C.

The New Carnation.

"MRS. REYNOLDS HOLE."
 Coloured in the Garden of March 17, 1888. A most beautiful and remarkable introduction, 2s. 6d. each, 24s. per doz. Special Clearance Prices per dozen:—CARNATIONS, CLOVES, from 4s.; selfs, 6s.; sbwns, 7s. 6d. PICOTEES, Red Braes, 4s.; shows, from 7s. 6d. PANSIES, show and fancy, from 2s. 6d. Tufted (VIOLAS), from 2s. VIOLAS in variety, from 2s. 6d. PHLOXES in variety, from 4s. IRIS GERMANICA, named, from 3s.; mixed, 2s. GLADIOLUS, Scarlet, from 6d. Less per 100.
 Descriptive CATALOGUES on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from Store-pots, all well-rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter:—
VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100, 50s. per 1000; 12 choice named varieties, 8s. per 100.
LOBELIA, Blue, purple, pink, magnifica, true, from Cuttings, 2s. 6d. per 100, 20s. per 1000; Brighton Blue, fine, 3s. per 100, 21s. per 1000.
CALCEOLARIA Golden Gem, 5s. per 100, 40s. per 1000; Camdeu Hero, fine dark, 8s. per 100.
HELIOTROPE Jean d'Amour, Miss Nightingale, dark, 6s. per 100, 50s. per 1000.
AGERATUM Imperial Dwarf, blue, 5s. per 100, 40s. per 1000.
COLEUS VERSCHAFFELTI, bedding crimson, 6s. per 100, 50s. per 1000.
IRENE LINDEN, dark crimson, good bedder, 6s. per 100, 50s. per 1000.
PELARGONIUM Vesuvius, finest bedding scarlet, 8s. per 100, 75s. per 1000; Master Christine, 12s. per 100; Mrs. Lovers and Jenny Dadds, fine pink, 10s. per 100; Henry Jacoby, best crimson, 12s. per 100; Madame Vancher, white, 12s. per 100; Queen of Belgians, finest white, 3s. per dozen, 20s. per 100; Niphetos, bedding white, 12s. per 100; Waltham Seedling, Lucius, Jean Sisley, and White Vesuvius, 10s. per 100.
SILVER VARIATED May Queen (Turner's), Princess Alexandra, Flower of Spring, 12s. per 100; Little Trot, dwarf, 12s. per 100; Prince Silverwings, 10s. per 100; Lady Plymouth, 10s. per 100.
GOLD-LEAF Crystal Palace Gem, 10s. per 100; Happy Thought, 12s. per 100.
BRONZE McMahon, Black Douglas, The Czar, the best bedders, 15s. per 100.
TRICOLOR Mrs. Pollock, 15s. per 100; Sophie Dumaesque Lady Cullum, Sir R. Napier, 18s. per 100.
DOUBLES, F. V. Raspail, fine scarlet; M. Thibaut, pink; M. Hallet, best white, 12s. per 100.
TROPEOLUM Vesuvius, 8s. per 100; Mrs. Ellis, best dwarf scarlet, 10s. per 100.
FUCHSIA, in twelve good named sorts, 8s. per 100.
PELARGONIUMS, Show and Decorative, from single pots, good, 20s. per 100, 3s. per dozen.
 NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.
Cemetery Nurseries, Gravesend, S.E.

Cheap Bedding Plants.

GERANIUMS.—Strong and healthy autumn-struck plants, from single pots:—
Vesuvius (Scarlet), Master Christine, Madame Vancher, Bronze (Perilla), 2s. per dozen, 12s. per 100.
Happy Thought, Henry Jacoby, C. P. Gem, Silver-leaf; Miss Tottie Hardy, delicate rosy-salmon; Queen of Pinks, 2s. 6d. per dozen, 15s. per 100.
Ivy-leaf, best double named varieties, 6s. per dozen.
PELARGONIUMS, Show and Decorative, choice named, 4s. 6d. per dozen.
LOBELIA (true), from Cuttings, "Emperor William," best blue, 2s. 6d. per 100, 20s. per 1000.
DAHLIAS, single, named sorts, of all shades of brilliant colours, including "White Queen" and "Paragon" 2s. 6d. per dozen, 18s. per 100, from single pots.
 .. Double, best named show varieties, 2s. 6d. per dozen, 18s. per 100, from single pots.
 .. Double Pompon, splendid colours, named, 3s. per dozen.
 .. Cactus, Janzezi, Constance, Fire King, 6s. per dozen.
AGERATUM, "Hardy's" Extra Dwarf, beautiful large-tufted blue, 5s. per 100.
AQUILEGIA Chrysanthia, nice plants, 4s. per dozen; mixed colours, 1s. per dozen.
CHRYSANTHEMUMS, selection of finest show varieties, named, from single pots, 2s. 6d. per doz., 18s. per 100.
PINK, Mrs. Sinkins, pure Double White, 4s. per dozen.
 .. Old Double White, choice, 2s. 6d. per dozen.
MARGUERITES, large and small White, 10s. per 100.
VIOLA CORNUTA, "Queen of Blues" and "White Virgin," 5s. per 100, 45s. per 1000.
 Package free. Plants allowed for carriage. Terms cash.
CATALOGUE gratis.
H. I. HARDY, F.R.H.S., Stour Valley Nurseries, Bures, Suffolk.

Grandest Violet ever Offered.

MR. J. CHAMBERS, Westlake Nurseries, Isleworth, London, W., is now sending out his New Double Violet "VICTORIA." Strong Plants, full of flower-buds, at 1s. 6d. each, or 18s. per dozen, free by post. All orders to be accompanied with remittance. Trade price on application. First-class Certificate Royal Horticultural Society, April 12, 1887.

150,000 Pansies.

PANSIES and VIOLAS.—Having one of the finest collections and largest stock of both Pansies and Violas in existence, we are prepared to supply good, well-rooted plants at the following low price:—PANSIES, in 50 choice, either Show or Fancy varieties, 12s. per 100, £5 per 1000; in 30 varieties, 10s. per 100, £4 per 1000. VIOLAS, in 12 best varieties, 7s. per 100, £3 per 1000. VIOLAS, all yellow, 8s. per 100, £3 10s. per 1000. Special quotations for larger quantities. PENTSTEMONS, choicest varieties out, in 12 or more varieties, 12s. per 100, £5 per 1000. The above are our selection only, 2s. per 100 more will be charged for purchaser's selection. Terms:—Package free for cash with order.
FLETCHER, SON and CO., Florists, &c., Chesterfield.

Special Offer.

SEED POTATOS.

H. AND F. SHARPE, having a Surplus Stock of the following varieties of SEED POTATOS, are prepared to offer them at reduced prices, to clear out:—
 Imperator | Reading Russet
 Reading Hero | Climax
 Pride of Ontario | Snowflake.
 They have also many other varieties in stock.
 Seed Growing Establishment, Wisbech.

100 Herbaceous and Alpine Plants for 25s.

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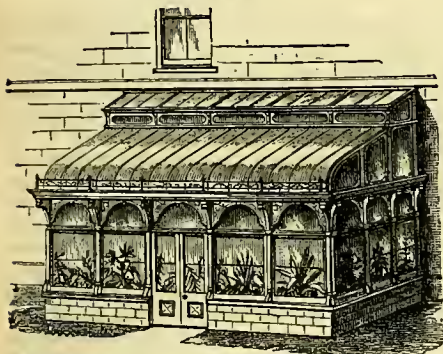
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THE

Gardeners' Chronicle.

SATURDAY, MAY 5, 1888.

INDIAN BOTANIC GARDENS.

THE hundredth Annual Report of the Royal Botanic Garden, Calcutta, is of much interest in the botanical world, not alone for what it contains, but also for the evidence it affords of the vitality and vigour of the institution, the primary object of which was to disseminate useful information respecting the vegetable products of the possessions of the "Company," and to introduce exotic plants of economic value.

Dr. George King, F.R.S., the present able Superintendent, gives, as has already been stated in these columns, a concise history of the foundation and progress of the Garden down to the present time; and the appendices show that the establishment was never conducted with greater activity. We might make some interesting extracts from the present Report, but our object now is to give a foreigner's view of the principal horticultural establishments in India.

Mr. Warburg roughly classes the gardens under three heads, according to their degree of scientific practical utility, as distinguished from purely pleasure-gardens, though no hard and fast line can be drawn, because some of the gardens are maintained partly for pleasure and partly for profit. There are only three real botanic gardens in India—we let Mr. Warburg speak for himself—namely, Calcutta, Madras,† and Saharanpore, unless we count the garden at Ganesh Khind, near Poona. Besides these, there is the botanic garden at Peradeniya in Ceylon, which, however, comes under the Colonial Office. Of the officially so-called botanic gardens, two were originally founded as such by far-seeing officials: Calcutta by General Kyd in 1786, and the Ceylon Garden by Sir Joseph Banks in 1810; the latter having been established at Peradeniya ever since 1821. The origin of the Saharanpore Garden in the North-West Provinces I did not ascertain [It was originally a pleasure-garden of the native princes, and when Lord Moira conquered the

* Chiefly from an article by O. Warburg in vol. xlv. of the *Botanische Zeitung*.

† Mr. Warburg refers here doubtless to the Madras Presidency, as the botanic garden is at Ootacamund in the Nilgiris, and not at Madras. It should be understood that we are only extracting passages from a rather long article.

Mahrattas he caused it to be transformed into a botanic garden; and the first superintendent was Dr. Govan (1816-23), who was succeeded by the better-known Dr. Royle, Dr. Falconer, and Dr. Jameson; and the gardens of Ootacamund and Singapore have passed through various stages before attaining their present condition. Of agricultural experimental gardens I am acquainted with those of Kandesh (Bombay Presidency), Saidspet (near Madras), Nagpore (Central Provinces), and Hyderabad (in the Deccan).

There is also a horticultural garden in Lucknow, an agri-horticultural garden in Lahore (Punjab), and the beautiful garden at Madras belonging to an agri-horticultural society. Similar societies exist in Calcutta, Rangoon, and probably in other places; the first publishing a special journal.*

In almost every town where there is a considerable European population or garrison there are ornamental gardens or parks, called into existence by the demand, and almost necessity, for some such place for social recreation—riding, driving, and walking—in a tropical country, where many of the pleasures and amusements of our European towns cannot be enjoyed. Then there are numerous extensive and costly gardens belonging to the native princes and nobles.†

Respecting the gardens having a practical aim, we may be very concise, as their objects are much the same, subject only to the climatal differences of the various provinces, and consequently the kinds of plants that may be profitably cultivated within their several centres of activity. The manner in which these practical ends are attained consists on the one hand of experiments and trials in the acclimatisation of useful and ornamental exotic plants; and on the other hand of raising new and improved varieties of native plants; and when successful results follow, propagation on a large scale is practised for free distribution or sale. Thus, for instance, during the year 1884-85 the Calcutta Garden sent out 23,500 living plants to various places in India, and forty-two Wardenian cases of plants to foreign countries. Further, some 3000 packets of seeds were distributed; yet the proceeds amounted to only 1075 rupees, because one of the principal functions of the Calcutta Garden is to provide the public gardens and pleasure-grounds with plants.

In the same year the Saharanpore Garden distributed as many as 42,000 plants, and 21,300 packets of seeds; whereof 31,400 plants, and 14,000 packets to private persons; the amount received being 8500 rupees. But ornamental plants, both as living plants and seeds, occupy the first position, while fruit trees, timber trees, and seeds of vegetables, take a secondary place.

The Singapore Garden sent out the large number of 163,000 living plants in 1884. These figures, however, are merely extracted as examples of what is done by the different establishments, and afford no idea of their relative importance, inasmuch as the number of plants distributed by each one is subject to the greatest fluctuations; in illustration of which it may be mentioned that the Saharanpore Garden distributed 146,000 plants in 1882-83, against 42,000 in 1883-84; the difference being almost made up by 100,000 plants of *Agave*. Similarly in 1884 the Horticultural Gardens in Madras sold 100,000 plants of the Mauritius Hemp, *Fourcroya gigantea*.

As already observed, the nature of the work of the different gardens varies according to the requirements of each district. In many parts, especially in Ceylon, the Nilghirries, British Sikkim, the interests of European planters have to be considered first; in the Rice-growing districts of the Ganges, Malabar, and Ceylon, the things cultivated in the gardens and

plantations engage special attention. In Bengal, Jute, Indigo, and to some extent Opium; and in Central and Northern India improvements in the cultivation of cereals are of primary consideration; while in the Bombay Presidency, and some parts of Ceylon, Cotton is added thereto; often associated with the latter the sugar-yielding Palm, *Borassus flabelliformis*. For the dry regions of the Punjab it is a question of finding suitable woody plants for afforestation, as well as for the saline soil of the North-West Provinces, in order to provide fuel for the agricultural districts, and thereby gain the dung of cattle for purposes of manuring. And among other things of vast importance is the conservation and renewal of the rapidly disappearing Caoutchouc forests of Malacca.

The Singapore Garden has only been a scientific establishment since 1882, when it was placed under the direction of Mr. Cantley; but much has been done in these few years without destroying the natural beauties of the old garden. A small herbarium has been formed, and the most necessary buildings erected. The new plantations are, as far as possible, systematically grouped. A special charm of this garden is a remnant of the original forest, traversed only by a few paths, where one can enjoy, in a small way, the delights of tropical vegetation without the fatigue attending excursions in pathless forests. The Fern garden and the palmetum promise to be very rich and attractive; but a larger income is necessary to carry out the functions of a botanic garden fully and expeditiously. It is perhaps superfluous to add that the director has to superintend the gardens and promenades of the town; but in order to understand the whole of the circumstances it is important to bear in mind that he has also been placed at the head of the newly created Forest Department for the whole of the Straits Settlements—an arrangement which of course causes him no inconsiderable amount of additional labour.

Seeds and plants are continuously being distributed from Kew, where all new things are reported and presented, and where competent authorities are consulted on the merits of the samples sent in. At this centre advice is sought, and there is a constant interchange of ideas and experiences between it and the Indian establishments, the advantages of which are so evident that it is unnecessary to enumerate them.

With the exception of Rice, tropical cultivation generally is so uncertain and subject to fluctuation, owing to the conditions of labour, communication, and credit, that improvements are very slow; and the experimental work is not so systematically conducted as with us. There are too few officers, and everybody has too much to do; nevertheless, many of the reports exhibit an amount of zeal and industry deserving of all the more recognition on account of the difficulties under which much of the work is done.

From this point Mr. Warburg explains and describes in some detail what has been effected by the combined action of Kew and the Indian botanic gardens in the introduction, resulting in the extensive cultivation, of economic plants of the first importance, such as Cinchona, Tea, and Coffee, the cultivation and manufacture of which have developed into industries of incalculable value. He further alludes to the cultivation of rubber trees, *Ipecacuanha*, fibre-yielding plants, &c., which is, in many instances, still in a more or less experimental stage. He also enters into particulars and comparisons of the climate of different districts in its relations to cultivation, and altogether his report is an interesting and instructive one, containing much information new to the English public. He specially mentions the great interest taken in the Madras gardens by Sir Mount Stuart Grant-Duff, and the material assistance he extended to Prof. Lawson. And he concludes with a brief review of the literature directly or indirectly connected with the botanic gardens of India, culminating in Sir Joseph Hooker's gigantic undertaking, *The Flora of British India*. With

regard to the intimate connection between Kew and the colonial and Indian gardens, Mr. Warburg thinks it is at present most beneficial, though he looks forward to the time when they shall have developed so far as to be less dependent on a central institution. *Nature*.

NOTES FROM BELGIAN NURSERIES.

(Continued from p. 524.)

L'HORTICULTURE INTERNATIONALE, PARC LEOPOLD, BRUSSELS (fig. 73).—This "Société Anonyme," founded March 1, 1887, with M. Lucien Linden for Director, M. Van Lansberge, President, and among the members such well-known names as M. le Baron de Bleichröder, M. le Comte Adrien d'Oultremont, M. E. Oetelet, and M. G. Warocque, and with the assistance of the counsel of the veteran M. J. Linden, has made such rapid progress that already extensive premises have been built and stocked with good things, so that in the short space of time since the project was launched the resources of the establishment in pursuance of its object are well demonstrated, and the efficiency of the Director, who must have been heavily weighted in the gigantic undertaking, clearly proven. The main object of the Society is the introduction, purchase, cultivation, and sale of new and rare plants, and the exploration of all the countries of the world likely to give to horticulture new and rare plants, and especially those first favourites of the day, the Orchids.

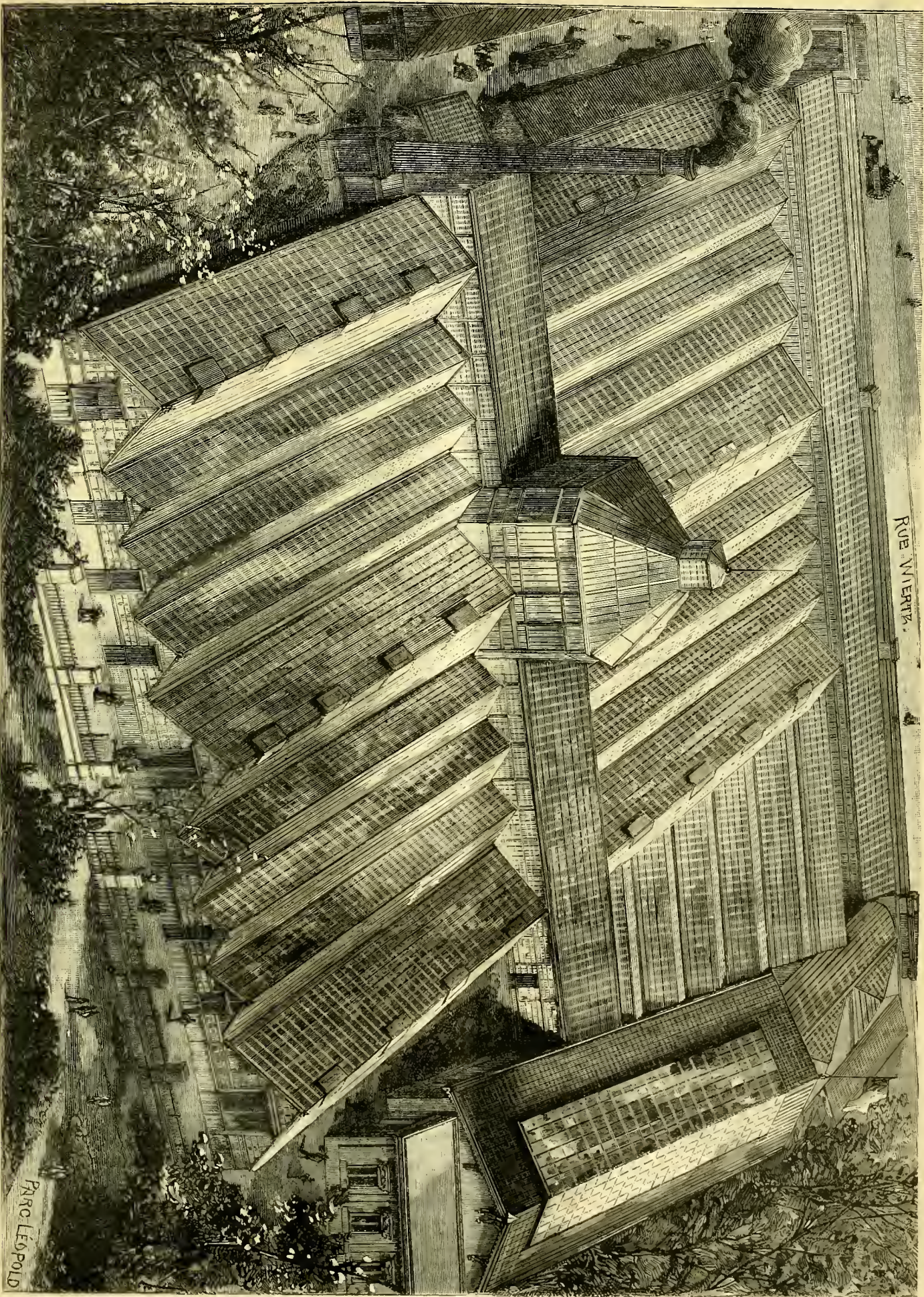
The construction of the establishment was commenced in July, 1887, and finished in February, 1888; since that it has been stocked, and the formal opening is fixed for May 10, 1888. A reference to the view of the place here given will serve to give an idea of its general arrangement, which is so compact that every house can be visited without going once into the open air. At one end a workmen's gallery, 300 feet in length, serves for the storage of potting materials for use, for potting and other work; along the middle runs the lofty central gallery, furnished with noble Palms, Tree Ferns, and other rare plants, which may be inspected from the pavilion in the centre while the visitor rests. Near by is the exhibition-house for rare Orchids and other plants in flower, and out of the central gallery run the neat ranges of span-roofed houses of two or three divisions each, the one end terminating on the very edge of the fine Parc Leopold; and thus on all sides the establishment is well situated for open space and pure air, so necessary to plant life.

In the numerous houses devoted to Orchids we found a fine lot of *Odontoglossum crispum* and *O. Pescatorei* in flower, together with numerous things which we in England consider of ordinary interest and therefore unnecessary to note in an establishment where so many treasures are to be found—we noted some good examples of the handsome *Odontoglossum Luciani* which has much the appearance of an *O. ramosissimum*, natural hybrid; *O. triumphans*, Linden's variety, a grand thing; some good *Phalænopsis* and *Masdevallias*; *Vanda lamellata* Boxallii superba, a wonderfully beautiful variety with large well-rounded flowers of high colour; *Cypripedium Rothschildianum* and *C. præstans*, two new and superb things; and among them some others in bud which will probably prove quite new; *C. cardinale*, *C. Argus multicolor*, *C. A. Boddartii*, *C. Druryi*, *C. Hookeri*, *C. porphyreum*, *C. barbatum* Warnerii, and others of the 200 or more species or varieties of *Cypripedium* of which the collection boasts. In flower, too, was *Oncidium flabelliferum*, among an importation of it. It appears near to *O. Gardneri* or *O. curtum*, and is doubtless the plant referred to in *Folia Orchidaceæ*, although some authorities put it into *O. prætextum*; *Dendrobium strebleceras* Rossianum, with white flowers, with two of the segments curiously erected and spiral, after the manner of *D. stratiotes*; *Eria striolata*, a good-looking plant, but not showy in flower; the true old *Masdevallia Lindenii*, the earliest flowering and brightest mauve.

* And we may add that there is an experimental garden in the mountains at Mussoorie in connection with Saharanpore; another at Darjeeling, partly pleasure and partly practical; and an important experimental garden at Mongpo (Sikkim), under Mr. J. Gamble: the two last offshoots of Calcutta.

† We must pass on to what Mr. Warburg has to say concerning the conditions and functions of the botanical gardens and their adjuncts.

RUE MERTZ.



Among large batches of noteworthy Orchids not in flower we found a great quantity of the wonderful ivory-white *Catasetum Bungeorothi*, *Cattleya Bungeorothi*, a presumably new white *Cattleya*; and a white *Sobralia*; a large quantity of certified plants of white *Cattleya Mossiae*, *Sobralia Elizabethæ*, some novelties in New Guinea *Dendrobies*, the extremely rare *D. Macfarlanei*, and its rose variety as nearly as can be judged without seeing the flowers; *Acacallis cyanea*, a pretty blue Orchid, and *Ansellia congensis*.

The Nephentes-house has about 3000 plants, some new, and some very rare; among the latter may be mentioned the fine *N. Lowii*. Bromeliads, too, are extensively grown, and those who cultivate them may find many rare specimens; as yet we in England are not educated up to them, although on the Continent they are much sought after, and probably chiefly because they are durable subjects for indoor decoration. Among them we noted *Massangea aurea* and *Caraguata cardinalis*.

New and rare plants have some worthy things among them, such as *Cordylone indivisa quadricolor*, a red, white, and green variegated kind; *Alcacia Luciani*, of noble habit; *A. Lindeni*, with yellow main nervures; *Phyllotenum Lindeni magnificum*, a great improvement on the pretty and useful old species; *Anthurium Scherzerianum bruxellesiense*, with dark scarlet spathes; *Acalypha triumphans*, finely marbled with red. A new blue flowered *Primula* (Edmond Morren) of great excellence occupies a house, and looks very attractive set up with Maidenhair Fern. Among the plants recently introduced the beautiful gold and green *Dracena Lindeni* is the most attractive and useful.

Palms are grown in large quantities, and by importation of seeds from new districts it is hoped to bring to our gardens many new things. Among other good batches we noted *Livistonia rotundifolia*, *Thrinax graminifolia*, *Pinanga*, n. sp., *Kentia elegantissima*, *Euterpe montana*, &c.

In the central avenue of Palms stands a huge and interesting specimen of *Livistonia sinensis* of great interest on account of its being the original plant which Siebold brought from Japan, and which was then named *Corypha Sieboldii*. The trunk, which is over 2 feet in diameter, tells plainly of the lapse of time since as a little plant it was brought home to Europe. *Cycas tonquinensis*, also of great stature, shows that noble plant in its true character; there are also large specimens of numerous other rare Palms, Cycads, and Tree Ferns.

The heating is cleverly done from one point by three large heating apparatus working all together or alone, as may be desired, the arrangement being very effective and economical. The Société l'Horticulture Internationale has a large undertaking in hand, but with its able management and resources it will doubtless prove a great success.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

ERIA STRIOLATA, n. sp.*

This is very like *Eria stellata*, Lindl. It has shorter, broader, and stouter leaves. The raceme is very dense, and the thick rachis has scarcely any hairs. The sepals and petals are light ochre-coloured, striped with reddish-purple, petals with only one, sepals with three stripes. Lip ligulate, with very blunt side-lobes, and with three conspicuous, partly crenulate yellow keels. It was imported from the Papuan Islands by Messrs. Linden, of Brussels. *H. G. Rehb. f.*

* *Eria striolata*, n. sp.—Aff. *Eria stellata*, Lindl.: pseudobulbis —; foliis cuneato oblongis acutis valde carnosius; racemi rhachi crassa minutissime barbata, densiflora; bracteis ovatis acutis transversis ovaria subaequantibus cito deciduis; ovaris minute hispidulis; mentis obtusangulis; sepalis lineariligulatis acutis; extus parce hispidulis, lateralibus flexu curvatis; tepalis lineariligulatis acutis, labello ligulato trilobo, tricarinato. *H. G. Rehb. f.*

DENDROBIUM NOBILE (Lindl.) SANDERIANUM, n. var.

This was introduced by Mr. F. Sander four years ago. It has now flowered three times, and it has always kept its full grandeur. The flowers are of a dazzling purple, and the reticulation of transverse nerves is very strong. The mid-line of the mentum is green; the whole disc of the lip is covered by a grand dark blotch, and all around it is rosy-purple, only leaving a small white area in front, traversed by purple veins, and with a white border to the superior part. All the petals I saw were white at the base.

I have to thank Sir Trevor Lawrence for the opportunity of comparing specimens of *Dendrobium nobile nobiliss* with this. That lovely plant has all the parts narrower and longer, and the petals purple at the base inside. The lip is much narrower. *Dendrobium nobile Sanderianum* would appear to be very free-flowering. *H. G. Rehb. f.*

DENDROBIUM MURRHINIACUM X, n. hyb., Angl.

This fine thing was kindly sent me by Mr. R. H. Measures from Streatham. It is stated to be a cross between *Dendrobium nobile* (♂) and *D. Wardianum*. "In growth the stems would readily be taken for those of *D. Wardianum*, as they are so much alike." Though *D. nobile* is the pollen parent, the flowers, especially as regards the petals, are in shape very much like those of *D. Wardianum*. The flower is equal to that of a good *D. Wardianum*, snow-white with purple tips to the petals and sepals. The lip has a large purple obcordate blotch at the base of the disc, with some lateral darker stripes and a light purple apex. The mentum has a green line in the middle. Column green. Anther purple. Stalked ovary light green. The dried flowers show the anterior suberulous disc of the lip sulphur, although it was nearly white while the flowers were fresh. I proposed the name *murrhiniacum* as the fresh shining flowers looked quite as if made of good "meissen." [*Murrha* is supposed to have been fluor-spar.] *H. G. Rehb. f.*

PHALENOPSIS OLORIOSA, n. sp.

This might at first sight be taken for *amabilis*, Lindl., but the callus is totally distinct, narrow, deep, blunt bidentate at the apex. Side laciniae of the lip with very short stalk. Flowers very conspicuous, set closely, "white of *Phalénopsis amabilis*." Leaves quite blunt, and broad at the apex, even blunter than in *amabilis*, light green on both sides, "now slightly silvered on the upper surface."

Just at a period when the old *Phalénopsids* are dead, and when there are very few fresh ones in the market, Mr. Stuart Low introduces a glorious rival of the two oldest species. It is not like *Phalénopsis amabilis* in its flowers, nor like *grandiflora* in its leaves. Mr. Stuart Low sent me three good inflorescences, a very good living plant, some extra leaves; and last, not least, a very accurate description—the first I have obtained from Mr. S. Low after twenty-six years' correspondence. The remarks I quote from Mr. Low are enclosed in quotation marks. *H. G. Rehb. f.*

CYPRIPEDIUM ROTHSCHILDIANUM.

I have just received from Mr. F. Sander a quite fresh and fine inflorescence of this novelty with very good bracts; the first fresh specimen I saw had them in an inferior condition, as is often the case in newly-introduced plants. They are light yellowish-green, oblongo-ligulate, both halves touching one another, tridentate at the apex, with eleven blackish Indian-purple lines and a ciliate margin. The ovary is of a bluish-green colour, and its ribs and its apical part are Indian-purple. The flower resembles the wild one as regards size. *H. G. Rehb. f.*

HYBRID PALM.—A hybrid has been obtained at Cannes between the Date Palm, *Phoenix dactylifera*, and *P. canariensis*. Its growth is rapid and its fruit edible, which is not the case with the fruits of either parent as grown in the South of France.

THE ALPINE GARDEN.

ALYSSUM PYRENAICUM.

This charming little alpine, of which I saw a quantity of plants in blossom (in pots) at the York Nurseries on Saturday last, will probably become a great favourite with all who have a rockery. The habit of the plant is neat, while the blossoms are delicate white, and are produced in great profusion—in fact, I should imagine that when the plant is well established it would be quite hidden by the abundance of bloom. I examined two specimens on a raised bed on which the bloom promised in a few weeks (it is dangerous to prophesy as to dates this season) to be much thicker than on the plants in pots. To me the pleasant fragrance of the flowers was an additional attraction. *North-Easter, April 9.*

TWO BEAUTIFUL ANEMONES.

The two earliest flowering and, in my opinion, as pretty as any species belonging to the same genus, are now at their best, and merit a passing word of comment. *A. apennina* has flowers of a corerulean-blue colour, borne on stems 9 to 12 inches high, with a whorl of three leaves united at their base, distant from the flower 3—4 inches. When seen in large patches, as is the case here in a wood [and just now at Kew], one cannot help regretting that so bright a flower is not more frequently met with. We have sometimes read of a blue variety of *A. nemorosa*, but have doubts about it, and think it quite possible that the above species may have been so regarded. *A. ranunculoides* is a worthy companion to *A. apennina*, and is of a deep golden-yellow colour, the flowers equally attractive, especially when seen glistening in the sunshine. The flowers are but half the size of *A. apennina*. Both species delight in a well-drained chalky soil, and do best when under the partial shade of trees. They should be extensively planted near woodland walks that are contiguous to the kept grounds. *J. H.*

VARIETY OF COLOUR IN FLOWERS OF GENTIANA ACALUIS.

I had no idea of the beauty of some of the varieties of *Gentiana acaulis* (*Gentianella*) until they lately bloomed at Oakwood; the gorgeous blue of the type, especially when grown in full sunshine, might make it seem that any change in colour would be a step in the wrong direction; but in this case, as the varieties are all of delicate tints of colour, no comparison is provoked. My son, Mr. Scott Wilson, while studying Swiss birds in 1885 and 1886, did not forget the Wisley garden, and when among the *Gentianellas*, collected those of abnormal colours and sent them home. They are now established, and, though small plants, are blooming well. One is pale azure-blue; another white, faintly tinted with pale blue; another white tinted with pink-purple, the reverse of the throat being a full pink-purple. An artist friend has taken their portraits. *George F. Wilson.*

PLANTS IN FLOWER AT MESSRS. BACKHOUSE'S NURSERY.

The few days of spring weather we have lately experienced have brought forward vegetation in a marked degree. When looking over the rich collection of alpine and herbaceous plants at the York Nurseries one cannot help being struck with the great number of rare and interesting plants there brought together; my object now, however, is rather to note a few varieties. For instance, the plant to which my attention was first drawn was *Rhododendron lapponicum*, a rarely seen plant which is here nicely in flower. This arctic shrub was first introduced in the year 1810, and re-introduced by Mr. Backhouse eight or ten years ago. It forms twiggy tufts a few inches high: the blossoms, clear rose-pink, are about half an inch in diameter. It is by no means difficult to cultivate if planted in fibry peat, with sand or millstone grit.

Daphne Blagayana is growing in an open bed inclined to the north, and was in full flower; it has large globose heads, composed of from twenty to twenty-

five creamy-white fragrant flowers. Of the large collection of *Androsaces* found here I noticed in blossom the following species:—*A. argentea*, with white flowers, which appear to rest upon the miniature tufts of silvery leaves; *A. brigantica*, which resembles a white *A. carnea*; it is, however, considered a species. Of those with pink or rose coloured flowers *A. carnea*, *A. carnea* var. *eximia*, and *A. ciliata* were noticed; the last-named is perhaps the most compact and the most showy of the genus. *A. vitaliana* was also noticed; it has brilliant golden-yellow flowers. *Ramondia pyrenaica* var. *alba* was pointed out as a choice variety; the blossoms are quite as large as those of the type, and of snowy whiteness. It ought to be mentioned that this was protected with glass, or it would not yet have been in flower. Near to the last-named was *Ramondia serbica*, a new and distinct species; the flowers are 1 to 1½ inch in diameter, saucer-shaped, firm in texture, of a soft, delicate rosy-purple. In the same frame *Ueberlea rhodopensis* was remarkably fine. The flowers are about the size and similar in shape to those of *Mimulus luteus*; the internal portion is white suffused with rose; throat prettily spotted with deep purple; the upper external portion of the tube is rosy-purple, thus presenting a pleasing contrast of colours. It is a plant which evidently requires for its successful growth a moist atmosphere, and should be planted in peat and sand in well-drained fissures. *Saxifraga* *Boydii*, *S. sancta*, *S. caryophylla*, and several others, were noticed. *S. Boydii*, with its clusters of sulphur-yellow flowers, is very distinct, and should, I think, become popular in time. *Alyssum pyrenaicum* is a rare plant, with clusters of snow-white flowers, and bears some general resemblance to *Thlaspi rotundifolia*, the plant being about the same height, with blossoms of the like size, the main difference being in the colour, *T. rotundifolia* having flowers of rosy-pink. To all appearance the *Alyssum* will prove much the more easily managed plant. I noticed several which have been planted out for some years without protection, and these are a complete mass of flower-buds, and form a perfect cushion of thickly clustered flowers. Of the alpine *Primulas* I scarcely dare to speak, they are so numerous, and are here in such vigorous health, which shows how they revel in the moist atmosphere of the district.

Another plant I saw in the open beds, and also on the rockery, was *Pulmonaria arvernensis*, a plant with flowers of a deep blue colour. It is a valuable addition to flowering alpine at this season; in fact, I know no other *Pulmonaria* of the same depth of colour, or which is so good as a decorative plant.

Messrs. Backhouse & Son have of late years paid some attention to getting together a collection of *Fritillaria*; I was, however, too early to see them, excepting one or two species. *F. Moggridgei* was in fine condition, with hundreds of its large drooping golden-yellow blossoms; both in the open beds and also in pots, *F. recurva*, *F. Burnettii*, *F. pudica*, *F. messenensis*, and *F. latifolia* were coming nicely forward. *Holgate*.

PLANTING GROWING VINES.

As described by me in the *Gardeners' Chronicle*, October 15, 1887, as soon as the young Vines which have been raised and properly attended to from the period of resting them, have attained a height of 2½ feet, they may be planted as follows:—Make the necessary number of holes 2 feet apart, beginning at 2 feet from the end, between the front wall and the hot-water pipes, the entire length of the border. Then have a sufficient complement of rather fine soil of about the same warmth as that in which the young Vines are growing to put around them when being planted, so as to prevent the plants from experiencing any check in consequence of the roots coming in contact with a compost less warm than that in which they are growing. Turn the Vines carefully out of the pots, and plant

them—the permanent rods mid-way between the rafters and those for yielding a crop of fruit next year between them—about one inch deeper than they were in the pots, disturbing the roots as little as possible, and making the soil firm about them in planting. Then put a stick to each plant for support, and secure them to the trellis, but leave them sufficiently long, and the ties loose, to admit of their subsiding 6 or 7 inches with the soil. This done, give sufficient tepid water through a rose to settle the soil about the roots, and afterwards lay on a surface-dressing of 2 or 3 inches thick of horse-droppings or decayed manure. In the event of cut-back Vines—that is, Vines one-year old—being planted, it will be necessary, unless they were shaken out, the roots shortened a little and re-potted some six weeks' since, to disentangle the roots, cut the latter back to within 15 inches of their base, and then spread them in every direction over the soil with a slight inclination downwards; cover with 6 inches thick of soil, and water, &c., as indicated above.

TEMPERATURE AND ATMOSPHERIC MOISTURE.

Keep the water in the pipes sufficiently warm to maintain a night temperature of 60°, and 70° by day, raising it to 85° with sun-heat and a free circulation of fresh air, and run the temperature up to 90° at closing time, with abundance of atmospheric moisture. The Vines and house generally, especially underneath and between the hot-water pipes and the wall, should, in addition to the distribution of moisture in the afternoon at closing time, be syringed with tepid water the first thing in the morning, and during bright sunny days the surface of the border and the pathway should also be damped about mid-day.

VENTILATION.

The time for admitting fresh air in the morning and excluding it in the afternoon must be regulated in accordance with the weather at the time, as the temperature recorded in each house, and not the particular hour or minute, should be the guide in this important matter; therefore the ventilators should be slightly opened as soon as the thermometer registers 80° on bright mornings, afterwards increasing and decreasing the supply of air with the rise and fall of the temperature, which should be maintained at 85° from mid-day until closing time. This should be varied from 3 o'clock in the afternoon to a quarter past during the next few weeks; the ventilators should, however, be opened slightly late each evening and closed early in the morning, when the Vines and the house, as already indicated, should be well syringed. *H. W. Ward, Longford Castle*.

PLANT DISEASES.

SMUT (USTILAGO SEGETUM) IN OATS AND BARLEY.

From an extensive series of observations and experiments carried on during the past two years, with the smut fungus (*Ustilago segetum*) in Denmark, it appears, that although the spores of this fungus are its reproductive bodies, yet:—

(1.) Very large quantities of the living spores, adhering to the outside of Oats and Barley are as a rule incapable, to any appreciable degree, of infecting the young plants.

(2.) The spores which have fallen upon the ground in an affected field during the summer are incapable of infecting, to any appreciable degree, the young plants of Oats or Barley grown in this field the following season.

(3.) The same is true of farmyard manure, the excreta of herbivorous animals, contrary to the assertions of Brefeld.

(4.) The reproduction of *Ustilago segetum* in Oats and Barley is due entirely, or nearly so, to the spores present between the chaff and the grain. The spores gain admission here in great numbers shortly after the ears have appeared, namely, during the flower-

ing of the plants, when the florets have opened to allow the stamens and pistils to be protruded for the purposes of fertilisation. Great numbers of the spores adhere to the pistils, to which they have as easy access as the pollen. Hence we find, as a matter of fact, that the spores of *U. segetum* are developed in the greatest profusion at the time the plants themselves are blossoming.

At one time I was inclined to believe that the spores or sporidia (secondary spores), when they had gained an entrance into the flower inside the glumes emitted germ tubes which entered the kernel while it was still soft and green, where they remained in a state of quiescence without causing any appreciable injury to the corn until the following year, when the corn germinated, and thus the young plants became infected. I am not certain that this supposition is incorrect, but if it be so then the infection must take place in spring from spores present between the chaff and kernel. During the coming season I hope definitely to clear this point up. But if infection takes place in spring from spores lodged between the chaff and the kernel, then one would think it would be easy artificially to infect plants by removing the chaff and placing the spores on the naked kernel; indeed, one experiment of mine points in this direction, but it is not quite reliable. Again, to some extent Oats might be infected without removing the chaff by dipping in spore-charged water, because it is easily conceivable that when the water enters the space between the chaff and the kernel some spores at least would be carried in with it; but on the other hand, with Barley this cannot happen, as the chaff is united with the kernel.

Besides these theoretical conclusions I have conducted a number of experiments with a view of preventing the disease. Although I have been unable artificially to infect Barley and Oats with *Ustilago segetum* yet by employing seed from fields badly affected with smut, by the aid of control plants the following results have been obtained:—

(A.) Smut (*Ustilago segetum*) in Oats may be easily prevented by steeping the seed-corn in a quarter per cent. of a solution of sulphate of copper, or by using a mixture of 1½ lb. of sulphuric acid in 100 lb. of water. But the plants themselves suffer considerably by this treatment. Quicklime and common salt were also tried with considerable advantage, but a thorough disinfection of the seed corn by this means was far from being obtained.

(B.) Curiously enough smut in Barley could not be sensibly diminished by either the use of solution of the copper sulphate nor of the sulphuric acid double the strength of those mentioned above as being completely successful with Oats. Still it was found that all the spores external to the grain had their vitality destroyed. Hence we must conclude that the infective medium is internal not external to the covering of the seed corn. In Oats the spores were killed both internally and externally, but in Barley those inside the covering of the seed were not destroyed, owing to the impossibility of the solution reaching them except by soaking through the covering of the seed. But it is a well-known fact that in the osmosis which thus took place the fluid which passed through the stout membrane covering the Barley would contain much less of the copper salt than the solution originally did. In the case of Oats, however, the solution would enter through the cleft in the glumes, and would therefore have its activity unimpaired, and would come directly into contact with the spores inside the glumes.

(C.) Practically, the disinfection of heat was found to be not only more efficacious, but also easy of application.

The spores of *Ustilago segetum* of Oats and Barley are killed by the action of water at a temperature of 56° C. (= 133° F.) in the course of two or three minutes.

A sample of Oats was divided into two portions, one was immersed in water at 56° C. for five minutes, the other was not. The first produced no blighted ears, but of the latter 38 per cent. were smutted. Moreover, the germinative faculty of one

seed was not in any degree impaired, and the plants produced were equally vigorous and strong. An almost similar result was obtained with water at 52°·5 C. Barley, on the other hand, gave a somewhat different result, for although this treatment killed all the spores which were adhering externally to the seed corn, yet the number of smutted plants was not sensibly diminished. This is probably accounted for by the spores beneath the outer coat of the Barley not getting wet, so that they were subjected to a dry heat only. It was found that subjecting the spores to a dry heat of the same degree (56° C.) for a period of five to seven hours did not destroy their vitality, nor did it prevent the blight. It is very possible that if the Barley had been moistened for twenty-four hours, and then subjected to a temperature of 45° C. for five minutes, the desired result would have been attained.

The method of thus disinfecting seed corn by moist heat is easily carried out in practice, and it is the only one at present known which does not damage the germinative power of the seed, and the vitality of the plants. The seed to be disinfected was placed in a basket lined with coarse cloth, and dipped for the required time in water of the proper temperature. It may be added, that Wheat treated in the same way, namely, by immersion in water at 56° C., was completely protected from bunt (*Tilletia tritici*), not a single ear being affected, although 15 per cent. of the central sample was diseased.

It is probable that Rye in the same manner may be equally easily protected from *Urocystis occulta*, which in Denmark not infrequently affects 10 to 15 per cent. of the plants in the fields, although it is often overlooked by the agriculturist. *C. B. P.*

THE HERBACEOUS BORDER.

CORYDALIS TUBEROSA VAR. ALBA.

This seems to be the proper name for this plant, now flowering in the alpine-house at Kew, and which will be found in gardens under the names of *C. cava* var. *alba*, *C. bulbosa* *alba*, *C. Marshalliana*, &c. The latter is a nearly allied plant, differing chiefly in the laxer inflorescence and more deeply cut leaflets. It is also nearly allied to *pallidiflora*, a Caucasian plant of merit. The above plant is quite as hardy as *C. solida*, and infinitely more beautiful and useful for outdoors in the early spring season. The flowers are borne in dense spikes, large pure white, carried well above the pretty *Adiantum*-like foliage. *C. bracteata*, a native of the Altai Mountains, is also in flower just now, and we find it equally hardy with the above. It is said to have been first flowered at the Botanical Garden, Birmingham, the tubers having been sent home by Professor Ledebour when collecting in the Altai Mountains. It is dwarfer and more compact in habit than the above, the flowers of a uniform pale yellow, the lip emarginate, and usually with a mucro in the notch. *D.*

SAXIFRAGA MACROPETALA.

This remarkable plant belongs to the section *Porphyron*, which includes *S. oppositifolia*, *biflora* *retusa*, &c. It is found growing near *S. biflora*, and although it is to all appearance exactly intermediate between the latter and *S. oppositifolia*, it has been considered specifically distinct by Kerner, who first described it under the characteristic name given above. Like *S. oppositifolia*, the leaves on the flowering-stems are densely crowded and overlapping, the internodes gradually lengthening until the flower appears, when they are often widely apart. The lower leaves are roundish, or wedge-shaped, and about as broad as long; those on the upper part of the stem longer than broad, slightly ciliate, and having a remarkable obtuse apex, pitted as we see in some of the above species. The flowers are as large as, and somewhat resemble, those of *S. oppositifolia*; the petals are deep lilac, about 4 lines long and 2 broad. The pretty red anthers open alternately, the first five several days before the others

are ready to burst. It has a curious ring-like disc round the base of the ovary; and this character, we believe, is confined to *S. biflora*. In Dr. Engler's Monograph *S. Kochii* is placed as a synonym of the above, but in a note he says that the description given by Hornung leaves a doubt whether the plants are identical. Hornung, in his description, however, remarks that his plant differs from *S. biflora* by its narrower leaves. In the note referred to, the similarity of this plant to several true hybrids between *S. oppositifolia* and *S. biflora* is admitted,

ERYTHRONIUM ALBIFLORUM.

MR. WARE sends us flowers of this beautiful hardy Dog's-tooth Violet, a native of North-west America. There seems a good deal of confusion as to the names of these beautiful plants, the fact being, that the species are very variable, and that distinct names have been given to mere local varieties. The fullest notice of these plants that we are aware of was contributed to the Scientific Committee of the Royal Horticultural Society by the



FIG. 74.—ERYTHRONIUM GIGANTEUM VAR. ALBIFLORUM.

although *S. macropetala* is not considered identical with them, owing chiefly to the broad ring-like disc. As a garden plant it may be considered inferior to both the above named species, but it is interesting owing to its intermediate characters. It is a native of Tyrol, &c. In flower now at Kew. *D. D.*

DR. PANCIC, the Director of the Botanic Gardens and Professor of Botany at Belgrade, died on March 8, aged seventy-four. Dr. Pancic was known for his collections of European plants, and was the first to make known the remarkable *Picea omorika*, figured in these columns.

late Mr. Andrew Murray, and whose paper will be found printed in full in our columns for June 27, 1874. Mr. Murray there points out, from investigation of the plants in their native land, that in the same locality much variation exists, that *E. grandiflorum* var. *minor* of Hooker, *Bot. Reg.*, t. 1786, and *E. grandiflorum* var. *giganteum* of Hooker are one and the same specifically. The variety *E. grandiflorum* var. *albiflorum* has white flowers growing singly (*Gartenflora*, Aug. 1873, p. 227), while the var. *maculatum* only differs from the last-mentioned in having the leaves blotched.

Murray mentions numerous other varieties, but concludes that they are all forms of one species differing in stature, in the spotting of the leaves, and in the

number and colour of the flowers. While the flowers are thus variable the bulb characters are more constant, the bulb being narrow, spindle-shaped, and giving off roots, not at the base of the bulb, but one-third of the way up. Sereno Watson (*Botany of California*, i, p. 170) apparently had no cognisance of Murray's notes, though he points out the necessity for a comparison of the ripe seed-vessels and bulbs. Mr. Ware finds the form he sends us, with maculate leaves and large white flowers, the best of the series; and recommends it to be cultivated in moderately heavy soil, and in a partly shaded situation.

NATAL NOTES.

DISPERIS FANNINLE.—This lovely little terrestrial Orchid is one of the most curious and delicate of the genus, over twelve species of which

remarkable for its radical brown spotted leaves and clustered tuberous roots, which delight to attach themselves to blocks of moss-covered sandstone. The stem is 9 inches to a foot high, and bears a dozen minute but very pretty pale purple flowers. No doubt it would thrive on blocks of rock in a cool fernery, as one sees it in such places here in company with the white *Begonia geranioides* and orange *B. natalensis*.

ARISTEA ECKLONI.

Some fourteen species of *Aristea* have been noted as growing in Southern Africa, and out of four or five distinct forms I have met with here, *A. Eckloni* is the best one. The plant is a fibrous-rooted Irid, 2 to 2½ feet high, with narrow leaves, and a many-branched inflorescence. The flowers are rather more than a quarter of an inch across, and of an intense rich blue colour. The individual blooms are

Transvaal, and since then from Zululand, where it also grows, have all died.

Returning to *Xerophyta elegans*. This is an herbaceous, fibrous-rooted trailing perennial, found growing out of the crevices of sandstone cliffs at elevations of 4000–5000 feet. Its long stems, clothed with deep green leaves, hang over the edges of inaccessible precipices, and are in early summer plentifully besprinkled with drooping, long-stalked, snow-white, flowers about half an inch across. It bears transplanting well, and for soil likes a very well drained fibrous peat. Doubtless it would make a good subject for growing in hanging baskets, and the temperature of a cool or intermediate-house will be found to suit it best.

VALLOTA PURPUREA MINOR.

A well marked variety of this beautiful plant. Herbert, in his *Amaryllidaceæ*, mentions a dwarf form (*Amaryllis purpurea*, *Botanical Register*, t. 552), which, he says, has paler flowers than the type, but our variety has the same glowing scarlet flowers of nearly the same size as *V. purpurea*, the whole plant, however, being much dwarfer. Stem 6 to 9 inches high, bearing in spring two flowers. A very desirable thing for forcing, to be used in conservatory decoration, or for cutting from. Soil, well drained peat and leaf-mould, plenty of water when growing and flowering, thereafter a rest will be found to suit it well. *R. W. Adlam, Maritzburg, Natal.*

NEW PLANTS AT THE GHENT SHOW.

Among these were *Begonia Lubbersi*, already figured by us at p. 300, and which is thoroughly distinct from *B. argyrostigma* and *Dichorisandra pubescens* var. *teniensis*, the latter of which we now give an illustration of (fig. 75)—a stove plant, introduced from Brazil, and which has broad lanceolate leaves of a rich green colour, prettily striped with silvery bands on the upper surface. As seen in Ghent, in M. Pynaert's nurseries, and also on the exhibition table, there is no doubt that this is a useful introduction, which will be sought after by the connoisseur of fine-foliage plants; and there is every probability that it will develop its good qualities under cultivation. The flowers, of a pretty blue and white colour, are borne in racemes on the end of the stem. It differs materially from the plant introduced by Linden some years ago from the Amazon region, under the name of *D. vittata*. Ordinary stove culture and a moderately rich light soil suit the plant.

ROSES.

TWO GOOD ROSES FOR EARLY FORCING.

The two Roses, *Fortune's Yellow* and *William Allen Richardson*, stand in the front rank for growing in pots for early blooming. Some gardeners think the former will not bloom satisfactorily unless planted out in a house, and trained close to the glass. This is a mistaken idea, as it will bloom just as freely grown in a pot. The chief point in the successful blooming of these Roses is the thorough ripening of the wood. This year on starting the early vinery in January, I plunged one large plant of each of these two Roses in the fermenting bed of manure which was put into the house to aid the unsatisfactory heating apparatus, placing the shoots on the trellis to which the Vines are tied. They quickly started into growth, breaking at every joint of last season's wood, giving a bloom on each new shoot made. The plants remained in this position till the foliage of the Vines became so dense that it was no longer safe to leave them there. I then removed them to a lighter house, training them just under the glass, the temperature being kept at 45° to 65°, and here they remained till they had finished flowering.

From *Fortune's Yellow* I commenced to cut good



FIG. 75.—*DICHORISANDRA PUBESCENS* VAR. *TENIENSIS*: LEAVES SILVER-STRIPED: FLOWERS BLUE AND WHITE.

are natives of South Africa. Our plant may be briefly described as a herb 1 foot to 18 inches high, having tuberous roots as large as a thimble. Leaves clasping the stem. Flowers two to five to a spike, three-quarters of an inch across. The two lateral sepals are saccate, the odd upper sepal combining with the two lateral petals and forming a hood over the narrow upright labellum. Within the hood is the complicated column, bearing two pollen masses. Flowers snow-white, resembling an old-fashioned mob-cap! with a few faint purple dots on the petals. It is a very dainty little gem, flowering in late autumn, and found only at elevations of 3500–4000 feet in moist cool woods, growing in light leaf-mould. *Disperis* are hardly known in home collections. Professor Reichenbach once told me he had never seen a living plant.

STENOLOTTIS FIMBRIATA.

well calls this a graceful little Orchid,

rather fugitive, but are produced in great numbers for several successive days. Delights in full exposure to the sun in moist but well-drained spots.

XEROPHYTA ELEGANS, Baker.

Although belonging to *Amaryllidææ*, the above plant, and its relatives, are in habit quite unlike any other *Amaryllid* native to South Africa. In Bentham's *Genera Plantarum* *Xerophyta* is found under the head of *Vellozia*, of which some dozen species are known from this country. One very handsome species, possibly *X. equisetoides*, or *X. retinervis*, with the habit of a narrow-leaved *Dracena*, or small *Xanthorrhæa*, I found growing in the Transvaal, on quartz rocks, at an elevation of about 6000 feet. Stem branched, 3–4 feet; leaves very narrow, grass-like, drooping; flowers solitary, pendulous, pale purple.

I have sent home good seed of this fine novelty, but several stems I brought down from the

flowers less than eight weeks after starting the plants. The plants had not been forwarded previously, they having been stood out the whole season against a south wall, and from the beginning of November had merely received protection by having a mat placed over them in severe frost. The amount of bloom that can be obtained from large plants of these Roses grown in a pot is surprising, and the ease with which early flowers can be obtained makes these varieties invaluable to all who want early Roses. Few Roses are more beautiful in bud, and this is their chief merit, for, being too thin in petal, they are, when open, not of much value. The flowers that were shown at South Kensington on March 13 were from these plants. *Pro.*

NEW ROSES.

Messrs. Soupert & Notting are sending out in May the following novelties in *Rosa polyantha*:—*Clara Pützner*, flower small, imbricated, light carmine marbling on a silver-white ground, fragrant and floriferous; *Hermine Madele*, flower small, double, of good form, colour creamy-white with a tinge of yellow, the centre is darker; *Princess Henriette de Flandre*, strong growing, flower small, double, nice form, colour salmon-pink with yellow, the centre nankin-yellow on crimson-yellow ground, fragrance that of Violets; *Princess Josephine de Flandre*, colour, carnation-rose on salmon-yellow ground, very sweet. The first, second, and fourth are of dwarf bushy habit; and all have been obtained by hybridising *Mignonette* with *Marquise de Vivens*. *Illustrierte Monatshefte für die Gesamt-Interessen des Gartenbaus.*

VEGETABLES.

HOW TO GET GOOD CROPS OF TOMATOS OUT-OF-DOORS.

THE practice of transplanting young plants of Tomato from small pots at the end of May or early in June is faulty, and should be altered, inasmuch as the plants are, as a rule, cut down by autumn frosts before they have ripened off a good crop, and that which is secured is not commensurate with the labour bestowed on it. The first improvement in method is to get the plants established in 8½-inch pots, and with a fairly good crop of fruit already set before transplanting out-of-doors at the end of May. To do this a hothed must be made use of in which to raise the plants from seed and grow them on for a couple of weeks, after they should be pricked out at 2 inches apart into shallow pans, and placed in a warm pit deep enough to allow the plants headroom when shifted into large pots. In the absence of such a pit an ordinary garden-frame can be raised on large flower-pots or bricks as the plants grow and require more head-room, meantime filling up the space between the ground and bottom of the frame with long dung or Fern, to keep the cold out. To resume: when the plants in the boxes or pans touch each other they should be potted singly into 3-inch pots, containing rich mould, returned to the frame, watered, and kept close for a few days; afterwards air should be admitted rather freely on fine days. As soon as the plants require more root-space shift them into 6-inch pots, again shifting them into 8½-inch pots before the roots have become matted. The soil for these shifts may consist of a mixture of four parts good loam and one of horse-droppings or leaf-mould. Give water at the roots to settle the soil about them, and afterwards allow the soil to get moderately dry before repeating the watering until the roots have permeated into all the soil, when more will become necessary. Stop the plants when they have attained to a height of 2 feet (sticks having been previously supplied to them for support) and the lateral growths, except one at the base on each side of the stem, should be pinched back to within one joint, and the compound leaves back to two joints, to admit of the light reaching the stems and shoots. The two shoots springing from the base of each plant should be secured to sticks near

the edge of the pot, and, like the parent stem, should be stopped when about 2 feet high, afterwards the secondary growths should also be stopped above each cluster of fruit grown. It will be necessary to cover up the frame with mats or Fern at night until a couple of weeks before planting out, when the glass will be sufficient protection from any frost likely to happen.

For a week or so previous to planting outside the plants must be ventilated more freely than heretofore. A position against south and west walls, boarded fences, or in the open in warm gardens is well adapted for the Tomato. This planting out, as already stated, should be done about the end of May, varying the time a week or ten days, according as the district and the weather at the time are warm or otherwise. In planting, open the necessary number of holes, mixing a few shovelfuls of short manure with the excavated soil; then, the plants being at the time quite moist at the roots, should be turned out of the pots, and carefully planted about the same depth in the soil as they were in the pots, pressing the soil about the roots in planting. Having secured the shoots, if on walls, &c., at 9 inches apart, surface-dress with short dung to the extent of 2 feet from the stems of the plants. This done, stick in the ground in front of each plant a Spruce or Laurel branch large enough to screen it from the effects of sun and frost. A few days after planting, when the roots will have pushed into the fresh soil, the boughs may be removed in the morning, and replaced in the evening for a week or two, after which time they may be removed altogether. If the summer should be a warm one, the plants must be kept well supplied at the roots with water, alternated with liquid manure.

The chief points to be attended to in the training of the plants are the thinning and stopping of the shoots and leaves at the proper time, as overcrowding is fatal to success. The pinching of the shoots and leaves, as indicated above, will expose the leading shoots and the fruit to the full influence of the sun, thereby reducing to a minimum the chances during an ordinary summer of the plants being attacked by disease. In support of this assertion, which I do not make for the first time in your pages, I may say that the discoloration and subsequent withering of shoots and leaves are to be attributed, when these symptoms appear during a dry warm summer, not to the epidemic, but to the overcrowding and consequent fermentation of the soft, sappy shoots and leaves. Plants cultivated in the manner described yield good supplies of fruit from the middle of July until destroyed by the frost, and the nripe fruits will gradually ripen in warm dry places up to Christmas. Large plants of Tomatos which are fruited in 10-inch pots during the months of May and June may, by gradually hardening them off prior to planting them in warm positions be made to bear heavy crops of excellent fruit until cut off by the frost. *W.*

ABERDEEN AGRICULTURAL RESEARCH ASSOCIATION.

GRASS EXPERIMENTS.—The fifth annual report of the experiments conducted by this Association has just been issued by Professor Jamieson, which this season deals more particularly with the question, Which of the most approved grasses are most useful in regard to earliness, lateness, quantity and quality of produce?

In the selection of grasses Professor Jamieson says the objects to be kept specially in view are—whether it is desired to produce early pasture, or pasture all over the season, or grass to mow, or the formation of a close sward.

QUALITY.

But how far considerations of the different qualities of grasses would lead to the rejection of some of the grasses, which take a front rank in regard to quantity, and to the acceptance of some of the grasses that yield but little, is a matter that must probably in the meantime be decided by reference merely to

their external character. For although many analyses have been, and are being performed, still they do not as yet point conclusively to the assigning definitely the order of merit in regard to quality.

Looking at the external characters only the following seem the most commendable:—Rye-grass (*Lolium perenne*), Cocksfoot (*Dactylis glomerata*), Sheep's Fescue (*Festuca ovina*), Dogstail (*Cynosurus cristata*).

QUANTITY.

As regards quantity the past three or four years have given very instructive results. Speaking generally the grasses experimented upon may be divided into three groups:—

Those which have produced much—namely, Cocksfoot, Rye-grass, and Timothy.

Those which have produced moderately—namely, Fescue, Foxtail, and Holcus.

Those which have produced little—namely, Dogstail, Poa, and Bromus.

The difference between these grasses have been so marked as to call forth serious attention, for, according to the selection of grasses, the farmer who adopts permanent pasture may have crops varying as 10 is to 6 and to 3.

EARLINESS.

The grasses which deserve favourable mention in this respect are Timothy, Rye, and Cocksfoot. Dogstail, indeed, may occasionally be earlier than any of these, but it is rather by a continuance of its winter growth than by its earlier starting the new year's growth. Timothy is likely first to start out, then Rye, and then Cocksfoot. This is somewhat contrary to what is experienced in the Rothamsted grass experiments, where the earliest grasses are found to be Cocksfoot, Foxtail, False Oat, and Holcus.

Dogstail especially, and Rye, to some extent, are peculiar in assuming, more or less, a fresh growing appearance as winter approaches, and continues more or less green, according to the severity of the weather.

MANURE.

In regard to a manurial dressing for grass-land, the following mixture has been found to answer best in the Sussex agricultural experiments:—¼ cwt. nitrate potash, 1 cwt. nitrate soda, 1½ cwt. superphosphate, and ½ cwt. steamed bone-flour per acre. *John J. Willis.*

CULTURAL MEMORANDA.

TRACHELIUM CÆRULEUM.

THIS greenhouse perennial is a charming subject for the autumn embellishment of either greenhouse or conservatory. It propagates freely from seeds and from cuttings made of the young shoots, and inserted singly in 3-inch pots placed in a gentle bottom-heat, and kept close until rooted, when they should be pinched to cause them to produce side-shoots, which, in their turn, should be stopped until the desired sized plants are obtained, and the flowering period (August) is approached—shifting the plants into larger pots as they require it, potting them in a compost consisting of three parts light sandy loam and one of leaf-mould and horse-droppings, well mixed. The flower-spikes should be supported by sticks. The large trusses of lavender-blue flowers which this plant produces when subjected to pot culture are very telling. Mr. Molyneux, Swanmore Gardens, has frequently shown this plant in fine condition at the Royal Southampton (August) shows. A year or two since he staged a plant having between fifty and sixty trusses of flowers 6 inches in diameter, the plant being 4 feet through.

POTTING LILIES.

Plants of *Lilium auratum*, &c., which have made a few inches of growth should now be turned out of the pots, the old soil shaken off their roots before re-potting in clean well-drained pots in a mixture of

three parts sound fibry loam and one of horse-droppings and leaf-soil, with a sprinkling of coarse sand added, worked well among the roots. Then stand the pots on coal-ashes in a cold pit, water; keep close, and shade the plants from sunshine for a few days until the roots have taken to the soil, when it should be discontinued and abundance of air be given on all favourable occasions. As the plants increase in growth applications of weak liquid manure at the roots two or three times a week, providing they need water that number of times, will be beneficial to them. Should aphids attack the plants, fumigate lightly with tobacco-paper two evenings in succession.

ALOYSIA CITRIODORA.

Cuttings of the young growths of this, the Lemon-scented Verbena, inserted round the sides of 3-inch pots filled with any kind of light soil, having a surfacing of silver-sand, watered, and plunged in a hotbed, will root within a few weeks. They should then be potted off singly into the same size pots, watered, and kept close for a few days until the roots have got hold of the soil, when they should have more air, and be pinched in to insure bushy plants. The *Aloysia* is a half-hardy shrub. After the plants have got well established they should have plenty of water. *H. W. Ward.*

PLANTS AND THEIR CULTURE.

TORNIAS.—These pretty annuals, from Cochinchina, are easily managed, and grow rapidly into decorative subjects. A good sowing of seeds should now be made in well-drained pans, using a light sandy soil, and place in a moderately warm moist temperature. In about a fortnight the seedlings will be ready to prick off into pans or boxes or their flowering pots. Keep the plants somewhat close and warm for a short time, shading from the bright sun, and after they are established give more air, syringing frequently. As the plants advance in growth insert a small neat stake to each. The plants will last from six to eight weeks in perfection, but if cut down after flowering they will flower a second time, but fresh batches of plants are preferable. *T. Fournieri* and *T. Baillonii* are the two best species to grow; the former is pale blue and dark purple, with yellow in the throat, and the latter yellow and dark purple.

Celosia pyramidalis and its varieties *plumosa*, *coccinea*, and *aurea*, succeed under similar conditions. They may be grown without any fire-heat until the autumn is well advanced, when their scarlet or golden plumes are most admired associated with other late flowers.

Amaranthus.—A few of the more tender sorts may be grown in pots, and treated in the same manner as *Celosias*: *A. salicifolius* and its variety *A. flenderi*, together with *A. bicolor* and *A. tricolor*, are the most useful for this purpose. These plants require discrimination to be exercised in giving water, as too much causes damping off at the collar.

Fuchsias.—The grace of these plants, and their handsome flowers, make them general favourites and they are alike useful in large and small gardens. By paying attention to a few simple details, the cultivation of *Fuchsias* is comparatively easy. Assuming that cuttings were put in some time ago, they will now be established in small pots, and may be potted on as required. The freest branching varieties will not require much pinching of the shoots, but the beauty of the plants being much enhanced by compactness of growth, timely attention should be given to pinching out the points of any shoots which show a tendency to take too much of a lead; moreover, if more plants are coming in at one time than are required, by pinching a portion of the stock rather closely, these will bloom in succession. A small stake inserted in the centre of the plant, with the branches loosely looped up to it, will be all that is necessary in the matter of support. The plants delight in a free, rich soil, using as a fertiliser well-decayed manure. The drainage should be good, and the potting firm, leaving sufficient space for thorough waterings; indeed, it is very important that the plants be well supplied with moisture, both at the roots and in the atmosphere. The temperature may range from 55° to 60°, when it can be main-

tained with little or no fire-heat, and just as much air as will prevent the house from getting close and steamy should be afforded. These are conditions under which *Fuchsias* will grow rapidly, and a good criterion of the proper atmospheric conditions is when drops of exuded water are observed in the early morning hanging dew-like from the edges of the leaves. Avoid much fire-heat, and shut up early in the afternoon, well syringing the plants at the same time and removing the shading, which should be light. *Fuchsias* should be well syringed at all times, even when in flower, as it does not materially affect the flowers, and it keeps the plants free from insects.

Although some florists have succeeded in raising many fine varieties, there are a few of the older species and varieties which merit a place in large collections; these are—*fulgens*, with long scarlet flowers (a plant very handsome in a small state); *corymbiflora*, somewhat similar to *fulgens*, but succeeding best when planted out and treated as an evergreen; *arborescens*, which forms quite a tree, and which at this time of the year produces immense panicles of lilac or rose-coloured flowers; it is also an excellent subject to plant out in a conservatory. It flowers on the wood of the previous season. *Gracilis* and its variegated variety make good pillar plants; *microphylla* and its near ally, *thymifolia*, are both distinct looking-species, which may be made to form nice pyramidal plants; *cordifolia* and *splendens*, whose scarlet and green flowers and large heart-shaped leaves render them ornamental plants; *tryphylla*, is very distinct, both in flower and foliage, the latter being very ornamental; the beautiful many-coloured leaves of *F. Sunray* should not be forgotten. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

SUBTROPICAL BEDDING PLANTS.—The majority of these should be potted on, the strongest and best plants being shifted into 4 to 6-inch pots, the remainder into smaller ones. Use ample drainage for these subjects, and a good rich compost made previously warm, so that strong healthy growth may be quickly made. Keep them well syringed overhead daily, and when they have taken hold of the new soil, move them to a house with a lower temperature than that in which they have hitherto been. At no time should they be allowed to suffer from want of water at the roots. Fumigate with tobacco-paper to keep down aphids. In addition to the usual plants grown is a host of other plants of a different character used for sub-tropical work, such as the hardier species of *Palms*, *Dracenas*, *Phormiums*, *Grevillea robusta*, *Ficus*, *Aralia*, *Musa Ensete*, and *Agaves*, and numerous succulents. All these should be receiving greenhouse treatment and free ventilation, heat being dispensed with when the weather is such that it is safe to do so.

Dahlias.—Stake and tie the forwardest plants, and place them in cold frames without further delay. Shift into larger pots rooted cuttings before they become pot-bound, hardening off in due course. The frames should be protected at night with mats, and be well ventilated during the day, removing the lights entirely when it is considered safe to do so, thereby gradually preparing them for planting out. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

PINES.—The early-started *Queens* will now be swelling rapidly, and every attention must be paid to their requirements, keeping them steadily moist at the root, but not wet, and when watering is required, just colour the water with guano each time. Do not syringe the plants heavily overhead, else undue development of the crowns will result; merely dew the plants over with a very fine spray at shutting-up time, but the plunging material, walls and paths, should be liberally damped with tepid water, and a temperature of 95° attained after the ventilators are closed. Guard against very hot pipes and bright sunshine, and when the fruits are half-coloured, the atmosphere should be kept rather drier, and a good circulation of warm air maintained.

Give no more water at the roots when the fruits have reached this stage, and should there be only a few near the ripening stage these may be lifted out of the bed, and placed in ainery where the Grapes

are colouring. If more fruit turns in than are wanted at the time, suckers may be detached from the plants, and potted, and the pots with the fruit placed in an airy fruit-room, where they will keep in good condition for a fortnight. Plants which are at the blooming stage must be kept in a drier atmosphere until the flowers are fertilised, afterwards giving the same kind of treatment afforded to plants swelling their fruit. Other plants which have been pushed forward, with the view to resting them during this month, to get them to start for early winter fruiting, may have the bottom-heat gradually lowered to 75° to 80°, and the atmosphere from 60° to 65°, with less water given at the root, but it will not be safe to allow them to become so dry as during the earlier part of the year. Light shading may be placed over the glass during the brightest part of the day, and air may now be more freely admitted.

Successions which were potted in February and March should now be encouraged to make free growth, to this end keeping the bottom-heat at 85° to 90°, and when opportunity offers shutting up with a solar heat of 90°, not syringing the plants heavily overhead, but damping the surface of the beds, paths, &c. Let the night temperature for those be 70° at 10 p.m. The object in view should be stocky growth, broad leaves of good texture and dark green hue. Occasional waterings with soot-water will much improve the colour of the foliage. Some varieties are more susceptible of injury to the leaf from the sun's rays than others; the *Cayenne* being, perhaps, one of the most tender, and browning is more likely to ensue just now after long absence of sunshine; some thin material should therefore be in readiness to run over the glass from 10 a.m. to 2-30 p.m., merely to break the force of the sun's rays. Recently potted suckers and other plants must be shaded during bright weather, and over-watering of those which have not well filled their pots with roots must be avoided. Put in fresh suckers as they become large enough, and pot on any which are sufficiently rooted. Keep the bottom-heat from 85° to 90° and the atmosphere 65° to 70°. *W. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

LETTUCE.—Where a constant supply of Lettuces must be kept up through the summer, and to be in a measure prepared for hot, dry weather, preparations should now be made on the land where the crops will be grown. For the July and August supply the cool, shady northern borders are best. The soil should be heavily manured and deeply dug, that all may be ready for the plants, the seeds of which were sown a fortnight since. To keep up a constant supply, a little seed should be sown once a fortnight up to the end of June, and the plants put out as soon as it is possible to handle them, planting a sufficient number each time. In a dry time a plentiful supply of water must be afforded the plants, and some liquid manure occasionally. To render the waterings effectual, plant them in shallow drills. Beyond hoeing to keep down weeds, this is the only attention they will require.

General Work.—*Brussels Sprouts*, &c., sown early on hotbeds will now require transplanting at 4 inches apart in a sheltered position, and a plot of ground should be got ready for planting them out when large enough. The main crop of *Celery* will now require pricking-out 4 inches apart in cold frames in dung 3 inches deep laid on a hard cinder bottom, and the soil that is put over this to the depth of an inch should be light and rich. *Capsicums* should be potted into 32's and grown in a warm house, if the garden be in the midland and northern parts of the country, but to the south of London they do well enough planted out at the foot of a south or south-west wall. Early crops of *Carrots*, *Spinach*, &c., now coming up should have the Dutch hoe run between the rows as soon as they are well through the ground, to prevent the growth of weeds and keep the soil in good condition. Peas sown in February will now require staking. Any varieties of Peas sown at this date will begin to bear in about ten weeks in most instances, although some varieties are longer in coming into pod than others. Early *Potatoes* in warm positions will now require daily attention to keep them covered with soil as long as that is possible. A few branches of *Yew* or *Spruce* may also be placed around them. Seeds of *Marrowfat Peas*, *Globe Artichokes*, *Broad Beans*, *White Cos Lettuce*, *Spinach*, and *Radishes* may be sown. *W. H. Divers, Ketton Hall, Stamford.*

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

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, MAY 8 {Royal Horticultural Society; Scientific, Fruit, and Floral Committees.

THURSDAY, MAY 10—Edinburgh Botanic Society.

SHOWS.

WEDNESDAY, MAY 9 {Scottish Primula and Auricula Society, at Edinburgh.

SATURDAY, MAY 12—Crystal Palace.

SALES.

MONDAY, MAY 7 {Imported Orchids, at Protheroe & Morris' Rooms.

TUESDAY, MAY 8 {Imported and Established Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, MAY 9 {First Portion of the valuable collection of Orchids, formed by the late John Day, Esq., of Tottenham, at Stevens' Rooms (two days). Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

FRIDAY, MAY 11 {Imported and Established Orchids, at Protheroe & Morris' Rooms.

Knaurs and Burrs.

SOME few years ago Sir JAMES PAGET, in a lecture on "Elemental Pathology," drew attention to the

study of vegetable pathology as introductory to that of animals, and showed that the processes which take place in animals, though eventually more complex, are fundamentally the same as those which occur in plants. The famous German pathologist, VINCHOW, expresses himself in like manner:—

"A pathological tumour in man (he says) forms in exactly the same way that a swelling on a tree does, whether on the bark or on the surface of the trunk or a leaf, where any pathological irritation has occurred. The gall-nut which arises in consequence of the puncture of an insect, the tuberos swellings which mark the spots on a tree where a bough has been cut off, and the wall-like elevation which forms round the border of the wounded surface produced by cutting down a tree, and which ultimately covers in the surface—all of these depend upon a proliferation of cells just as abundant, and often just as rapid, as that which we perceive in a tumour of a proliferating part of the human body. The pathological irritation acts in both cases precisely in the same manner; the processes in plants conform entirely to the same type."

Stimulated by the example of these masters, medical men have of late years directed more attention than formerly to the knaurs and other outgrowths from plants, in the hope that the study of their mode of formation would throw light on the morbid growths of animals and of human beings. The parasitism of Mistletoe some years since—anterior, indeed, to the period to

which we have just referred—was investigated by Dr. JOHN HARLEY, avowedly with a view to the explanation, if possible, of the mode of growth of cancer. In dealing with this subject we must not be led away by fanciful analogies, however seductive these may be. We must be sure we are comparing things that are fairly comparable, and not those which present merely superficial resemblances.

In an essay before us, Mr. W. R. WILLIAMS * traces the progressive stages of development in plants from the lower to the higher, alludes to the formation of buds, normal and adventitious, and to the appearance of "sports." From these bases he passes on to the tumours found in the human subject, and which he traces to undue or perverted cell-growth, owing to some cause or other, which causes alterations in the nutritive processes. Changes in nutrition by excess, defect, or perversion are indeed the acting causes in these cases, but what we specially want to arrive at is the cause which brings about these changes. Until we know this we cannot hope to cure the evil tendency, even if we are able by surgical means to remove it temporarily. Mr. WILLIAMS classifies tumours in trees under three heads. First, knaurs, which include the nodules so often met with in the bark of the Beech and other trees, and which are sometimes provided with a pedicle or stalk, and sometimes are not. Structurally they consist of very hard dense wood, either regularly or confusedly arranged. These knaurs are usually abortive branches; that is to say, they are made up of a number of buds which do not develop properly, but are crowded together into one irregular mass instead of elongating into a shoot with buds at more or less regular intervals. They thus illustrate that combination of, to a certain extent, opposite tendencies to which we have often referred, viz., an excess of growth, coupled with arrested development. The use of the term "neoplasm," or new growth, is, to our thinking, a misnomer in such cases. These are cases, not of new growths, but of alterations of old ones.

The second class of knaurs is like unto the first, but the "tumour" is always continuous with the branch from which it springs, and is never narrowed at the base into a pedicle. These tumours may also be considered as abnormally developed branches. Mr. WILLIAMS compares them to the "exostoses," or bony protuberances which occur on the skull of human beings.

The third group alluded to by Mr. WILLIAMS is that in which the tumour is densely covered with small twigs, the outcome of the development of numberless buds. Such growths are common in old Lime trees and Birch trees. All these three cases, then, owe their origin to excessive or modified cell-growth associated with either a restricted or an excessive development of buds, and this modified cell-growth constitutes, in the words of Mr. WILLIAMS, "the nearest approach in vegetable pathology to the sarcomas and carcinomas (cancerous tumours) of animal pathology." Mr. WILLIAMS points out that the absence of infectiveness or malignancy may be urged as an objection to this comparison. But there are some vegetable tumors which there is good reason to suppose are infective; and what we have to do is, to endeavour to ascertain which are infective, and which are not, and in the case of the "malignant" ones to endeavour to ascertain to what their infectiveness is due. Thus certain forms of canker in Apple trees, certain instances of hypertrophy or over-

growth of the tissues and of the change of their cells into gummy substances, are now stated, on good authority, to be due to presence of bacteria; and if a portion of the infected tissue be inoculated into a previously healthy tree disease results. In other cases we know that the presence of a parasitic fungus causes great swelling of the tissues, sometimes without other appreciable change, while in the curious cases of companionship included under the term "symbiosis" fungus and plant live together in amity, the fungus positively contributing to the well-being of the plant, stimulating cell-growth and causing the storage in the constituent cells of nutritive matter in sufficient abundance to satisfy the requirements of the confederate plants. Professor MARSHALL WARD's recent researches into the nature of the tubercles almost universal on the roots of Leguminous plants furnish a very striking instance of this. In these cases the infective agent is a germ or fungus-spore. But there are other cases in which no such infective process is observable, such as the knaurs already alluded to.

Again, there is the large class of galls where the most extraordinary deformities are produced as the consequence of the puncture of an insect. Some of the tumors which Mr. WILLIAMS would class under "burs" are the result of insect agency (Phytoptus). Transfer the insect, and infection would result.

Mr. WILLIAMS had not to deal with plants except by way of illustration, or he might have added that increased cell-growth arising from injury or other cause does not give rise exclusively to buds, but very frequently to roots, as every gardener who strikes a cutting knows. A cutting is made; the wound becomes covered over with a thin layer of cork-cells, then an increased growth of cellular tissue, or "callus" in garden phraseology, occurs, much starch and other nutriment collects in the new cells, and by-and-by, not buds, but roots are produced. We do not yet know why in particular cases tubers, such as those of the Potato, or adventitious buds or roots, as just described, are developed. The origin is the same—an overgrowth of cells, followed by an accumulation of food; but then comes the divergence, as difficult to be accounted for as the different varieties under which cancer may present itself.

One other point we may mention which has bearing on the subject before us, and that is the shape of the constituent cells of these outgrowths. In plants, of which alone we are now speaking, when the cells are confined within a firm and relatively unyielding epiderm or cortex, they remain relatively small and spheroid, but become, as the pressure increases, flattened and compressed. But if the epidermal layer be injured or removed, so that the pressure is taken off, then the cells do one of two things—they either enlarge greatly, the cohesion between cell and cell becoming weakened, so that they often become entirely isolated, or, instead of retaining a spheroidal shape, they economise material by assuming a star-like arrangement with a central body and radiating arms, by means of which latter they retain communication with their neighbours.

On other pages we give illustrations of various forms of Knaur, and which we could multiply, did space permit.

CYPRIPEDIUM INSIGNE (SEE SUPPLEMENTARY SHEET).—The view presented in our supplementary sheet is that of a houseful of *Cypripedium insigne* and its varieties in Mr. W. S. KIMBALL's garden, Rochester, United States of America. Mr. KIMBALL is one of several enthusiastic cultivators of Orchids

* "Vegetable Tumours in Relation to Bud Formation," *Trans. Patholog. Soc. Lond.*, 1887.



"INK PHOTO," SPRINGUE & CO. 28 MARTIN LANE, CANON ST., LONDON, E.C.

CYPRIPEDIUM INSIGNE AT M^R W. S. KIMBALL'S, ROCHESTER, U.S.A.

in the Eastern States, who in pursuit of his hobby has acquired a valuable collection of the plants, and especially of Cyripediums. A short account of his collection will be found in our issue for January 28 last, p. 117. In reference to the Cyripedium-house depicted Mr. KIMBALL's gardener (Mr. G. SAVAGE) writes:—"This group shows a batch of plants of *C. insigne* with about 2000 flowers on them. They have been grown in an intermediate-house with the ventilators open night and day all through the summer and autumn months. We give them all the light possible, except in midsummer, which perhaps is rather detrimental to the foliage, it being rather light in colour. The great amount of light afforded induces them to grow with more robustness and flower more profusely than if they were grown in a warm, moist, shady stove." In a subsequent issue we propose to give a view of the Water-Lily house in the same garden.

THE ROYAL HORTICULTURAL SOCIETY.—In compliance with a very generally expressed feeling that the Society would do well to avail itself, if possible, of the known horticultural tendencies of many "City" men, the Royal Horticultural Society is about to make an experiment to which we cannot but wish all success. It is intended to hold a two days' show in the Temple Gardens on May 17 and 18. We understand that there will be no difficulty as to exhibits; but to make such a show a financial success the weather must be good enough to be fine, and the intentions of the Society must be made widely known some time beforehand; and, moreover, provision must be made for the admission of the populace at the cheapest possible rate after the Fellows and privileged guests have been afforded an opportunity of seeing the show. An outside committee is working with the Council in the matter, and we trust the Society will receive every encouragement and support. The Council is working with a diligence and assiduity that should be crowned with success, and which, at any rate, command the gratitude of horticulturists. The financial difficulty still remains the most perilous one to be encountered, but it is very far from being insuperable if horticulturists of all grades will do their duty. We learn that Messrs. SNIBLEY HENDER and H. HENDER, as members of the Fellows' Committee, have been added to the Chiswick Gardens Committee of Management.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed that the eighth annual card collection in aid of the Gardeners' Royal Benevolent Institution is now being made; the cards are returnable to the Secretary on or before Wednesday, July 4. The amounts collected will be added to Mr. CHAMBERLAIN'S subscription list, and will be duly announced in these columns.

THE GARDENERS' ORPHAN FUND.—A meeting of the committee of the above took place at the Caledonian Hotel, Adelphi, W.C., on the 27th ult., Mr. GEORGE DEAL in the chair. Mr. A. J. BROWN, local secretary for Liodfield, Sussex; and Mr. G. W. CUMMINS, local secretary for Carshalton, were also present. The minutes of the last meeting having been read, the Chairman proposed a vote of condolence with the family of the late Mr. JOHN WOODNUNGE, bearing testimony to the valuable services he had rendered in the formation of the Fund, and also to his excellent qualities as a gardener and a man. This was seconded by Mr. H. HENDER, supported by Mr. A. F. BANNON, and carried by acclamation. The banker's book was produced, and showed that the sum of £735 3s. 7d. was standing to the credit of the Fund. The Hon. Sec. reported that the total amount of donations to date was £1174 0s. 6d., of which sum £1063 3s. had been paid; and subscriptions £386 11s. 6d., of which £224 0s. 6d. had been paid. The names of 136 donors and subscribers were received as sent in since the last meeting of the committee, the amounts being—donations, £32 18s. 6d., and subscriptions, £36 8s. Mr. BROWN handed in the sum of £7, the proceeds of a concert recently held at Lindfield,

and he stated he hoped the concert for this purpose would become an annual affair. Mr. WILSMITH also sent the sum of £2 2s. 8d., the proceeds of a lecture recently delivered. A special vote of thanks was passed to Messrs. BROWN and WILSMITH for their aid. It was stated that one local secretary had had forwarded the names of sixty five-shilling subscribers. Ten nomination papers sent in on behalf of candidates for election on the Fund were examined and approved, the time for sending in the same having closed on the 23rd ult. A sub-committee, consisting of Messrs. DEAL, ROUPPEL, WYNNE, and A. F. BARRON, was appointed to prepare the voting papers for issuing to subscribers. The arrangements for the dinner on July 13 were also considered and the preparation of a circular and other matters referred to the sub-committee. Various accounts were ordered to be paid, and it may be stated that no cheque can be drawn without an order upon the Treasurer signed by three members of the committee. The proceedings closed with the usual vote of thanks to the Chairman.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* of the Horticultural Club will take place at the Hotel Windsor, Victoria Street, Westminster, on Tuesday, May 8, at 6 p.m. Subject of discussion, "Peaches," to be opened by Mr. T. FRANCIS RIVERS.

A NEW BOILER FOR HEATING PURPOSES.—The great Horticultural Exhibition which has lately been held at Ghent afforded an opportunity of noticing a new warming apparatus, to which a Gold Medal has been awarded, and to which we wish to call the attention of horticulturists and amateurs. This boiler is tubular and vertical. It is quite simple, and possesses such advantages, that it seems desirable to give a few details concerning it. Some interesting experiments, a record of which is before us, have been made from November 15, 1887, to March 31, 1888, by M. D. MASSANGE DE LOUVREX, at the Château de Baillonville, and also by our compatriot, M. JAMES BRAY, of Ghent. In M. MASSANGE'S establishment this heating apparatus served to heat about 500 mètres of pipes in two Cattleya-houses, and in one Cyripedium-house; the fuel employed was non-bituminous (*houille maigre*). The apparatus worked with great regularity, it required no attention during the night, and consumed scarcely 108 kilos of fuel in twenty-four hours. In M. JAMES BRAY'S establishment this boiler heated 600 mètres of pipes, warming four Orchid-houses. The fuel employed was gas-coke; similarly favourable results were obtained, and the consumption was only estimated at 2 francs for twenty-four hours. If the severity of the winter 1887—1888, the sudden changes and the low temperature (which fell at Baillonville to 25° C. below freezing point) be considered, these results are most gratifying. Among the advantages claimed for this warming apparatus are these:—It is very powerful; it occupies but little space, and requires no setting. When burning, all the parts in contact with the water remain cool; there is no waste heat. It is easily cleaned. By means of a valve or slide the heat may be increased or diminished at pleasure. This boiler is patented in England by the inventor, M. BRASSEUR, of Marche, Luxembourg, Belgium.

"LINDENIA."—The following Orchids are illustrated in recent numbers:—

Cypripedium Leeaeum ×, Rehb. f., t. 125.—Dorsal sepal large, white, with rows of carmine dots; lateral petals olive-coloured, with carmine streaks; lip olive, flushed with reddish-brown. It is a cross between *C. Spicerianum* and *C. insigne*.

Oncidium cheiroporum, t. 126.—A species with small shining green pseudobulbs, lanceolate leaves, and erect, many-flowered panicles, bearing numerous small yellow flowers. It was discovered on the volcano of Chiriqui by VON WARSCEWICZ.

Rodriguezia Bungeorhii, t. 127.—A species with oblong pseudobulbs, lanceolate leaves, and dense cylindrical spikes of small rose-coloured flowers. A native of Venezuela.

Odontoglossum odoratum var. *baphicanthum*, Rehb. f., t. 128.—Pseudobulbs ovoid, leaves oblong acute. Flowers in elongated racemes, each nearly 3 inches across, stellate segments, lanceolate, yellow with red spots; lip hastate, lanceolate, of the same colour as the segments, but rather smaller. New Grenada.

Cypripedium Moensianum, hort., t. 129.—Leaves mottled, flower-stalk covered with shaggy red pubescence; flowers 5 inches across; upper sepal suborbiculate acute, white, with about eighteen convergent green nerves marked with reddish-brown spots; petals spreading, oblong-obtuse, whitish, green at the base, reddish at the tip, with numerous purplish-brown spots in the centre; lip bag-shaped, greenish flushed with red. Introduced from the Philippines with *C. Argus*, and requiring a stove temperature.

C. Houletianum, hort., t. 130.—Leaves tessellated, flower-stalk with reddish shaggy pubescence, flower 4 inches across; upper sepal roundish-acute, white flushed with rose; lateral petals oblong-ciliculate, at the margins deep rose coloured; lip reddish.

C. (Selenipedium) Wallisi, t. 131.—Upper and lower sepals oblong-lanceolate acuminate, greenish-yellow, with green stripes; petals linear, strap-shaped, prolonged into very long tendrils, reddish, lip cream-coloured, with pale purplish spots.

C. villosum, Lindl., t. 132.—Leaves oblong emarginate, flower-stalk covered with reddish shaggy pubescences, upper sepal roundish acute, whitish, disc green, with red nerves; petals oblong, from a narrow base, brownish-yellow; lip yellowish.

OPENING OF THE TOWER GARDENS.—These gardens, which have been for some months in process of remodelling, were opened on Monday, April 30, in the absence of the Earl of MEATH, by Mrs. MONTAGUE, the wife of Mr. SAMUEL MONTAGUE, M.P. Lieutenant-General Lord CHELMSFORD, G.C.B., Lieutenant of the Tower, in the enforced absence of the Constable of the Tower, Lord NAPIER of Magdala, addressing Sir WILLIAM VINCENT, said, "The duty devolved on him of handing over to the Boulevard Association the key of the grounds," and a copy of the officially approved regulations. The regulations were then read as settled by the Tower authorities and approved of under the sign-manual of HER MAJESTY. They were short, and to the effect that in cases of fire, riot, fog, or any other similar necessity, the Constable of the Tower should have complete control over the gardens; that they should be open from the hour of 10 A.M. up to half an hour before sunset, and should so remain open from April to September; that the gardeners and caretaker should be provided by the Association, and a box should be built for their use, but no permanent edifice erected, and that the gate should be locked each evening by a warder of the Tower, who would hand over the keys to the yeoman of the Guard. Lord CHELMSFORD concluded by expressing his own personal sympathy with the movement. After some few remarks by Mrs. S. MONTAGUE, Sir W. VINCENT, Mr. S. MONTAGUE, the Hon. CHARLES FREEMANTLE, the gardens were declared opened and the public were directly afterwards admitted. The gardens form a narrow strip around the moat, and have a main walk of about a quarter of a mile in length. The banks and slopes are turfed or covered with Ivy on the lower, and planted with shrubs on the upper portions. When the turf and grass seeds have grown, and the bushes and trees become established, the garden will form a pleasant adjunct to that part of the metropolis adjacent to the Tower.

NEW HOLLY.—At the sale of the Lawson Nursery stock at Bagholm Nurseries, Edinburgh, the entire stock of the splendid new Golden Variegated Hodgens Holly (twenty-four plants) which originated in the Bagholm Nursery, Edinburgh, and including the original plant of *Ilex Hodgensii* from which the first grafts were taken, was sold to Messrs. LITTLE & BALLANTYNE, nurserymen, Carlisle.

ROSE SHOWS IN 1888.—The following shows were not announced in previous notices on pp. 306 and 339:—Tuesday, June 26, Boston; Thursday, June 28, Brockham and Ryde; Wednesday, July 4,

Farnham, Hitchin, and Richmond; Tuesday, July 10, Gloucester and Oxford; Wednesday, July 11, Ealing; Thursday, July 12, Birmingham, and Carlton-in-Workop; Saturday, July 14, New Brighton; Monday, July 16, Newcastle-under-Lyne; Wednesday, July 18, Birkenhead; Saturday, July 21, Manchester; Tuesday, July 24, Tibshelf. In sending the above list, Mr. E. MAWLEY, Rose Bank, Great Berkhamstead, states that the only exhibitions not held by the National Rose Society, or by societies in affiliation with it, are those at Birmingham, Boston, Carlton-in-Workop, Manchester, Newcastle-under-Lyne, and Richmond. In the case of Birmingham and Boston, where the shows extend over two days, the date of the first day's exhibition only is given.

DEUTZIA CRENATA, WELLSII.—Messrs. HANS NIEMAND & Co., Birmingham, send us, under this name, a branch of this beautiful shrub, each shoot of which ends in a raceme of bell-shaped pendulous flowers, snow-white and very double, hence it is very valuable where white flowers are required. The plant is a free grower and flowers well in 5 or 6-inch pots, and submits readily to forcing. Though called by a specific name it is evidently nothing but a form of *Deutzia crenata*, a synonym of which is *D. scabra*.

AUSTRALIAN IRRIGATION COLONIES.—We are requested to state that offices have been opened in London, at Corawall Buildings, 35, Queen Victoria Street, E.C., by Messrs. CHAFFEY BROTHERS, Limited (late of Ontario, Southern California), for the Australian Irrigation Colonies, which are now being carried out on the River Murray under special Acts of the Parliaments and regulations by the Governments of Victoria and South Australia.

PITCH PINE.—Notwithstanding the enormous quantities of Pitch Pine (*Pinus australis*) regularly sent from America to the English and other European markets, it is satisfactory to know, from a recent official report, that the supplies are still very extensive. It is said that the supply of this valuable timber at the present rate of consumption from Pensacola may be relied upon at least for the next fifty years. The Pitch Pine forests are of spontaneous growth, indigenous to the sandy soil of portions of the Southern States where the timber most abounds, and it is estimated "that the timber supply of the Pine regions increases at the rate of about 5 per cent. per annum; but in Florida, with its loose methods of felling the woods and cutting down timber which is never used for commercial purposes, this annual increase is more than offset by the annual waste."

VANILLA CULTURE IN MEXICO.—Our contemporary, the *Chemist and Druggist*, quoting from a St. Louis paper, gives some details on the cultivation of Vanilla in Mexico, from which it seems that the plant flourishes in two places, namely, Papante, in the State of Vera Cruz, and Misantla; the first place, however, is the most important. It is a town of about 10,000 inhabitants, and is in the land of the Totonaco Indians, an extremely indolent and improvident race. The Vanilla plant is found wild in the forests. The fruits ripen in November or December, when they are gathered and put into sacks and brought into Papante to market. The buyers are Spaniards or Americans, and the competition is described as similar to what "is to be seen in a street where second-hand stores prevail. The old women are generally in the lead, half naked, and with haggard faces begrimed with dirt. Then come the children, equally pitiable in appearance; and finally the old men bring up the rear, with long stiff hair, matted and dirty, sometimes standing out 12 inches, while their beards, filthy and long, lend a finish to a picture that is most revolting." The Vanilla pods are purchased by middlemen at the rate of 42s. to 50s. per 1000, taken as they are put up by the natives. The average weight of 1000 good sized green Vanilla pods is about 60 lb., which, when dried do not exceed 10 lb. The first fine morning after the pods are gathered they are arranged on planks, covered with quilts and exposed partially to the

air, this being repeated seven times before the water has all evaporated, and they have become sufficiently dry. This is known as the sweating process, after which the pods are slightly heated and placed on shelves to dry, when they are assorted into lots, each containing fifty beans, and graded according to length. In fine weather the curing process takes three weeks, but such weather rarely prevails, and the curing sometimes takes from four to five months. Last year the beans sold for 58s. per 100, which was about a pound; but owing to a heavy crop this year, and the growing competition in the business, the best beans only bring 50s. a pound or 100, and the inferior from 30s. to 42s. The principal markets for Vanilla beans are New York, St. Louis, and Chicago. They are bought chiefly by wholesale druggists and fine confectioners, and are becoming an important article of Mexican commerce. Last year, from the vicinity of Papante alone, 60,000,000 beans were exported.

THE UTILISATION OF MOORS.—In some of the provinces in Holland exist large tracts of heath and moorland which at present are of little value, although once covered with dense forests. An effort is now being made to form a company, whose object it will be to attempt a gradual utilisation of the soil by replanting trees. How much good may result from such an enterprise under careful management is shown by a similar undertaking in Denmark, which has started some 400 plantations in different parts of that country.

FARMING IN MASSACHUSETTS.—Professor JOHN ROBINSON, addressing the Massachusetts Board of Agriculture, remarks upon the "abandoned farms, the deserted fields, and rapidly decaying houses of the once well kept and profitable farms." The reasons cited for this state of things are the cost of manuring, the fact that less labour in other directions is more profitable, and "man's instinctive dislike to isolation." The competition with California, Florida, and the West Indies, which supply the New England markets earlier and cheaper than can be done in the Eastern States, has also much to do with this state of things. It is worth noting that in the United States, or some portion of them, agriculture is in as depressed a condition as it is here, in spite of Protection. The remedies suggested are small farms which can be cultivated by the farmer himself, and the planting of waste or exhausted lands with timber. Professor Robinson adds some useful remarks as to the way in which planting should be done. He gives one illustration showing "how not to do it." In order to celebrate the Centennial of American independence it was resolved to plant a tree in a particular school-yard. The tree was purchased, and turned out to be an English Oak, "an emblem of royalty, and naturally a poor tree in this country, which may now be seen starved and puny, and looking as if it fully appreciated the inappropriateness of the selection!"

PLANTING AT KYLEMORE.—A correspondent of the *Galway Express*, who has been making a tour in Connemara, mentions the enormous extent of planting on Mr. MITCHELL HENRY's mountain property. "Long before you reach the house," he writes, "you drive through acres of evergreens, and on the mountain slopes are planted Firs and other trees. Years hence, when all this planting shall have reached its fulness of growth, Kylemore will be as an emerald, making glad the mountain wastes, clothing them—some of them, at least—with arboreal verdure."

THE CULTURE OF COLZA IN NORMANDY.—The following note from a report on the trade of Caen, Normandy, will show how greatly affected the vegetable oils used for illuminating purposes have been since the more general utilisation of the mineral oils from America. The report in question says:—"The cultivation of Colza, which a few years ago was very extensive in this Department, appears to be gradually dying out altogether, and

from being, as formerly, the mainstay of the farmer, to which he looked forward to paying his rent, is now meeting with very little demand through the introduction of mineral oils, which are cheaper for household and other lighting purposes. Further, the Colza oil was extensively used for lubricating purposes for machinery, but it is now superseded by the introduction of the heavier and cheaper oils. It is consequently very little sought after. As an instance also of the depreciation of this article of agricultural industry amongst others, through foreign competition, the Colza grain is exported in large quantities from Kurrachee, *via* the Suez Canal, to some of the French ports, whence it is disposed of at a lower price than the native oil commands in the French market."

PUBLICATIONS RECEIVED.—*Dictionary of the World's Press, and Advertisers' Reference Book.* By H. SELL. (London: SELL'S Advertising Agency, 167 and 168, Fleet Street, E.C.)—*Proceedings of the Forestry Convention.* (Lansing U.S.A.: THORP & GODFREY.)—*Hints for Arbour Day.* (Lansing, U.S.A.: THORP & GODFREY.)—*King William's Town Botanic Garden Annual Report, 1887.* (King William's Town, Cape of Good Hope.)—*Bulletin of the Botanical Department, Jamaica.*—*Roses and their Culture.* By WM. PAUL, F.L.S. Sixth edition. (London: KENT & Co., 23, Paternoster Row.)—*The Pelargonium and its Cultivation.* By C. E. PEARSON. (Chilwell, Notts: J. R. PEARSON & SONS.)—*The Australian Irrigation Colonies on the River Murray.* Compiled by J. E. M. VINCENT. (London: CHAFFEY BROTHERS, Limited.)

CAMELLIAS AT WALTON LEA, WARRINGTON.

It is now rather late in the season to speak of these beautiful flowers, and yet it is at this present time that a fine display of Camellias is to be seen in these gardens. Having remarked these plants on several occasions, the mode of growing them here may be of interest to your readers. For some twelve years the majority of the specimens were grown in a house some 50 feet in length; here they were planted out, and had developed into splendid pyramids, which every year flowered beautifully. About a twelve-month ago it was found necessary to give the plants increased space; accordingly, the house was enlarged to 100 feet in length, 15 feet 6 inches in width, and 14 feet in height, the back wall being 10 feet high. The house being a half-span, with an east aspect, will in a measure account for the lateness of the flowering period, since but little direct sunlight falls on the house in winter and early spring. There is a path in the centre, and looking from the ends where the plants are gay with blooms, a gorgeous sight is presented to view. The plants were removed in the month of May last year, and so successfully was the operation performed, that at the present time some of them carry from 300 to 400 perfect blooms. Choice varieties of Clematis are planted in the bed at the back of the house, to afford covering for the wall, and to creep over the roof, these being kept within bounds so as not to unduly shade the Camellias. On the front a number of *Lapageria rosea* and alba are also planted, which will run up straight rods. It is hoped that with these climbers and the Camellias there will not be any lengthy period of the year when a good show of blossom will not be afforded. Taking the plants in the bed at the back of the house, there are three specimens of the old double white, one of imbricata, also one each of the following kinds:—*Elegans*, *ochroleuca*, *Lavinia Maggi*, *De la Reine*, *Hendersoni*, *Commandatore Batti*, and *Napoleon III*. These are pyramidal in form, with leaves to the ground, 10 to 12 feet high, and 6 to 7 feet in diameter. The vigour of these plants is really remarkable. On the front bed are the following:—Two of *Lady Hume's Blush*, one each of *Jenny Lind*, *Jubilee*, *candidissima*, *Duc de Bretagne*, *fimbriata*. These are also perfect in form, 8 feet high, and 5 feet in diameter. Also tricolor, imbricata, *Auguste Delfosse*, *Carolina*, *Mathotiana*, and one other, having pink flowers, unnamed; these are 5 to 7 feet high, and 3 to 5 feet in diameter. On the back wall, covering a large portion of the space, are the follow-

ing:—reticulata, with 150 perfect flowers open; alba plena, eximia, Madonna, Saccoi-nova, Pelaskia, and a very beautiful white variety, the flowers being marbled with bright rose.

[To Mr. Kipps, who forwarded a boxful of many of the bountiful varieties mentioned by our correspondent, great credit is due for his successful management of the Camellias under his charge. Some of the flowers were of great size, those of *C. reticulata* measuring nearly 7 inches in diameter. The contrast of the golden anthers with the colour of the petals in the semi-double and single flowered varieties, as in the last-named, makes them more gorgeous than the most perfect doubles, at least when observed on the plants. *En.*]

Besides the Camellias there are many other things of interest in the gardens. The vineries give promise of plentiful crops of fruit. The Pine-apple is also well done. Stove and greenhouse plants are well represented, while some select specimens of Orchids are in good health, and several freely blooming.

Chrysanthemums are always to be seen here in fine form. Mr. Kipps is well known as an enthusiastic grower of these plants, and as a consequence his services are often called into requisition at Chrysanthemum shows. The pleasure grounds are in keeping with the occupants of the houses—neatness, order, and management being observable everywhere. *W. S., Preston.*

TREES AND SHRUBS.

KALMIAS.

KALMIA LATIFOLIA.—In many gardens this pretty shrub is seen in anything but a satisfactory state, and this is due solely to planting it in unsuitable and too dry soils, for the *Kalmia* likes peat and to be well supplied with moisture during its season of growth. Some of the largest and healthiest plants we have seen were growing in peat bog that had simply been relieved of too abundant moisture, and trenched over previous to planting. These fine plants, 6 feet in height, were, in the month of June, thickly studded with flowers, which rendered the bushes visible a long way off.

There is a very distinct and pretty form of the broad-leaved *Kalmia* named *myrtifolia*, which is of dwarfer growth than the parent, and has smaller leaves and flowers. It is of value for planting where the *latifolia* would prove too large, and being ornamental and distinct, it is much sought after by planters.

An early flowering species will be found in *K. glauca*, the blooms of which are usually in perfection in March and April. They are produced in great abundance by healthy plants, in terminal corymbs, and are of a pleasing shade of pink.

The narrow-leaved *Kalmia* (*K. angustifolia*) is another distinct plant, whose merits are such as to render it well worthy the attention of planters. *A. D. Webster.*

HEADING BACK DECIDUOUS TREES WHEN PLANTED.

This practice is generally condemned in this country, but it often carried out in France and other countries abroad when the trees have not been prepared at the root by transplanting, and it perhaps is the best thing to do under the circumstances. The trees are cut off at about 10 or 12 feet from the ground, and the usually much mutilated straggling roots are cut back so as to be conveniently inserted in small pits, and care is always taken to cut off any injured roots and rootlets. Trees without heads need no stake the first year, as wind-waving is not to be feared, and by the time the tree acquires a head its roots are sufficient support to it. Certainly planting with a head of branches and a due amount of roots is the best, the branches being somewhat pruned back in the early spring of the second year after planting. The method first alluded to may with advantage be followed if it be required to remove otherwise suitable trees from out of an ordinary plantation to be planted elsewhere. *M. W.*

SCOTLAND.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on the 1st inst., the President, Mr. McKinnon, The Gardens, Scone Palace, in the chair.

A lecture was given by Mr. W. Ivison Macadam on "The Elements Present in Plants."

Exhibits were unusually interesting and numerous. A magnificent specimen of *Dendrobium Devonianum* with 980 blooms, open and fresh; and a no less remarkable specimen of *D. Wardianum*, with

flowers and trusses, are very striking features of the improvement effected when compared with the pretty but diminutive parent of the stock. The collection was awarded a First-class Certificate. Messrs. Methven & Sons exhibited a very handsome medium-sized Cucumber, named *Edinburgh Beauty*; the texture and flavour were excellent, and a First-class Certificate was awarded it. *W. S.*

ORCHID NOTES AND GLEANINGS.

MASDEVALLIA WENDLANDIANA.

THIS is an introduction of Mr. Sander's from New Grenada, and is a *Masdevallia* of unusual interest because, so far as I am aware, it is the only species in cultivation that requires tropical treatment. It is one of the smallest of the genus, the leaves being from 1 to 2 inches in length, and about a quarter of an inch wide. It is, however, far too pretty and interesting to be relegated to that dubious group known as "botanical curiosities." It was described by Dr. Reichenbach in these columns a little over a year ago, and was referred to by him as a "lovely gem." The flowers are freely produced, and measure two-thirds of an inch in length. The prevailing colour of the flower is pure white, but a few dull purple lines occur on the outer side of the sepals, and they are orange-coloured at the tips. But few plants are at present in cultivation, and one of these is now flowering at Kew. It is best grown in small baskets or shallow pans of fibry peat, with a surfacing of sphagnum, and should have a shady place near the glass in the warmest house.

PLEUROTHALLIS INSIGNIS.

Although the greater part of this large genus is composed of species worthless from the gardener's standpoint, there are several which are sufficiently curious or beautiful to deserve cultivation. Amongst these is *P. insignis*, a fine example of which is now in flower at Kew. *P. insignis* is said to be the largest flowered of *Pleurothallis*, and this particular plant has flowers which measure very nearly 6 inches from the tip of the upper sepal to those of the lower ones; three such flowers occur on the spike. The sepals and petals are comparatively broad at the base, but contract abruptly into long attenuations. They are of a pale transparent green colour, with two or three longitudinal stripes of purple. A singular appearance is given to the lip by a dense circular tuft of hairs near the apex, showing the near relationship of this species to *P. glossopogon*. It is probably a native of Caracas, and thrives well under cool and moist conditions. *W. B.*

PLANT PORTRAITS.

CORDYLINE INDIVISA VAR. *DOUCETIANA*, *Illustration Horticole*, t. 40.—A variety with the edges of the leaves with narrow bands of white at the margins.

CYPRIPEDIUM ARGUS, *Revue de l'Horticulture Belge*, April.

DICHRORISANDRA PUBESCENS VAR. *TENIENSIS*, *Revue de l'Horticulture Belge*, April.—Stove plant, with lanceolate leaves, striped with white on the upper surface. Flowers rich blue, small, in terminal spikes, see p.

EICHORNEA (*PONTERDERIA*) *CRASSIPES*, *Gartenflora*, t. 1271.

GENTIANA CALYCOSA, *Grisebach, Gartenflora*, April 1, 1888, t. 1270 A.—Stems 5–6 metres high, leaves opposite, oblong acute; flower 1 inch long, terminal, blue, funnel shaped, with a contracted throat. Native of the mountains of northern California.

GESNERA LONGIFLORA, *Garden*, April 14.—Flowers deflexed, white, trumpet-shaped, with a long slender tube, and an expanded five-lobed limb. Leaves 2 inches long, sessile, oblong, crenulate.

IAIS SQUALENS, *Illust. Monatsheft*, t. 3, March, 1888.

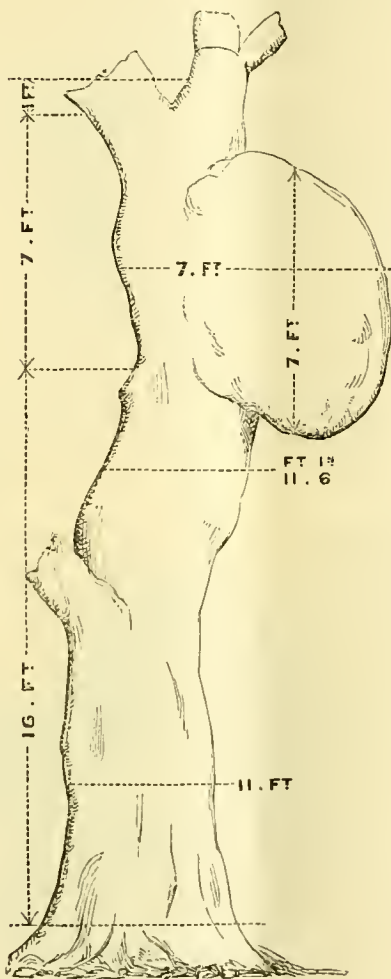


FIG. 76.—BURR ON OAK: TO ILLUSTRATE ARTICLE ON P. 560.

189 blooms of great size, were exhibited by Mr. Wm. Kidd, Ardarrack Gardens, Garelochhead, and were awarded a First-class Certificate.

Mr. Grossart, Oswald House, Oswald Road, Edinburgh, exhibited a very fine plant of *Cattleya Lawrenceana*, with four trusses, bearing in all eighteen grand blooms, for which he was awarded a First-class Certificate. From the same source came also well bloomed samples of *C. citrina*, *Lælia elegans* and *L. purpurata*, *Odontoglossum aceptrum* and *O. luteo-purpureum magnificum*. A most attractive collection of hybrid forms of *Primula nivalis* [?] was exhibited by Mr. Calder, sculptor, Bellevue, Edinburgh, an amateur who has for some years past given close attention to the improvement of this interesting and beautiful species and its allies. The variety of colour, ranging from pure white to rose, purple and crimson in various shades, and the increased size of the

NYMPHLEA MARLIACEA, *Garden*, March 31.—A seedling raised by M. Latour-Marliac, Temple sur Lot Garonne. It is said to be quite hardy, and to be closely allied to *N. tuberosa*. The flowers are of a beautiful canary-yellow, so that even in the tropical aquarium it is amply deserving a place, particularly as it remains in bloom so long. The illustration, unfortunately, affords no means whatever of ascertaining what the affinities of the plant really are. It is a yellow Water Lily, and it is nothing more. Not even the disposition of the air-canals in the leaf and flower-stalks respectively is indicated, though a momentary inspection of these tubes with the unassisted eye would be sufficient to show to what section of the genus the plant belongs.

ODONTOGLOSSUM TRIPUDIANUS, *Orchidophile*, April, 1888.

PLEUROTHALLIS ROEZLII, *Orchidophile*, March, 1888.

PRIMULA SINENSIS VAR. **EDMOND MORREN**, *Illustration Horticole*, t. 42.—A variety with pale slaty-blue flowers obtained from seed by M. Edmond Morren.

ROSE HON. EDITH GIFFORD (TEA), *Garden*, April, 1888.—A cross between *Perle des Jardins* and *Madame Falcot*. Flowers white; habit vigorous. raised by J. B. Guillot fils.

STATICE EXIMIA, VAR. **TURKESTANICA**, *Regel, Gartenflora*, April 1, 1888, t. 1270 D. M.—A pretty species, with small lilac flowers in dense panicle clusters rising from the centre of a tuft of oblong acute leaves.

HOME CORRESPONDENCE.

A PLEA FOR THE IVY.—I fear the article of your correspondent in last week's *Chronicle* respecting Ivy being a parasite of a very destructive character, may have a very misleading and injurious effect in inducing its removal from trees, and old ruins, which it undoubtedly preserves. The Ivy is not a parasite, it never enters into and feeds on the life of other trees, like Mistletoe. It must have a separate existence, and unless it has soil or the debris of old buildings to root in it necessarily perishes. Most lamentable mistakes have occurred with respect to ivy growing on trees, which are seldom injuriously affected by it, as every large plantation and very many ancient trees throughout the country can testify. In fact, there is a remarkable sympathetic influence existing between Ivy and trees of a very accommodating nature, for if living Ivy of large girth is removed from the trunk of a tree it will be found that scarcely an indentation or even impression is left, but when it is ruthlessly removed in part, or killed from any cause, it then becomes a dead inert substance which will in all probability strangle and kill the tree. I remember some years ago visiting a fine park, and near the mansion were some grand Elm trees upwards of 100 feet in height with a luxuriant growth of Ivy hanging in graceful festoons from their summits and presenting, especially in the winter season, a beautiful appearance. I again visited the same place not long since and was horrified at finding an attempt had been made to cut the Ivy, and as the greater portion could not be reached it remained dead upon the trees, with the natural result. It appeared the gentleman was told by some injudicious person that unless the Ivy was removed, it would destroy the trees, of which he was very proud. He discovered his mistake only too late. I trust this notice will prevent any undue destruction of one of the most beautiful features of our English landscape, *W. H. Rogers, Southampton*. [The use of the word parasite was unfortunate. If the walls are in fairly good repair, Ivy does no harm to them. Ed.]

TURF PITS.—Do we make enough use of these simple aids for the early production of Salads, Turnips, Potatoes, Radishes, Cauliflowers, Violets, Helibores, Wallflowers, Stocks, and the protection in bad weather of many other things? For want of pits built of brick, which are expensive, and therefore avoided by many owners of a garden, some gardeners do not grow so much of the much-liked early productions of the garden as they might do if some of these much less costly makeshifts were put up by him. Not much labour is wanted, and that little can always be supplied by the "handy man" found about most places. Turf, preferably that of a peaty nature, as it has plenty of tough fibrous roots in it, and con-

sequently is enduring to a greater degree than other turf, should be cut of a thickness of 3–6 inches, according to the depth to which the roots penetrate. The dimensions are best when the turves are 1 foot broad and 2 feet long; and the depth, breadth, and length, should be carefully preserved in cutting them, as this greatly assists the workman in the building of the walls. A dry, warm, sheltered spot should be chosen for the site of the pits, and where forcing by means of leaves is intended, holes of the width and length intended to have the pits should be dug out to a depth of 1½–2 feet; the turfen walls may be made 1 foot in thickness and 2 feet high at the front, and 3–3½ feet at the back, if the lights to be used are more than 6 feet long; but if they are shorter than this a less high back wall will be better. The walls may have sharp stakes driven through them into the soil at 5 feet intervals; this will steady them, and on the top there should be wall-plate and rafters to carry the lights. There is no need to have finely painted and finished lights; but those of red deal, painted with Carson's anti-corrosion paint are good enough, and no putty should be used except for embedding the glass, but thick white lead paint only. There will be no drip if this be properly done, and repairs are easily carried out when required. Such pits are much warmer than those made of brick, and will keep out when properly covered up from 10°–14° of cold. For forwarding crops of Turnips, Radishes, seeds of Celery, Cabbages, Cauliflowers, and those of annual flowers of many kinds, the walls need not be higher than 1 foot in the front and 6 inches more at the back; and when a little fermenting material is employed under the soil in which the seeds are sown, the staple may be dug out 2 spits in depth, so as to afford space for it. Violets planted out in such pits always do well, and they are moreover very useful in the autumn and winter for various kitchen garden crops, which must be protected from the weather. In conclusion I would direct attention to the use the French and Belgians make of simple means in the garden, and thereby secure in our own markets the top prices for early stuffs, *vide* our last week's article on "Market Gardens and Orchards," p. 519. A. B. C.

THE DESTRUCTION OF SHOOTS OF FIR TREES.

—A large belt of trees on the west side of the gardens here have been suffering much of late, exactly as Mr. Michie describes at p. 526 of your last issue. The depredator here (to my certain knowledge) is that pretty little nimble fellow, the squirrel, well known to foresters. What drew my attention first to the destruction of the Spruce trees was the untidy appearance which the walks presented. Although swept in the morning they were often strewn with the little shoots before mid-day, especially if there happened to be any wind. As this mutilation was going on in other woods on the estate, the question arose as to the cause of this devastation. A relation of mine wrote some time ago about the squirrel, and mentioned that this creature would have to be kept within bonds, as it was destructive to trees; recalling this to mind I kept a look-out, and soon saw what convinced me that my friend's statement was correct. Two squirrels were observed nibbling as fast as they could on the very top of one tree—the other far out on one of the branches. Before I had finished looking through the wood I had seen about a dozen. These squirrels came from some other plantations at a distance off which were being cut down. Now that the gamekeeper has destroyed many of them the depredations have ceased, and the walks and ground about the trees remain clean. I have observed at times a few starlings flying about, but have never noticed them alight on the trees where this injurious pruning was being carried on. *J. Jeffrey, Cyfarthya Castle, South Wales*. [Other correspondents write to the same effect. Ed.]

DOUGLASIA.—The charming little *Douglasia levigata*, figured in your last issue, will always be full of interest to admirers of Dr. Asa Gray, as the seeds of this plant were probably the last he sent to this country with his own hands; with the note "a new Primuloid of great beauty," and such it has turned out to be, and in all probability it will prove hardy during our severest winters. During the past season, at any rate, the plants here have only had the protection of a cold frame, and are now in robust health, flowering as profusely as any of the European *Androsaces*. *D. levigata* was first found on Mount Hood, Oregon, May, 1880, by Messrs. Barrett, Howell, and others, and was described the same year in the *Proceedings*

of the *American Academy*, p. 105. The genus was founded by Lindley, in 1827, in honour of the traveller Douglas of the Royal Horticultural Society, who found the first species, *D. nivalis*, near the source of the River Columbia, 12,000 feet above sea level, on the Rocky Mountains, early in April, blossoming freely while thickly covered with snow, and is probably the hardiest of the American species. It was called *Androsace linearis* (Graham) in the *Edinburgh Philosophical Journal* for July, 1829, but is now probably lost to cultivation. The variety *dentata* is somewhat larger and looks as if it would be a better garden plant. The other American species are *D. montana* and *D. arctica*, neither of which are found in our gardens. We raised *D. levigata* last summer, and it commenced to flower early in October, continuing in bloom all through the winter, and is just now past its best. The only European representative of this genus is the well-known *Gregoria* (*Androsace*) *vittatiana*, found so plentifully in Switzerland and elsewhere. It is fairly common in our gardens, although rather tardy in producing its golden-yellow blossoms. *D., Kew*.

CYCLAMEN COUM.—Readers of the *Gardeners' Chronicle* will be interested to hear, no doubt, that I have received tubers from a long naturalised colony growing in the neighbourhood of Kingsbridge, South Devon. There is, indeed, more than one such, as I am told that it grows in two woods three miles apart, and that it is said to be found five miles off in another direction. My correspondent hears, further, that it grew in certain rectory grounds (presumably not cultivated) before alterations were made. He says:—"The folks here declare they are wild, and that they have grown in these two spots as long as they can remember." I am requested not to name the localities, and naturally refrain from such a well-known risk, though, indeed, like some places around I have wanted to visit, they are not too near a railway station. This plant has thus, it appears, been fairly well established; and as the circumstance of its being naturalised was unknown to Professor Babington it is probably without record. The plants came in flower and agreed in every particular with the figure in the *Botanical Magazine*, t. 4. *R. Irwin Lynch, Botanico Gardens, Cambridge*.

SINGLE DAFFODILS BECOMING DOUBLE.—On the confines of the New Forest there lies a field, which is in due season carpeted with a sheet of single Daffodils. These being lifted and planted in a garden well known to me, remain single for one year. The next year the whole of them become double. There is also a circumstance which may throw some light on the question, and which is quite new to me. The change from the single to the double state is accompanied by a large development both of leaf and stem. In fact the little single produces a big double Daffodil. I visited the garden yesterday, and sent off specimens. They are in the garden, and under the care of a neighbour, a highly intelligent and observant lady, whose evidence I can completely trust. *R. Trevor Clarke*. [With this came ordinary Daffodils, large *Telamonius*, and one or two intermediate small *Telamonius*. Ed.]

GROUPS OF CHRYSANTHEMUMS FOR COMPETITION.—I do not think "R. D." has seen the best groups of Chrysanthemums staged or he would not write so disparagingly of their points as he does on p. 532. Neither do I think he can have examined the groups very closely, or he would not say "the flowers are generally borne on plants grown on a single stem." Very few growers indeed resort to the one-stem method of producing cut flowers for exhibition, let alone for grouping, except in very few instances, where late cuttings are inserted of special varieties, with a view to assist the groups somewhat. [It was general.] The plants are generally grown with from three to six stems apiece. The chief aim and ambition of a grower of plants for a group is to preserve all the foliage down to the pot. Now, if the practice of allowing Ferns and other foliage plants is enforced growers will get careless as to the preservation of the foliage of their Chrysanthemums, because they will know good foliage will not then assist them any more than naked stems, because those plants which are added to the groups will hide these signs of defective cultivation. I say, let the addition be optional, and I dare to say that few would object to hide the pots only with Ferns, but I fancy that those whose plants possess good foliage would prefer to depend more upon this rather than on the artificial hiding of the stems for their chance of winning prizes. Would "R. D." give a 1st prize to a

group of Chrysanthemums with artificial covering of the stems rather than to one of plants with perfect foliage down to the pot, assuming the flowers to be of equal merit in both groups? If he says "yes," then high culture may be ignored, and that should not be the aim of good horticulture. If "R. D." had seen the best groups, as staged at Kingston, I do not think he would be so hard upon the growers of Chrysanthemum groups as he is, judging from his remarks. S.

VIOLETS.—The time has arrived when preparations for next winter's supply of flowers should be

pared, by being dug over a spit deep in the winter months and have in it a considerable proportion of leaf-mould, or, what will do almost as well, old potting-bench refuse soil. The runners and divided crowns should be planted firmly in rows a foot apart each way, care being taken not to bury the base of the crowns below the surface, as sometimes done when left to young hands. After-treatment will consist chiefly in watering as often as becomes necessary, at no time should they suffer from want of this, and in keeping the borders free from weeds by frequently stirring the surface with a Dutch hoe. When the plants have become

do best on a north border, whilst in our own case several years' practice proves a west aspect to be the most suitable, and in the ungenial climate of Lancashire we can fully imagine that even a south border or open situation would be required. The best plan to adopt in a garden where there is uncertainty on the point is to grow the plants for a season in diverse aspects and situations; afterwards keep to that which proves the best. *J. Horsfield, Heytesbury.* [A position partly shady, as that between the rows of bush fruit, does very well, and in such places the plants suffer little from spider. Ed.]

FRUIT TRANSIT RATES AND FRUIT SALESMEN.

—Being not a Hampshire but a Kentish fruit grower I should like to notice the rates charged by the South-Eastern Railway Company, whose main line runs through this county, and is one of the chief routes for the conveyance of fruit, vegetables, &c., from the Continent. My nearest station is Halstead, and so great are the consignments of fruit hence during the Strawberry season, that a special train is run from Halstead every morning. Now, the rate of carriage from this station is 3d. for every peck of 12 lb., and 1s. 3d. for every box of 60 lb. weight, and distance to Covent Garden Market is twenty miles. Contrast these charges with those made by the same company for packages from Paris to the same market, which are 7d. per pad up to 28 lb., or £2 per ton; added to this the company's servant's do the whole of the portage, which is considerable, and consists of unloading from the train to the boats and again from the boats to the train, and again into vans at the London terminus. Here the grower has to assist in loading and unloading his own produce, and pays at the same time equal rates with the foreigner, who has to send his produce twelve times the distance. Were it not for the quickness of transit the growers of soft fruit could take to the road in vans, and convey the fruit in vans for £1 per ton, and the fruit would then not receive so much of the rough handling it does now. As regards commission—this differs with different salesmen—one will charge a certain percentage on the whole of the goods sold, another will charge on each separate peck, bushel, or box. Take Strawberries, at 3d. per peck commission, which is the usual charge, the average price for the last three years has been 2s. per peck, and there is a commission of 12½ per cent., not on small quantities either, for I have sent from 300 to 500 pecks per day, and the percentage charged is not only too high but is bad for the grower. The salesman is perfectly indifferent, for whether he makes 3s. or 2s. per peck, his 3d. commission remains undiminished, and the quicker he can clear his stand the better he likes it. Mr. J. B. Thomas no doubt has a just cause to complain of the treatment meted out to his empties; the grower also has a complaint on this head. My neighbour, also a fruit grower, estimates the loss per acre of Strawberry pecks at £8, a statement I can fully endorse. The salesman has this advantage over the grower, he can and does charge on his empties. But with the exception of Mr. James Lindsey, of Edinburgh, I never knew a salesman to credit a grower with empties. There is another grievance which growers have to complain of, viz., a grower expects his returns every day from his salesman and his account to be accompanied with cash every week. A few carry out this system, but I am sorry to say not all, and now it is common for a grower to have to wait for twelve months or two years, and to be told that credit has been given to retailer, notwithstanding the grower has his hundred and one expenses at home, and cannot be banker for all. *W. Dale.*

THE MASSING OF ROSES.—Uncontrollable circumstances have thrown me out of the rearing for several weeks, hence I have not noticed "Theta's" somewhat severe criticism until now. Neither am I careful to answer it at any length. The field of Roses is fortunately so large and full, and tastes differ so widely as to their individual merits and adaptation for special uses, that the most natural and useful thing in the world is for rosarians to differ. The old saw, "When doctors differ who is to decide?" is not applicable here. In such Rose matters as those under consideration no decision is needful. Were it possible, it would injure rather than advance the interests of those rosarians who are desirous of turning the decorative capacities of the Rose to more telling and effective landscape purposes. As to the merits of individual Roses—either included or excluded by me—it is only needful to say that my list made no pretence to perfection, far less to exhaustiveness, and it would have served a

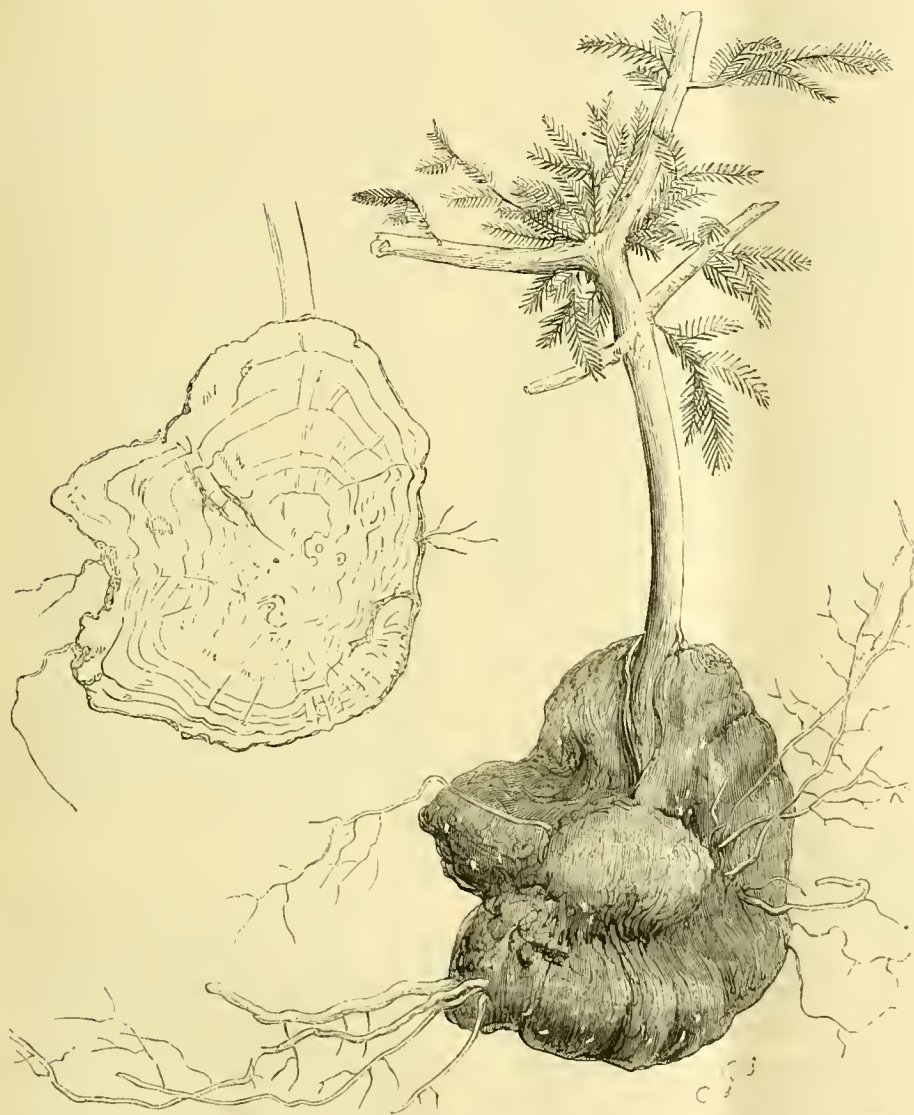


FIG. 77.—KNAUR ON TANODIUM DISTICHUM. (SEE P. 560.)

taken in hand, i.e., with those intended to be flowered in frames, or indeed, for the matter of that, with those intended for flowering out-of-doors—although in this latter case, and where outdoor grown plants alone have to be depended upon for young stock, the operation will be somewhat later than usual this year, by reason of their lateness in flowering. It is a good plan to have prepared runners to begin with, and where it is the practice to adopt frame culture for the winter months there ought not to be any difficulty in being able to command a good supply by the end of April. Old roots may also be divided into single crowns for this purpose, but they do not produce such large flowers as those obtained from early rooted runners. As to soil, although a rich one is not really necessary it yet should be specially pre-

well established, and begin to throw out runners, the latter should be cut off as fast as they make their appearance, or, at least, they must not be allowed to make headway, the object being to concentrate in the crowns originally planted all the vigour possible. The greatest enemy will undoubtedly prove to be red-spider, and in some localities this is a pest indeed, putting at defiance almost all efforts to obtain successful results. It is next to impossible to prevent the attacks of this insect more or less, but a very great deal may be done in mitigation by selecting the most suitable position or aspect for the border, and we cannot write anything definite or precise on this point, as in different districts it will be found by experience to vary considerably. In the Eastern Counties we have found plants

useful purpose had it done nothing more or better than call forth "Theta's" critical corrections and additions. Instead of one list of Roses—many of which, according to "Theta," are of very little use—we have two, which probably have more; and if your readers find "Theta's" selection superior to mine, so much the better for the effective grouping of Roses—the one object I had in view in the writing of the somewhat fragmentary article. The energetic help of a good many, old as well as new friends will be needed before groups of Roses will assume the place and power in English landscapes that their freshness, brightness, beauty, and fragrance, so well fit them for; and the principle that the more writers and lists the merrier, that is, the better for fostering the grouping of Roses. I fairly can do and defend my selection against "Theta's" criticism. A little more of the fragrance of the Roses we both love so well infused into the spirit of his letter would have restrained such an accomplished rosarian from writing the following sentence:—"Madame Favart is not very well nor generally known; perhaps 'Rosa' will kindly describe it, and give its date and raiser." Few can know better than "Theta" that there is no such Rose, nor could read more readily between the letters that this was a mere misprint for Madame Lambard. As I was careful to define the special distinction I set up between the massing and grouping of Roses (p. 362.) "Theta's" opening remarks on this matter (p. 459) are equally uncalled for and devoid of sweetness or light. *Rosa*.

SULPHURIC ACID FOR DESTROYING WEEDS.—I notice that Mr. Horsefield recommends arsenic for destroying weeds on walks, drives, &c., and cautions people as to its application—a warning which is very necessary in the use of so dangerous a substance; but why have anything to do with it at all when sulphuric acid may be had so cheaply?—and though this requires care, there is nothing like the risk there is with arsenic, for at the worst only blistered hands are to be apprehended if the liquid is carelessly poured out before being diluted, and holes may be burned in the clothes if the acid is spilt on them. If those who have used this weed destroyer will give their experience of it they will confer a benefit just at this time. *J. S.*

PATCHOULY.—In connection with the subject of Patchouly, referred to in the notes on Mincing Lane products in last week's issue, I may state that Patchouly leaves are now coming into the market in quantities, forty-six bales having arrived last week from Singapore. The quality, however, is reported to be very indifferent. *J. R. Jackson, Kew.*

STRAWBERRY CULTIVATION IN POTS.—When visiting the gardens at Ashgrove, Sevenoaks, recently I was much struck with the Strawberries grown in pots. The variety chiefly cultivated is Princess of Wales [Knight's?], and which is a great favourite with Mr. Thorne, the gardener. In one of the houses there were to be seen some 500 berries just on the point of ripening, the colour and flavour being excellent. *S. C.*

LOSS OF SHOOTS OF SPRUCE FIR.—The destruction of young shoots of Spruce Firs referred to in your last number by a correspondent in Banffshire is not confined to that district, similar damage in this part of Kent having been observed for some time past, and which puzzled me much as to who were the depredators. They have, however, been caught in the act, and proved to be squirrels. They seem to prefer the Abies excelsa or common Spruce to the A. Smithiana, though common Silver Firs have not escaped injury. It may be that the severity of the weather has reduced their usual supply of food and hunger compelled them to feed on the Fir shoots. The mischief they have done is scarcely credible, and some trees have been denuded of all their fresh growth. *J. T. Herrett, Hawkhurst.*

EUCHARIS AMAZONICA.—Mr. Keetley answers my last at considerable length, and mostly agrees with what I wrote on March 31. I can quite understand that it is possible, if he has a lot of diseased Eucharis placed with healthy plants, the mites will attack the healthy ones. My contention is, that if the collection is maintained in robust health, there is very little fear of mites or fungi attacking them. I also maintain that it is beneficial to them after flowering is over, to take them to a cooler temperature, say 10° lower. I find, that if I leave them in the stove to flower a second time during the same season, the flowers are very small. *A. Macdonald, Chesham.*

THE ORCHID HOUSES.

CATTLEYA-HOUSE.—The division is beginning to look gay with flowers of *C. Mossiae* and *C. Mendelii*, and pleasing when these are contrasted with those of *C. Lawrenceana* and *C. Skinneri*.

Watering.—During the next three or four months watering will be the most important part in Orchid culture, and should be attended to daily, and previous to cleaning and potting. All plants in the cool and East Indian-houses should be looked over daily if bright weather should prevail, and any plants that show signs of being dry (except newly potted plants, which may be damped over the surface) should be watered. If the surface of the compost should become close in texture, and does not take water freely, it should be pricked up with a pointed stick or be top-dressed. Very few Orchids thrive if the compost is continually saturated with water, it becoming sour quickly. Cattleyas and *Laelias* do best if allowed to become nearly dry before water is given them, but no rule can be laid down for watering, but this must be determined by those in charge, as some plants will dry faster than others, and this will arise from various causes, such as the thickness of the shading used, the moisture in the house, the amount of ventilation given.

Calanthes, &c.—Many of the evergreen *Calanthes* will soon be in flower, and some weak manure-water afforded them once a week will enlarge the size of the blooms. A close watch must be kept on insects, to prevent injury to the latter. The foliage of these *Calanthes* is so very tender that it is not safe to fumigate them, but a few puffs from Bloxham's fumigator directed towards the spikes will assist in keeping them free from aphids. I find these plants grow best at the north end of an East Indian-house, about 2 feet 6 inches from the roof. *Odontoglossum coronarium* should receive plenty of water now. I find it grows best during summer if sufficient moisture be afforded it to keep the sphagnum green, and it grows freely when suspended in a long basket in the shadier part of the *Lycaste*-house. *Pleiones* that are placed near the roof and are well rooted should be carefully watered, giving some weak manure about once a week. *C. Woolford, Downside, Leatherhead.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

TUESDAY, April 24.—Present: Dr. M. T. Masters, in the chair; Messrs. Michael, O'Brien, Pascoe, Burbidge, Dr. Scott, Professor Church, and Rev. G. Henslow (Hon. Sec.).

Daffodil, Fringed.—Mr. Burbidge gave the following further particulars about the remarkable form described at the last meeting. He said that there existed but a single clump in the lawn of Rev. Mr. Gabbett, Croom Rectory, by Limerick. The flowers had come true for several years. It was associated with *N. spurium* and *N. Telemonius* (plenus), the former seeding itself. It appears to be a sport from *N. spurium*, but nothing certain is known of its actual origin.

Hyacinths, Self-Mutilation of.—Specimens of this not uncommon phenomenon were sent from Colonel Urquhart, of Rosebay, Broughty Ferry, for information as to the cause. The spikes have the appearance of being pinched off when first emerging from the bulb. The cause is apparently twofold; on the one hand, the bud-scales at the top are too rigid, while on the other the spike was well nourished, the result being, that the insufficient expansion of the scales checked the development of the spike at the place where it becomes decapitated. The probable explanation was the excessively fine season of 1887, the "ripening off" bringing about the rigidity of the bud-scales, at the same time favouring the formation of the spike within. Mr. Burbidge observed that it is a noticeable fact that the Chinese gash their bulbs with three slits at the top, to allow of the free escape of the spike, and to prevent such constrictions.

Hazel Catkins, Proliferous.—On a further examination of the Hazel brought to the last meeting by Dr. Masters from Mr. Syme, Mr. Henslow observed that, besides bearing female catkins at the base of the male, the latter were proliferous, the basal branches being covered with staminate flowers resembling the

so-called "Egyptian Wheat," on which several of the spikelets grow out into ears; so that five or more may proceed from one stalk. These two peculiarities—the proliferous state of the male catkins and the presence of female ones—corroborated the conclusion arrived at by Mr. Meehan, of Philadelphia, who observed in various deciduous trees, that the female flowers were always associated with a relatively greater degree of vigour; or conversely, that an increased vigour produced female flowers, when normally nothing but male would have appeared.

Eucalyptus, Hardiness of.—Dr. Masters read communication received from M. Naudin, in which he speaks of the hardiness of *E. urnigera* at Brest and elsewhere, where it is subject to occasional severe frosts. He says that *E. coccifera* will compare favourably with it, as also *E. viminalis* (falsely called *E. amygdalina*) which is nearly as hardy. The last severe winter has shown the different degrees of hardiness among the various species of *Eucalyptus*. He says that a considerable number, even of very young trees, were absolutely insensible to the frost, while others, much larger and older, have had their foliage more or less damaged. Even *E. globulus*, usually so hardy, has had some of its leaves frozen, principally through the melting of the snow by the sun's heat. Mr. Burbidge remarked on the general presence of bloom or wax on the young leaves, and its absence on the older—probably a provision against too great transpiration in the young state. Mr. Henslow offered a similar interpretation of the semitartar-form of the older leaves to that of the obliquity of Pears and Fir cones. When the stalk stands at an angle with the vertical, the weight of the leaf acting vertically downwards, the tension being along the stalk, the leaf consequently grows much more on the outer side to meet the strain of the resultant of these two forces—the vertical position, as of that of the stipules of *Acacia*, being probably adaptations to avoid too great radiation in the dry climate of Australia.

Plants Exhibited.—*Anemone Fenniculifolia*, from South Africa, a large plant, with lobed orbicular hairy leaves and large greenish-white flowers. *Befaria glauca*, from Colombia, and called the Andean *Rhododendron*; the flowers are pink, nearly regular, with seven petals and fourteen stamens. It is the representative in the southern of the *Rhododendron* of the northern hemisphere. These two were received from Kew, and Botanical Certificates unanimously awarded to them.

Plants Sent for Name.—*Epidendrum tridactylum*, with small greenish flowers, of no beauty; *Pleurc-thallis insignis*, with slender pale grey lobes to the perianth; *Pinguicula grandiflora*, and the pink variety from the Alps of Dauphiné, above Grenoble; *Nymphaea tuberosa* var. *flavescens*. A protest was made against the name "*Mariaceae*," furnished with the specimen, as tending to establish a confusion with the true name as given above.

Narcissus Committee.

A meeting of the Narcissus Committee was held in the Drill Hall on Tuesday, April 24, when Mr. Schoolbreed sent some blooms of the double *Pseudo-Narcissus* from the same lot as those described in the pages of the *Garden*, p. 356, which he guaranteed to have been planted by him originally single, and to have been converted into double flowers.

Mr. Boyd, of Melrose, sent a pale-coloured form of *N. minor*, said to be naturalised there in great abundance.

From Mr. Dawson were received a number of varieties, including *N. Johnstoni*, and some of those collected and sent home by Mr. Tait under distinctive numbers; small sulphur forms of *pallidus* præcox, and others. Mr. Corder brought a number of Portuguese forms of yellow *Ajax* collected by him.

Captain Nelson showed a seedling believed to be from *N. cernuus pulcher* × *J. B. M. Camm*, which he had named *Galatea*. It was of a most robust habit, and was much appreciated as being distinct and beautiful. It was agreed to defer registering it until the stock should have been somewhat increased. Also a seedling from N. John Nelson, and one from *N. cernuus pulcher* crossed with some form of *N. bicolor* or possibly *N. princeps*. Miss Owen brought a fine white *Ajax*, which was thought to resemble the one known as *Butterfly*; bulbs were requested for Kew.

Mr. Wilks sent a fine seedling from *N. Troilus*, which he called *Cressida*. It was much larger than the parent; and a seedling *Telamonius plenus*, raised from a bloom of the ordinary double form.

Mr. Marsh brought a white *Ajax*, collected wild

in Great Britain. Mr. W. Barr showed a variety collected last year, which he proposed to call *Sancta Maria*. It was of a fine deep yellow colour, and was deferred to another season; also a variety of *N. Incomparabilis*, which was registered as *Duchess of Westminster*. This he had proposed originally to name as *Flora Macdonald*, but it had been altered subsequently. Other well known garden varieties were named for various senders. *C. R. Scras* Dickens, *Hon. Sec.*

LINNEAN.

APRIL 19.—The President, Mr. Carruthers, F.R.S., in the chair.

Mr. George Murray exhibited some specimens of *Spongocladia*, with explanatory coloured diagrams, and made some interesting remarks on the presence of sponge-spicules on *Algae* at present unaccounted for.

Mr. D. Morris, of Kew, exhibited and made remarks upon the bird-catching Sedge, *Ucuiua jamaicensis*.

Mr. John R. Jackson, of Kew, exhibited some table mats from Canada, made of the highly scented grass, *Hierochloa borealis*, and a sample of the so-called Pine wool, prepared from the leaves of the American long-leaved or turpentine-yielding Pine, *Pinus australis*, with a mat made from the wool—an industry which has recently been started on a large scale, at Wellington, North Carolina.

The first paper of the evening was by the Rev. George Post (communicated by Mr. Thiselton Dyer), and contained descriptions of new plants from Palestine.

A paper was then read by the Botanical Secretary, Mr. B. Daydon Jackson, on behalf of Professor Frean, "On the Flora of Water Meadows."

EDINBURGH BOTANICAL.

The fifth meeting of the present session was held in the evening of 12th ult., in the rooms, 5, St. Andrew Square, Dr. Craig, President, in the chair. At the outset the President, in the name of the Society, congratulated Professor Bayley-Balfour on his appointment to the Chair of Botany at the University, and to the appointment of Regius Professor of Botany and Keeper of the Royal Botanic Garden in Edinburgh, and Queen's Botanist in Scotland, Mr. Wm. Coates gave in a report on the excursion of the members of the botanical camp in Glenure, in the Appin district of Argyshire, in July and August last. Fifty-nine of the plants found had not been hitherto recorded in the district, and one, *Malaxis paludosa*, had not been seen in the district since it was noted by a minister of Killin a hundred years ago. On the whole, they found the district botanically a very poor one compared with Breadalbane. Mr. P. Sewell gave a paper in which he reviewed the state of our present knowledge of colour in plants; and he noted various conditions of environment, climate, &c., which affect the problem of explaining colour in plants and flowers. Professor Bayley-Balfour exhibited and described the Ginger-beer plant.

Royal Botanic Gardens, Edinburgh—Report for March, 1888.—The month of March was wintry in the extreme. Vegetation has made scarcely any progress. Outdoor work was seriously interrupted, much more so than during any month this winter. The thermometer was at, or below the freezing point on twenty-three mornings, indicating 131° of frost, collectively, as against 100° registered on eighteen mornings during the corresponding month last year. The lowest readings occurred on the 5th, 22°; 17th, 21°; 21st, 22°; 26th, 22°; 28th, 20°. The day temperature varied very much. On the 8th the thermometer reached 59°, while on the 15th it did not exceed 30°. On the rock garden sixty-four species came into bloom during March. Of the forty spring flowering plants, whose dates of flowering are annually recorded to the Society, the following eleven came into flower, viz.:—*Sisyrinchium grandiflorum*, *Scilla bifolia alba*, *Mandragora officinalis*, and *Scilla bifolia taurica*, on March 8; *Sisyrinchium grandiflorum album*, March 13; *Narcissus pumilus*, March 17; *Scilla bifolia*, March 19; *Omphalodes verna*, March 23; *Draba aizoides*, March 30; *Orobis vernus*, and *Erythronium Dens-canis*, March 31.

Botanic Garden, Glasgow—Remarks on Temperature, Vegetation, &c., March, 1888.—The temperature was below the freezing point on twenty-four nights during the month, the lowest reading being 13°, during the night of the 16th; 10° were also registered during the nights of the 14th, 17th,

and 25th respectively. The remaining readings varied from 1° to 5°; total record, 128°.

Although a low reading, it is not unusually so. The causes of the month being so winter-like were the unusually heavy snow-storms, which were both frequent and of long duration. A few of the very hardy kinds of herbaceous plants bloomed at or about their usual season, but otherwise vegetation has made but very little advance since the end of January.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.			
	Above or below the Mean for the week ending April 30.	ACCUMULATED.		
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	3 below	26	16	— 67 + 190
1. SCOTLAND, E. ...	2 below	35	14	— 104 + 142
2. ENGLAND, N.E. ...	3 below	31	10	— 111 + 81
3. ENGLAND, E. ...	5 below	36	11	— 166 + 153
4. MIDLAND COS. ...	4 below	37	9	— 180 + 154
5. ENGLAND, S. ...	4 below	39	7	— 213 + 208
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	3 below	31	9	— 121 + 101
7. ENGLAND, N.W. ...	5 below	28	8	— 156 + 123
8. ENGLAND, S.W. ...	5 below	34	5	— 237 + 257
9. IRELAND, N. ...	4 below	31	7	— 138 + 70
10. IRELAND, S. ...	3 below	33	1	— 176 + 129
— CHANNEL ISLANDS	4 below	36	0	— 206 + 154

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.	
0. SCOTLAND, N. ...	3 more	83	13.1	35
1. SCOTLAND, E. ...	3 less	73	8.7	39
2. ENGLAND, N.E. ...	1 less	68	7.6	12
3. ENGLAND, E. ...	3 less	67	6.7	23
4. MIDLAND COS. ...	3 less	59	6.1	16
5. ENGLAND, S. ...	1 less	60	7.3	29
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	1 more	58	11.5	32
7. ENGLAND, N.W. ...	1 more	67	6.6	24
8. ENGLAND, S.W. ...	3 less	61	9.0	30
9. IRELAND, N. ...	0 (aver.)	65	9.1	24
10. IRELAND, S. ...	3 more	57	9.8	25
— CHANNEL ISLANDS	1 less	78	9.3	43

THE PAST WEEK.

The following summary record of the weather for the week ending, April 30, is furnished from the Meteorological Office:—

"The weather has been cloudy or dull generally, but some bright intervals were experienced over England as the week drew towards its close.

"The temperature, as a whole, has continued considerably below the normal value, but during the latter part of the time it was rather above the mean for the season. On the earlier days of the period the maxima were generally as low as from 42° to 48°, but subsequently they were much higher, and readings of 65° or 66° were recorded in many parts of England. The lowest of the minima, which were registered either on the 26th or 27th, varied from 25° in 'Scotland, N.,' to 34° in 'England, N.E.,' and 35° in the 'Channel Islands.'

"The rainfall has been rather more than the mean in the north and west of Scotland, as well as in the north-west of England and south of Ireland, but in nearly all other districts it has been less. Over the greater part of England the fall was extremely slight.

"Bright sunshine shows an increase on that recorded last week, but has still been deficient very generally. The percentage of the possible amount of duration ranged from 12 in 'England, N.E.,' and 16 in the 'Midland Counties' to 39 in 'Scotland, E.,' and 43 in the 'Channel Islands.'

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MAY 12. (AVERAGE OF FORTY-FOUR YEARS.)

May 6 ...	52°·2	May 10 ...	53°·2
" 7 ...	52°·5	" 11 ...	53°·1
" 8 ...	52°·8	" 12 ...	53°·6
" 9 ...	53°·0	Mean for the week	53°·0

NOTICES TO CORRESPONDENTS.

A COMBINATION FRUIT: *T. F. R.* Much has been written on this subject to which we cannot find time for the moment to refer, but we will do so later on. In the meantime we have assuredly seen with our own eyes and tasted with our tongue an Orange one of the "quarters" of which was decidedly Lemon-like in colour, fragrance, and taste.

APPLES: *W. Coulton, and others.* The fruits had quite lost their characteristic appearance and flavour, and cannot be named. Send again when at their best.

APPLES FROM AUSTRALIA: *J. P.* The specimens were in a bad condition on arrival, owing to their having been insecurely packed, and they were also much over-ripe, so that no opinion of their merits can be formed. Better samples are displayed from the same source in the shop windows.

AUTUMN FLOWERING CROCUS: *H. B.* Plant as soon as possible after the leaf decays.

BRITISH BOTANY: *H. L. The Flora of the British Isles, Hooker.* (Macmillan & Co.)

BROKEN LEADER: *R. H. B.* You cannot graft a new leader on to the broken stem; but should no shoots spring out just below the point of breakage, a side-shoot of sufficient strength may be fastened to a stout stake tied to the stem, and which will in time form a leader.

CORRECTIONS.—Owing to a printer's error, in "Peppermint as a Disinfectant," p. 532, line 23, the word "discovered" is employed instead of "distributed;" and in "Notices to Correspondents," "sulphur of potassium" instead of "sulphide," &c. — In "Hardy Perennials from Seed," ending in p. 524, at col. a, 8th line from end of article, after "hastening growth," insert the words "should be avoided."—In the report of the Royal Botanic Show, p. 535, col. a, of our last issue, Mr. James is credited with taking 1st for *Cinerarias*; this should have been Messrs. H. Cannell & Sons, of Swanley, Kent.

CUCUMBER: *L. P.* The roots have the appearance of having been attacked by the root-worm so often figured and described in these columns. Moreover, there are a number of mites present, but these probably only feed on the decayed root. The root-worms are probably introduced in the soil. We fear you can do nothing but burn your plants, turn out the soil, and start afresh.

FRUITFUL: *J. J. I.* You must excuse us if we doubt your assertion, that our illustration was "astonishingly incorrect." We have not the slightest doubt that the artist—than whom a more competent is not to be found—accurately represented what he

saw. The specimen was furnished by the late Rev. Harpur Crewe. Either the plant is variable, or there is some error as to the nomenclature. At this distance of time it is impossible to arrive at a satisfactory conclusion.

FASCICATED NARCISSUS: *G. F. W.* A good specimen.

FRENCH BEAN CANADIAN WONDER: *T. Wickson.* This variety, otherwise Red-seeded Flageolet, has long been known as a good forcer, but the main objection to its more general use for early supplies is the height to which it grows. In roomy houses and pits, especially when it can be planted out, there are few better Beans. The pods sent were very fine ones.

GARDEN HOSE: *J. C.* The best kind of "hose" is made of short lengths of 1-inch gas-piping connected by means of short leather joints provided with screw unions. Each piece is mounted on four low castors, or wheels, which turn in every direction. It is dearer than any kind of india-rubber hose; but then it will outlast any other. Grey coloured indiarubber hose is the next best, and will last a long time if it is wound on a hose-reel after using. Some reels have hollow axles, and suitable connections with the hose itself, so that the latter may be used whilst partly unwound. We cannot recommend traders.

GOOSEBERRY BUSHES BREAKING BADLY: *D. B.* The damage is probably due to bullfinches. If the length of shoots bare of buds is an eyesore, cut the shoots back to the first wood-bud below the bare part. Kill the bullfinches next winter, or, better still, net the bushes.

INSECT: *T. P.* A weevil, most destructive; trap them at night with pieces of Carrot, and destroy.

LEAVES: *Mushroom Beds.* The leaves should preferably consist of Oak, Beech, or Chestnut; leaves softer than these will have decayed too much ere this to be of much service, and in any case would engender too great heat. Throw together with stable litter and get rid of the first rank heat before making into a bed.

NAMES OF FRUIT: *J. C., S. Bids., and others.* Your fruits are out of character now; send earlier next season.

NAMES OF PLANTS: *J. K.* *Corydalis tuberosa.* — *J. W.* 1, *Erica*; 2, *Abies Nordmanniana*; 3, *A. Douglasii*; 4, *Thuja borealis*; 5, *Pinus*, unknown; 6, *Abies Douglasii.* — *G. C.* We cannot undertake to name more than six: 1, *Anthurium Scherzerianum*; 2, *Conoclinium lanthornum*; 3, *Pteris cretica*; 4, *Doodia caudata*; 5, *Pellionia pulchra*; 6, *P. Daveaueana*; 7, *Cyrtodeira fulgida*; 8, *Eranthemum pulchellum*; 9, *Selaginella Wildenovi*; 10, *Asclepias curassavica.* — *J. C.* *Lathraea squamaria.* — *A. B.* *Rhododendron ciliatum.* — *W. H. D.* 1, *Rhododendron*, probably *Countess of Haddington*; 2, *R. virgatum*; 3, *Canoa*, seed-pod; 4, seed-pod of a *Bignoniaceae* plant; 5, *Lilium longiflorum* var. — *P. R. O.* 1, *Cupressus Lawsoniana*; 2, *Adiantum formosum*; 3, *A. gracillimum*; 4, *Nephrolepis pectinata.* — *No name (sent in a tin box).* *Rhododendron ciliatum.* — *A. P.* 1, *Oncidium leucociliatum*; 2, *Lycaste aromatica*; 3, a *Torenia*; specimen not sufficient; 4, *Lencaden-dron argenteum.* — *H. May.* 1, *Saccolabium ampullaceum*; 2, *Cypripedium barbatum*; 3, *Calanthe (Phaius) Sieboldi*; 4, *Tradescantia discolor.* — *H. J. Ross.* *Eria pubescens.* — *T. D.* *Odontoglossum Ruck-erianum.* — *R. A. G.* 1, *Pteris aquilina*; 2, not sent; 3, *Dendrobium fimbriatum*; 4, *Cypripedium barbatum*; 5, *Dendrobium thyrsiflorum*; 6, *D. chrysotoxum.* — *African.* 1, *Albuca Nelsoni*; 2, *Cyrtanthus McKenii*; 3, a hybrid *Escheveria*; 4, *Cyperus laxus*; 5, *Myrsiphyllum asparagoides.* — *B. G.* *Cattleya intermedia.* — *J. Wadden.* *Odontoglossum Coradinei* (a very large form). — *Banstead.* 1, *Asplenium lucidum*; 2, *Pteris Ouvardi*; 3, *Asplenium faniculaceum*; 4, *Gymnogramma (Dictyogramma) japonica*; 5, *Pteris sinensis*; 6, *Blechnum occidentale*; 7, *Adiantum hispidulum.* — *M. F. D.* 1, *Oncidium altissimum*; 2, *O. sphacelatum.* — *W. M.* *Solandra grandiflora.* — *R. W.* *Veronica Hulkeana.* — *E. Günther.* *Anopteris glandulosa.*

NARCISSUS: *G.* Put the bulbs into the open ground without disturbing the ball of soil at all, not even taking out the crocks, giving water to settle the soil; and let them remain there until the foliage turns yellow, when you may take them up, planting again in October and onwards—the larger bulbs apart from the brood, which may be planted

at a small distance from bulb to bulb in line, to grow to a flowering size. Another way would be to plant the pots of bulbs on well-prepared ground, as before, and leave them alone to flower there for two seasons, afterwards taking them up and dividing them into sizes.

PARAFFIN OIL: *South Devon.* We have not before heard of this oil being used for killing weeds on walks, and know nothing of the mode of using it.

POTATOS: *R. H. B.* The tubers when cooked had a distinct flavour of the Onion, and the occurrence is doubtless due to your having manured the crop with the Rape-dust from the Onion loft.

SENDING PLANTS TO THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS: *R. Johnson.* Write to Mr. A. F. Barron, Superintendent of the Royal Horticultural Society's Gardens, Chiswick.

SOIL, WATER, &c.: *E. W. P.* The water of your district is most probably derived from the green-sand, and will contain a considerable amount of lime in solution. It is bad for many kinds of plants, and always causes discoloration of the leaves if used for syringing purposes. You should use rain-water for plants in pots, and for syringing these, and Grapes, &c. The soils sent were of good quality, but if coming immediately from the chalk it might be unsuited for certain plants. By stirring lime into a tank of well-water the particles of chalk will be attracted to it, and will sink to the bottom of the tank, when the water may be drawn off after standing for forty-eight hours. It will then be better fitted for watering plants. Catch all the rain-water you can, and use that. A good deal may be caught from glass-houses, pits, sheds, &c.

THRIPS ON VINES: *W. B.* Carefully sponging the foliage with some sort of insecticide is your only remedy in the present tender stage of the bunches.

VINE ROOTS: *P. R.* It is a natural thing for Vines to produce air-roots in a moist atmosphere. They do no harm.

VINES, CAMELLIAS, AZALEAS, FLOWERING WEAKLY, AND BLOOMS FALLING OFF: *W. B.* Probably due to London fog. If your Vines were allowed to start naturally, the blooms would be less affected, as at that time of year there would be less fog.

COMMUNICATIONS RECEIVED.—*R. W. A.*, Natal.—*M. F.*—*K. L. D.* (with thanks).—*H. H. D.*—*T. D.* Blandford.—*J. L. & Sons.*—*E. Vervaeke*, Ghent.—*H. N. & Co.*—*Rev. D. L.*—*J. J. S.*—*H. C. & Sons.*—*D. M.* Baillionville.—*T. F. R.*—*E. P.* Ghent.—*H. E.* Ryde.—*L. P.*—*W. R.*—*E. André*, Paris.—*W. G. S.*—*W. A.*—*K. J. G.*—*J. E. M. V.*—*J. T.*—*W. F. & Co.*—*F. S.*—*C. A.*—*H. C.*—*J. J.*—*H. J. S.*, and *E. W. C.*—*W. A.*—*S. F. L.*—*W. B. H.*—*J. W. L.*—*R. D.*—*C. F.*—*J. R. J.*—*F. W. B.*—*H. E.*—*G. S.*—*J. G. B.*—*R. B.*—*A. D.*—*A Disgusted Gardener.*—*A. H.*—*W. C.*—*Wild Rose.*—*A. D. W.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

DIED, at Sunnybank Nursery, London Road, Edinburgh, on April 26, Mr. JOHN MILNE, aged sixty-eight years.

MARKETS.

COVENT GARDEN, May 3.

OLD Grapes being now finished, the demand for good samples of new ones will improve. All hot-house goods in fair supply, with business somewhat quiet. Prices remain the same. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz.	6 0	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., bund.	1 0-5 0	Mustard and Cress,	
— English, 100	12 0	punnet	0 4
Beans, Kidney, lb.	2 6	Onions, per bushel	9 0
Beet, red, per dozen	1 0-2 0	Parsley, per bunch	0 6
Carrots, per bunch	0 6	Potatoes, per cwt.	4 0-5 0
Cauliflowers, each	0 3	— kidney, per cwt.	4 0-5 0
Celery, per bundle	1 6-2 6	Rhubarb, per bundle	0 4
Cucumbers, each	0 9-1 0	Seakale, punnet	2 0-2 6
Eradie, per dozen	2 0	Shallots, per lb.	0 6
Green Mint, bunch	1 6	Spinach, per bushel	4 0
Herbs, per bunch	4	Sprue, per bundle	1 0
Leeks, per bunch	0 6	Tomatoes, per lb.	4 0
Lettuce, per dozen	1 6	Turnips, per bunch	0 6

POTATOS.—Dunbar Regents and Magnum Bonums, 120s.; Lincoln Magnum Bonums, 80s. per ton. Other samples finished. Markets firm.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	3 0-6 0	Pears, per dozen	4 0-6 0
Grapes, per lb.	3 0-6 0	Pine-apples, Eng., lb.	1 0-2 0
Keel Cobs, 100 lb.	40 0-45 0	— St. Michael, each	2 0-5 0
Lemons, per case	12 0-21 0	Strawberries, lb.	4 0-6 0
Peaches, dozen	12 0-42 0		

BEDDING-OUT PLANTS.

By the box, 1s. 6d. to 3s.; or by the dozen, 1s. to 2s. Now coming good.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	8 0-18 0	Ferns, in var., doz.	4 0-18 0
Azaleas, per dozen	18 0-30 0	Ficus elastica, each	1 6-7 0
Bougardias, per dozen	9 0-12 0	Foliage plants, var.	
Calceolarias, dozen	8 0-12 0	ous, each	2 0-10 0
Cinerarias, dozen	6 0-12 0	Fuchsias, doz.	9 0-12 0
Coleus, dozen	4 0-6 0	Geistias, dozen	8 0-12 0
Cyclamens, per dozen	9 0-18 0	Heliotropes, dozen	6 0-9 0
Cyperus, per dozen	4 0-12 0	Lily of the Valley,	
Deutzias, per dozen	6 0-12 0	12 pots	12 0-18 0
Dracena terminalis,		Marguerites, doz.	9 0-12 0
per dozen	30 0-60 0	Mignonette, 12 pots	6 0-18 0
— viridis, per doz.	12 0-24 0	Musks, dozen	3 0-4 0
Dielysia, dozen	12 0-15 0	Myrtles, per dozen	6 0-12 0
Ericas, various, per		Palms, in variety,	
dozen	9 0-18 0	each	2 6-21 0
— ventricosa, doz.	18 0-30 0	Pelargoniums, doz.	12 0-18 0
Eunonymus, in var.,		— scarlet, dozen	4 0-9 0
per dozen	6 0-18 0	Roses, dozen	12 0-24 0
Evergreens, in var.,		Spireas, dozen	9 0-15 0
per dozen	6 0-24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemone, French, 12		Lily of Valley, 12 spr.	0 6-1 0
bunches	1 6-4 0	Marguerites, 12 bun.	3 0-6 0
— fulgens, 12 bun.	2 0-4 0	Mignonette, 12 bun.	3 0-6 0
Arum Lilies, 12 blms.	2 0-4 0	Narcissus, various,	
Azaleas, 12 sprays	0 6-1 0	12 bunches	3 0-6 0
Bougardias, per bun.	0 6-1 0	Pelargoniums, 12 spr.	0 6-1 0
Camellias, 12 blms.	1 0-3 0	— scarlet, 12 spr.	0 3-0 6
Carrots, 12 blms.	1 6-3 0	Polyanthus, 12 bun.	2 0-3 0
Cinerarias, 12 bun.	6 0-12 0	Primroses, 12 bun.	0 6-1 0
Cowslips, 12 bun.	1 0-2 0	Primulas, double, 12	
Cyclamens, 12 blms.	0 4-0 6	sprays	1 0-1 6
Daffodils, double, 12		Roses, Tea, per doz.	1 0-3 0
bunches	2 0-4 0	— coloured, dozen	2 0-4 0
— single, 12 bun.	2 0-4 0	— red, per dozen	2 0-6 0
— Lent Lily, 12 bun.	1 0-2 0	— Safrano, dozen	0 9-1 6
Deutzia, 12 bunches	4 0-9 0	Tuberose, 12 blms.	1 0-2 0
Eucharis, per dozen	4 0-6 0	Tulips, 12 blooms	0 6-1 0
Gardenias, 12 blooms	1 6-4 0	Violets, 12 bunches	0 6-1 0
Heliotropes, 12 spr.	0 6-1 0	— French, bunch	1 6-2 0
Hyacinths, Roman,		— Fr. Parme, bun.	2 0-3 0
12 bunches	1 0-2 0	Wallflowers, 12 bun.	2 6-4 0
— Dutch, per box	2 0-5 0	White Lilac, French,	
Lilium longiflorum,		per bunch	4 6-6 0
12 blooms	3 0-5 0		

* Orchid bloom in great variety, but the demand not very good.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: May 2.—Large supplies of vegetables at market, for which a fairly good demand was experienced, the best qualities still in most request at the following quotations:—Cauliflowers, 2s. 6d. to 7s. 6d. per tally; Broccoli, 2s. to 3s. 6d. per bushel; Spinach, 2s. to 2s. 6d. per sieve; Turnip-tops, 1s. 9d. to 2s. 6d. per sack; Greens, 4s. 6d. to 7s. per dozen bunches; Turnips, 2s. to 2s. 6d. do.; Carrots, 3s. to 4s. do.; Parsley, 3s. do.; Mint, 2s. to 2s. 6d. do.; forced Rhubarb, 1s. 6d. to 2s. do.; natural Rhubarb, 1s. 6d. to 2s. 6d. do.; spring Onions, 2s. to 3s. do.; Radishes, 1s. to 1s. 6d. do.; Horseradish, 10d. to 1s. 2d. per bundle; Mustard and Cress, 2s. to 2s. 6d. per dozen baskets; Beetroot, 8d. to 1s. per dozen; Endive, 1s. to 1s. 6d. do.; Cabbage Lettuce, 8d. to 10d. do.; English Onions, 7s. to 8s. per cwt.; foreign Onions, 5s. to 7s. per bag of 110 lb.; Carrots, 45s. to 100s. per ton; Swedes, 28s. to 30s. do.; English Apples, 4s. to 7s. per bushel; American Apples, 14s. to 18s. 6d. per barrel.

STRATFORD: May 1.—Both trade and supply have been good. Quotations:—Greens, plain, 4s. to 4s. 6d. per bag; Turnips, 3s. to 3s. 6d. per dozen bunches; do., 35s. to 50s. per ton; Carrots, household, 60s. to 80s. do.; Mangels, 19s. to 22s. do.; Onions, Dutch, 6s. to 8s. per bag; do., Egyptians, 7s. 6d. to 8s. per case; Apples, English, 5s. to 7s. per bushel; do., American, 18s. to 25s. per barrel; Watercress, 6d. to 8d. per dozen bunches; Wallflowers, 3s. 6d. to 4s. do.; Spinach, 2s. to 3s. 6d. per bushel; Radishes, 1s. to 1s. 2d. per dozen bunches; spring Onions, 4s. to 6s. do.; Parsley, 2s. to 4s. per dozen bunches; Asparagus, 3s. to 4s. per bundle; Broccoli, 2s. 9d. to 3s. per bushel; Rhubarb, 2s. to 2s. 6d. per dozen bunches; Carrots, 3s. to 3s. 6d. do.

POTATOS.

STRATFORD: May 1.—Quotations:—Scotch Regents, 80s. to 95s. do. Magnums, 80s. to 90s.; English Magnums, lightland, 60s. to 80s.; do., blacklands, 45s. to 55s. per ton.

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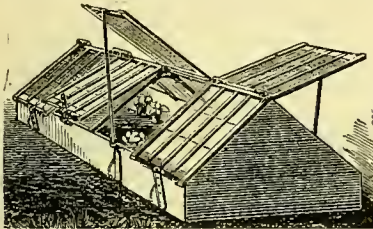
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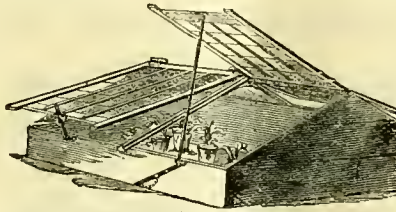
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5	" " 20 feet by 6 feet	...	8 17 6

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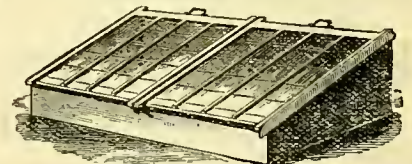


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Made up to any length.

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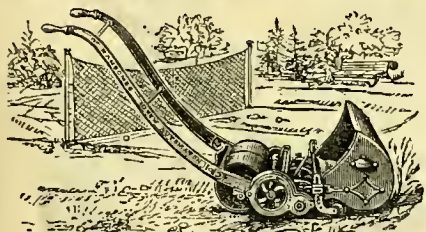
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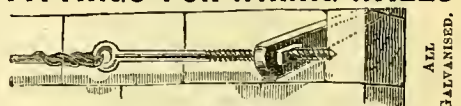
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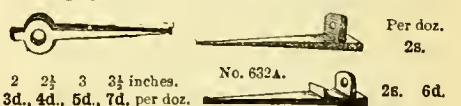
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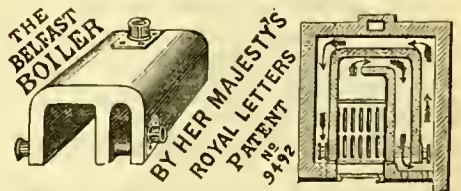
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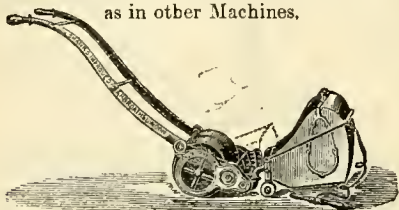


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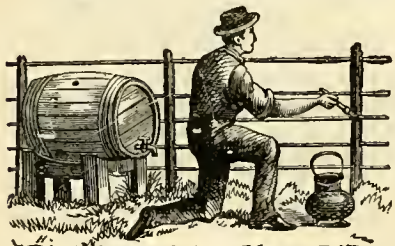
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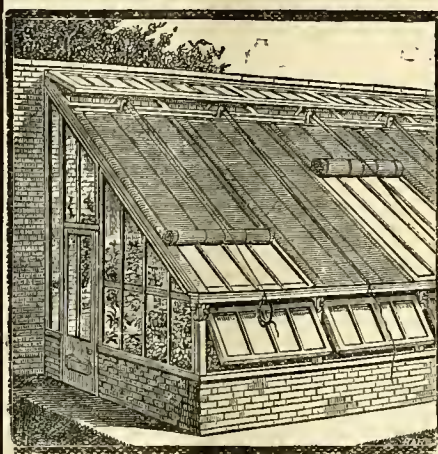
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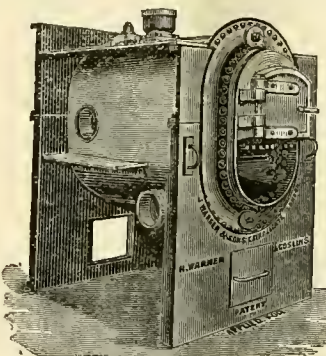
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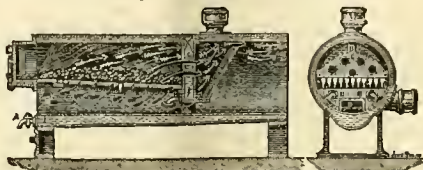
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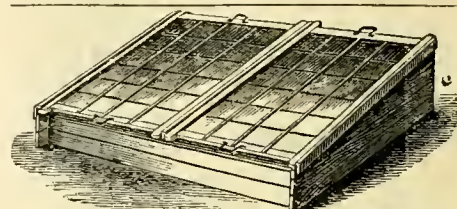
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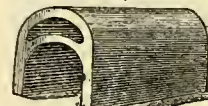
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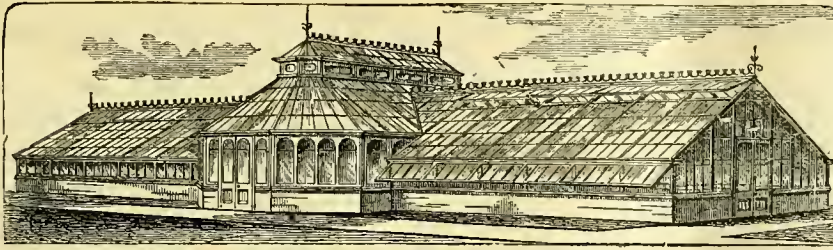
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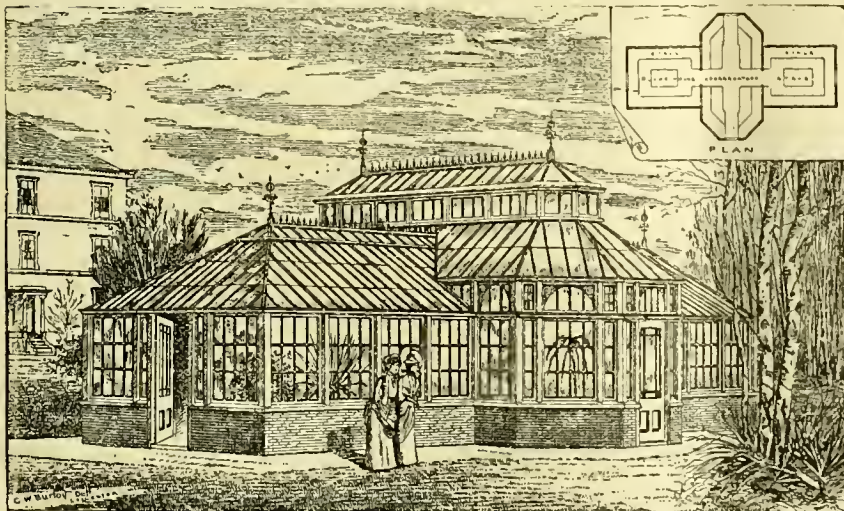
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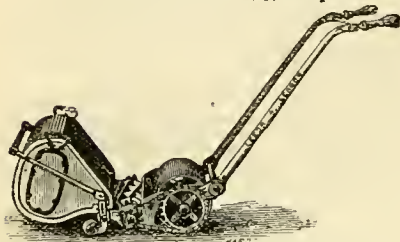
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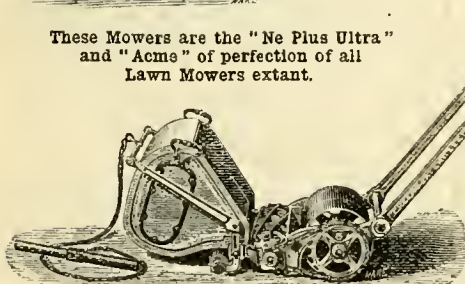
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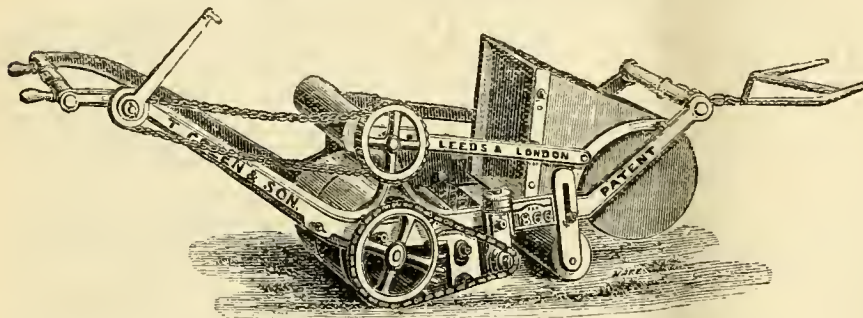
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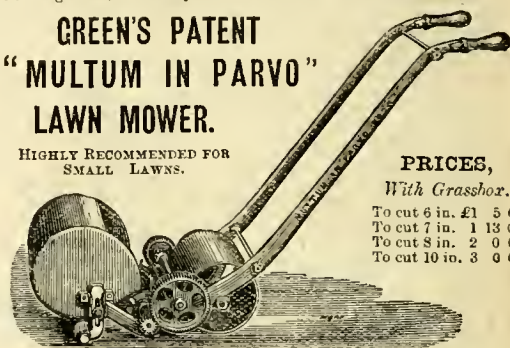
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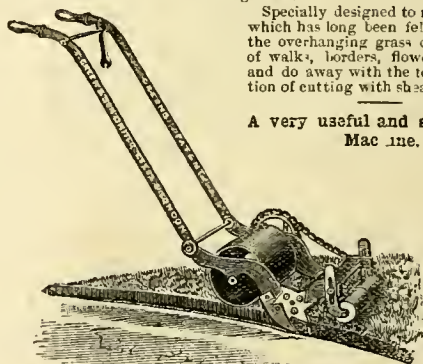
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.

No. 2472.

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SATURDAY, MAY 12, 1888.

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very fine specimen for sale, believed to be nearly 100 years old. It is in splendid condition, and measures 5 feet in height, from the soil to top of centre leaves. For particulars apply to
SALTMARSH and SON, The Nurseries, Chelmsford, Essex.

DUTCH BULBS.—Write for the low-quoted
CATALOGUE, which can be had post-free upon application to
Mr. P. VAN TIL, Jz., Florist, Hillegom, Haarlem, Holland.

Grandest Violet ever Offered.
MR. J. CHAMBERS, Westlake Nurseries,
Isleworth, London, W., is now sending out his New Double VIOLET "VICTORIA." Strong Plants, full of flower-buds, at 1s. 6d. each, or 18s. per dozen, free by post. All orders to be accompanied with remittance. Trade price on application. First-class Certificate Royal Horticultural Society, April 12, 1887.

NEW CACTUS DAHLIA, Henry Patrick,
best White for Cut Flowers ever sent out. Highly recommended, great improvement on Constance. First-class Certificate R.H.S., 1 for 1s. 3d., 6 for 5s., 12 for 9s., good plants, post-free. Order early. Stock limited. Trade price on application.—W. CROSS, Florist, Newark, Notts.

PRIMULA OBCONICA.—Splendid new
Seeds, 1s. 6d. to 2s. 6d. per packet. Post-free. Trade price on application.
JAMES DICKSON & SONS, 108, Eastgate St. Chester.

Begonias a Specialty.
LAING'S BEGONIA SEED.—Awarded Four
Gold Medals. Saved from Prize Plants. Unequalled quality. Choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 8 ditto, 3s. Order direct from us, to procure the genuine seed. The best and cheapest combined procurable.
JOHN LAING AND SONS, Seedsmen and Begonia Growers, Forest Hill, S.E.

LAPAGERIA ROSEA.—For Sale, cheap,
12 large Plants of this handsome Greenhouse Climber, growing in pots 18 inches diameter, averaging 20 shoots to a plant. Length of shoots, 15 to 30 feet. Very healthy. A fine opportunity for immediate effect or profit. Price on application. May be seen.
WM. PAUL AND SON, Paul's Nurseries, Waltham Cross, N.

CREEPERS for WALLS.—By planting
what is suitable, an ugly object may easily be made beautiful. Most being in pots, can be sent and put out at any time. Descriptive LIST and advice free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.
FRESH PALM SEEDS.—Write for Special
Low Offer of all the leading kinds to
H. DAMMANN, Juu., Breslau, Germany.

EUONYMUS.—20,000: all nice bushy well
grown specimens, 9 to 30 inches, 15s. to 27 per 100; about 150 large ones, 3s. 6d. to 5s. each.
J. J. CLARK, Goldstone Farm, West Brighton.

W. H. LASCELLES AND CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement, May 6, page 551.

SALES BY AUCTION.

Tuesday and Wednesday Next, May 15 and 16.

HIGHLY IMPORTANT UNRESERVED SALE OF ESTABLISHED ORCHIDS.

The First Portion of the celebrated Selborne Collection, by order of John Southgate, Esq., who is giving up their cultivation on account of ill-health.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from J. Southgate, Esq., to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY NEXT, May 15 and 16, at half-past 12 o'clock precisely each day, the First Portion of this well-known collection of ESTABLISHED ORCHIDS, including many very fine specimens.

The plants are in the most perfect health, and comprise, amongst others, the following:—

<i>Cattleya exoniensis</i>	<i>Cyclopogon Massangeana</i> , 40 leads
" <i>Trianae eboracensis</i>	" <i>pandurata</i> , 10 leads
" <i>labiata</i> , autumn-flowering variety	<i>Odontoglossum vexillarium</i> , fine batch of large plants
" <i>Mossie Southgatei</i>	" <i>praestans</i>
" <i>Mendellii Selborneensis</i>	" <i>polyanthum</i>
" <i>Warnerii splendens</i>	" <i>crispum Trianae</i>
<i>Laelia anceps alba</i>	" <i>Dormanianum</i>
" <i>Dawsoni</i>	" <i>Uro-Skinneri</i>
" <i>flammea</i>	<i>Oncidium macranthum</i> , Southgate's variety
<i>Lycaste Skinneri alba</i>	" <i>tetracopis</i>
<i>Phaius tuberculatus</i> , 10 leads	<i>Cypripedium Morganae</i>
<i>Angraecum Kotschyi</i>	" <i>Schroderi</i> , 6 leads
<i>Calanthe Sedeni</i>	" <i>equanum superbum</i> , 5 leads
<i>Dendrobium nobile nobiliss</i>	" <i>enryandrum</i> , grand specimen
" <i>endocharis</i>	" <i>albo-purpureum</i> , 12 leads
" <i>Falconeri giganteum</i>	" <i>Stones</i> , 2 grand specimens
" <i>Fendleyanum giganteum</i>	" <i>Spicerianum magnificum</i> , grand specimen
<i>Sobralia macrantha</i> , Woolley's variety	" <i>punctatum violaceum</i>
" <i>splendens</i> , grand specimen	" <i>Leeanum superbum</i>
<i>Vanda suavis</i> , Veitch's variety, wonderful specimen	" <i>grande</i> , fine specimen
" <i>Sanderiana</i>	<i>Masdevallia racemosa Crossii</i> , 24 leads
" <i>teres aurora</i>	" <i>Denisoniana</i> , grand specimen
<i>Aerides Lawrenceae</i> , Southgate's variety	" <i>Harryana magnifica</i> , grand specimen
" <i>Fieldingii</i> , grand specimen	
" <i>Lobbi</i>	
<i>Dendrobium filiforme</i>	
<i>Brassia antherotes</i>	

The plants will be on view the morning of Sale. Catalogues are now ready, and may be obtained of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Richmond, S.W., close to the Station.

UNRESERVED SALE of 18,000 well grown GREENHOUSE and BEDDING PLANTS, consisting of thousands of GERANIUMS of the best bedding varieties, CALCEOLARIAS, LOBELIAS, COLEUS, FUCHSIAS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION on the Premises, The Richmond Nurseries, Richmond, S.W., on WEDNESDAY NEXT, May 16, at 1 o'clock precisely, by order of Messrs. G. & W. Steell.

On view two days prior to Sale. Catalogues had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Finchley Road, N.W.

ANNUAL SALE, without Reserve, close to the Castle Hotel, and a mile from either of the Finchley Road Stations.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Child's Hill Farm Nurseries, Finchley Road, N.W., on THURSDAY NEXT, May 17, at 1 o'clock precisely, thousands of well-grown GREENHOUSE and BEDDING PLANTS, consisting of Geraniums, Calceolarias, 300 half-specimen Camellias, principally white; 400 Azaleas, Tree Carnations, 200 Callas, 500 Tree and other Roses, Lilacs, 1000 Maidenhair Ferns, 2000 Prize Pansies, and other Stock.

May be viewed two days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next, May 18.

VANDA TERES ANDERSONIANA, Splendid importation; the plants are in specially fine condition. **SACCOLABUM BLUNEI MAJUS**.

A grand lot of this showy Saccolabium, fine masses being among the importation.

ODONTOGLOSSUM VEXILLARIUM, A fine lot of the radiatum section.

CATTLEYA GIGAS, A superb and splendid lot of well-leaved plants.

Also good plants of **ODONTOGLOSSUM HARRYANUM**, the rare **ONCIDIUM SPLENDIDUM**, **ODONTOGLOSSUM TRIUMPHANS**, a splendid lot of **O. CORONARIUM**, **O. PHALANOPSIS**, **LAELIA ACUMINATA MAXIMA**, **ODONTOGLOSSUM PESCATOREI**, fine lot of **CATTLEYA AUREA**; also a superb lot of the chaste and lovely **LAELIA ANCEPS ALBA**, and varieties; **ONCIDIUM LANCEANS**, offered for the first time—a grand lot, in very fine masses; **ODONTOGLOSSUM TRIUMPHANS**, importation of extra fine masses; **O. SCEPTUM**, specially fine lot; **O. BLANDUM**, **ONCIDIUM BIFOLIUM** and **MAJUS**, splendid masses; **ORNITHOCYPHALUS GRANDIFLORUS**, splendid plants.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL the above ORCHIDS by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 18, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.—Without Reserve.

A small consignment of the rare **CELOGYNE LOWII**, **C. PANDURATA**, some rare **CYPRIPEDIUMS**, **CALANTHE VERATRIFOLIA**, **SACCOLABIUMS**, **DENDROBES**, **PHALANOPSIS**, &c., received direct; also **SOPHRO-NITIS GRANDIFLORA**, long habited variety; **CATTLEYA WALKERIANA**, and **ONCIDIUM** species, new, from Messrs. J. W. Steele & Co.

MESSRS. PROTHEROE AND MORRIS will include the above ORCHIDS in the SALE at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 18.

On view morning of Sale, and Catalogues had.

Forthcoming Sales of Greenhouse Plants.

MESSRS. PROTHEROE AND MORRIS desire to call attention to the following SALES:—

WEDNESDAY, May 23.—At the BARNES NURSERY, High Street, Barnes.

SATURDAY, May 26.—At the AMERICAN NURSERIES, Leytonstone.

MONDAY, May 28.—At the PRIORY NURSERY, Chancer Road, Acton.

Catalogues forwarded on application.

Orchids in Flower.—Special Sale, May 29.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER, will take place as above, for which they will be glad to RECEIVE NOTICE OF ENTRIES as early as possible. 67 and 68, Cheapside, E.C.

Established Orchids.

Unreserved SALE of the First Portion of ESTABLISHED ORCHIDS formed by Dr. Duke, of The Glen, Lewisham.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Dr. Duke to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, June 5, at half-past 12 o'clock precisely, without Reserve, the First Portion of his Collection of ESTABLISHED ORCHIDS, comprising, amongst others, splendid plants of the following:—

<i>Cyclopogon Massangeana</i>	<i>Cypripedium Lindenii</i> caudiculatum
" <i>Lowii</i>	" <i>Sanderianum</i>
" <i>tomentosa</i>	<i>Laelia elegans</i>
" <i>Parishii</i>	" <i>amanda</i>
<i>Odontoglossum mulus</i>	" <i>anceps</i> , white, true
" <i>Uro-Skinneri</i>	" <i>Dawsoni</i>
" <i>Edwardi</i>	<i>Miltouia candida</i> , true
" <i>Cervantesi decorum</i>	" <i>Moriania atropurpurea</i>
<i>Cattleya Wagneri</i>	" <i>gigas</i>
" <i>Sanderiana</i> , &c.	" <i>Regnellii purpurea</i>

No plants will be sold privately prior to the Sale. Catalogues will be ready in due course, and may be obtained of the Auctioneers, 67 and 68, Cheapside, E.C.

The Broomfield Collection of Established Orchids.

Important Unreserved Sale of the Second Portion of the celebrated collection of ESTABLISHED ORCHIDS, formed by Robert Warner, Esq., who is giving up their cultivation in consequence of long continued ill health.

MESSRS. PROTHEROE AND MORRIS are instructed by Robert Warner, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., at an EARLY DATE, the Second Portion of his well-known collection of ESTABLISHED ORCHIDS, without reserve. Further particulars will shortly appear.

Sale, Monday, May 14.

CYPRIPEDIUM SCHOMBURGKIANUM.

Discovered by Richard Schomburgk near the Roraima Mountain as far back as 1842. In 1844, Mr. Im Thurn re-discovered it, but in another locality, no plants however came to this country alive. Mr. Kromer, our collector, found it in Schomburgk's original locality, and the plants having been under his care, have arrived in fine condition. In growth the plant resembles *Pearcei*, and it will be found of very easy culture, and should be grown in the Cattleya-house, and be kept very moist always. The flower-spikes resemble those of *C. Schlumii*, and the flowers are about 2½ inches in diameter, they are of a deep brown colour, the dorsal sepal lighter and veined, pouch reddish, the sepals stand rectangular from the flower, and are very pointed. Schomburgk says, in the description of his journey, that he found "a new superb sweet-scented *Cypripedium*."

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on MONDAY, May 14.

On view morning of Sale, and Catalogues had.

Sale Monday, May 14.

RADIATUM and other extraordinary varieties of **ODONTOGLOSSUM VEXILLARIUM**.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY May 14, by order of Mr. F. Sander, a fine lot of **ODONTOGLOSSUM VEXILLARIUM**, consisting of the finest possible forms.

On view morning of Sale, and Catalogues had.

Sale Monday, May 14.

ODONTOGLOSSUM NEVADENSE.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on MONDAY, May 14, very fine plants of **ODONTOGLOSSUM NEVADENSE**. This fine *Odontoglossum* is extremely rare and beautiful, and very few exist in collections.

On view morning of Sale, and Catalogues had.

Sale Monday, May 14.

LAELIA ANCEPS, White.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on MONDAY, May 14, a splendid lot of white **LAELIA ANCEPS**, consisting of very fine masses in the best condition the eyes being sound and unbroken.

On view morning of Sale, and Catalogues had.

Sale, Monday, May 14.

VANDA TERES ANDERSONIANA.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 14, by order of Mr. F. Sander, a superb lot of the above grand **VANDA**. The Plants have arrived in specially fine order.

On view morning of Sale, and Catalogues had.

Sale Monday, May 14.

Instead of date previously announced.

CATTLEYA LAWRENCEANA, specially large and fine flowered variety. See dried flowers.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 14, by order of Mr. F. Sander, a specially large and grand importation of **CATTLEYA LAWRENCEANA**. This consignment has been collected in a quite different district, from whence no *Cattleya Lawrenceana* have ever been introduced. There is as much difference between this and the ordinary *C. Lawrenceana* as there is between the starchy variety of *Odontoglossum crispum* and the broad petalled forms. The dried flowers on view will give some idea of the magnificence of this variety.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7682.)

SPECIAL SALE OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, May 17, at half-past 12 o'clock precisely, a fine lot of ORCHIDS in FLOWER and BUD, comprising some splendid forms of *Odontoglossum vexillarium*, *O. Pescatorei*, and *O. Alexandrae* *Macleanii* *Mendellii*, and *C. Mossie*, a grand variety of *Oncidium Macranthum*; *Cypripedium barbatum* *bigum*, *C. Harrisonianum* *superbum*, *C. Hendersonianum*, *Masdevallia*, *Dendrobium*, &c.

On view morning of Sale, and Catalogues had.

Sale Thursday Next.

Ten cases of a fine variety of **VANDA SUAVIS**, just received direct from Java.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 17. On view morning of Sale, and Catalogues had.

Beckenham, Kent.

Re Nanns. Under distress for rent.

To NURSERYMEN, FLORISTS, ORCHID BUYERS, and Others. Entirely without reserve.

MESSRS. EDMUND ROBINS and HINE (of Waterloo Place, Pall Mall) will SELL by AUCTION, at the Victoria Nursery, Bromley Road, Beckenham, on MAY 25 and 26, a valuable and important COLLECTION of STOVE and GREENHOUSE PLANTS, including 3000 Maidenhair Ferns, 2000 Geraniums, 2500 Arum Lilies, 1500 Spiraeas, 2000 Tuberoses, quantity of Heliotropes, Camellias, Gardenias, 1000 Orchids, Aloes, Palms, Evergreens, and Bedding-out Plants, 2 VANS, GARDEN TOOLS, also the HOUSEHOLD FURNITURE, Bed and Sitting Room Suites, and a variety of useful effects.

On view two days prior. Catalogues on application.

WANTED TO RENT, a SMALL NURSERY, without Stock.

Send particulars to A. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Homs Counties.

OLD ESTABLISHED GENERAL NURSERY BUSINESS.

MESSRS. PROTHEROE AND MORRIS have for SALE by PRIVATE CONTRACT an Old Established General NURSERY BUSINESS requiring a capital of between £1000 or £5000. Specially recommended. Particulars at 67 and 68, Cheapside, London, E.C.

To Nurserymen and Florists.—Unusual Opportunity.

FOR SALE, in a leading North-west thoroughfare, a BUSINESS of nearly 50 years' standing, with large Nursery Grounds covered with Glasshouses and every appliance for a large business. Also separate SHOP Premises. Annual turnover about £2500. Every investigation invited. Principals apply, **GOWING AND CO.**, Solicitors, 41, Finsbury Pavement, E.C.

FOR SALE, a FLORIST BUSINESS.—Price

£200, includes Lease, Fixtures, Show Cases, &c. Rent, £56, no taxes; fine position. M. S., 41, Westow Hill, Upper Norwood, S.E.

PANSIES—PANSIES (Show and Fancy).—

Lister's celebrated collection, winner of all the principal prizes for years. My selection for competition, 3s., 4s., 6s., per doz. Bedding varieties, VIOLAS, in fine mixture, 1s. 9d. per doz.; 12 fine named varieties, 3s. per doz. Cash with order.

Just published, price 6d., cloth 1s., my "Treatise on the Cultivations of the Pansy," copy gratis to purchasers of 5s. worth. CATALOGUE on application.

ALEX. LISTER, Florist, Rothsay, N.B.

AZALEA INDICA, full of buds, 50 colours to

name, 2s. each. Azalea Belgique, quite hardy, full of buds, 1s. 6d. each; Azalea mollis, hardy, 20 buds, 1s. each. CAMELLIAS, nice bushy plants, 1s. 6d. each. PALMS, 10 to 20 varieties, 1s. 6d. each. DRACENAS, 10 sorts, 1s. each. PASSION FLOWER, 1s. each. CHRYSANTHEMUMS, 150 varieties—cutting, 3s. per 100; rooted, 5s. per 100. RHODODENDRONS, named, 1s. 6d. each. Postage or rail extra. W. CULLINGFORD, Forest Gate, Essex.

OLD-FASHIONED HEDGES.—English

YEWs, bushy and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per dozen, 35s. per 100; 2 to 2½ feet, 8s. per dozen, 50s. per 100; 2½ to 3 feet, 9s. per dozen, 60s. per 100; 3 to 3½ feet, 12s. per dozen, 84s. per 100. Prices of larger sizes and other evergreens, suitable for hedges (e.g., TREE BOX, HOLLY, LAUREL, PRIVET, CYPRESS, JUNIPER, THULA, &c.) on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

HAVE JUST RECEIVED

Grand Importations of

ORCHIDS,

FROM THE

EAST INDIES, COLOMBIA, MEXICO,
AND BRAZIL,

All in the best possible condition.

Full particulars will be sent on application.

The Company have just completed
a new List of their

ESTABLISHED ORCHIDS,

which will be sent post-free on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

DAHLIAS—DAHLIAS—DAHLIAS.

Best sorts, including Cactus, Show, &c., my selection,
CONSTANCE, best white Cactus, 20s. per 100. [18s. per 100.
JUAREZI, best scarlet, 30s. per 100.

TROPEOLUM, Vesuvius, from cuttings, 8s. per 100.

HELIO-TROPE, Miss Nightingale, best dark, 6s. per 100.

WALLFLOWER, Transplanted, Bushy, Covent Garden Dark,
3s. per 100.

G. WATTS AND SONS, Palace Nurseries, Bourne-mouth.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are now prepared to
make special offers of their fine selected stocks of
VEGETABLE and FIELD SEEDS, all of which they have
harvested in splendid condition. The prices will be found very
advantageous to purchasers.

Seed Growing Establishment, Wisbech.

LILY OF THE VALLEY CROWNS

for Early and Late Forcing. Delivery in November next.
The Advertiser is in a position to compete for the above with
any respectable House in the Trade, either at home or abroad,
as to price and quality. Particulars on application. Early
Orders respectfully solicited.

T. JANNCOH, by Special Warrant, Lily of the Valley
Grower to H.R.H. the Prince of Wales, Bessingham, King's
Lynn.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S selection as
above contains a most interesting and valuable assort-
ment of beautiful and Hardy Plants for the Border or Rock-
work, which produce flowers and render the garden attractive
all through the year. New LIST of sixty-four pages Free.

RICHARD SMITH AND CO., Nurserymen and Seed Mer-
chants, Worcester.



PLANTS

FOR THE GARDEN AND GREENHOUSE.

H. CANNELL & SONS

Have much pleasure in announcing that they
have the largest and best-kept Collection than
any other firm in England, particularly Tuberous
Begonias, and supplied in the best order.

Send for a Catalogue at once.

J. C. RATLIFE, Esq., Vice-President Union National Bank,
Richmond, Ind., U.S. America.

"APRIL 21, 1888.

"I acknowledge the receipt of your full and complete
Catalogue, together with lithographs and coloured plates. To
say they are full and complete cannot express my idea of the
volume. Accept my grateful thanks."

Mrs. MILLER, Stridarran, Londen-derry.

"MAY 1, 1888.

"The flowers arrived in fine condition. I have never got
such a fine collection of plants, and am very grateful for the
large and varied collection you have sent me."

Mr. T. MILLER, The Gardens, Whitley Beaumont, Huddersfield.

"MAY 7, 1888.

"I received the hamper of plants. They are the nicest lot
that ever came under my notice."

SWANLEY, KENT.

BEGONIAS A SPECIALTY.—Awarded Four

Gold Medals. Quality unsurpassed. Named Singles,
from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and
21s. per dozen; Bedding, choicest, 6s. and 9s. per dozen;
choicest named Doubles, from 42s. per dozen; unnamed, very
choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen.
Order direct from us, to procure our splendid strain. The best
and cheapest combined procurable. CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

Special Offer.

SEED POTATOS.

H. AND F. SHARPE, having a Surplus
Stock of the following varieties of SEED POTATOS,
are prepared to offer them at reduced prices, to clear out:—

Imperator	Reading Russet
Reading Hero	Climax
Pride of Ontario	Snowflake.

They have also many other varieties in stock.
Seed Growing Establishment, Wisbech.

150,000 Pansies.

PANSIES and VIOLAS.—Having one of the
finest collections and largest stock of both Pansies and
Violas in existence, we are prepared to supply good, well-rooted
plants at the following low price:—PANSIES, in 50 choice,
either Show or Fancy varieties, 12s. per 100, 45 per 1000; in
30 varieties, 10s. per 100, 41 per 1000. VIOLAS, in 12 best
varieties, 7s. per 100, 43 per 1000. VIOLAS, all yellow,
8s. per 100, 43 10s. per 1000. Special quotations for larger
quantities. PENTSTEMONS, choicest varieties out, in 12 or
more varieties, 12s. per 100, 45 per 1000. The above are our
selection only, 2s. per 100 more will be charged for purchaser's
selection. Terms.—Package free for cash with order.

FLETCHER, SON AND CO., Florists, &c., Chesterfield.

Cheap Bedding Plants.

GERANIUMS.—Strong and healthy autumn-

struck plants, from single pots:—

Vesuvius (Scarlet), Master Christine, Madame Vaucher,

Bronze (Perilla), 2s. per dozen, 12s. per 100.

Happy Thought, Henry Jacoby, C. P. Gem, Silver-leaf,

Miss Tattie Hardy, delicate rosy-salmon; Queen of

Pinks, 2s. 6d. per dozen, 15s. per 100.

Ivy-leaf, best double named varieties, 6s. per dozen.

PELARGONIUMS, Show and Decorative, choice named, 4s. 6d.

per dozen.

LOBELIA (true), from Cuttings, "Emperor William," best

blue, 2s. 6d. per 100, 20s. per 1000.

DAHLIAS, named sorts, of all shades of brilliant colours,

including "White Queen" and "Paragon" 2s. 6d.

per dozen, 18s. per 100, from single pots.

.. Double, best named show varieties, 2s. 6d. per dozen, 18s.

per 100, from single pots.

.. Double Pompon, splendid colours, named, 3s. per dozen.

.. Cactus, Juarez, Constance, Fire King, 5s. per dozen.

AGERATUM, "Hardy's" Extra Dwarf, beautiful large-tufted

blue, 6s. per 100.

AQUILEGIA Chrysantha, nice plants, 4s. per dozen; mixed

colours, 1s. per dozen.

CHRYSAETHNUMS, selection of finest show varieties,

named, from single pots, 2s. 6d. per doz., 18s. per 100.

PINK, Mrs. Sinkins, pure Double White, 4s. per dozen.

.. Old Double White, choice, 2s. 6d. per dozen.

MARGUERITES, large and small White, 10s. per 100.

VIOLA CORNUA, "Queen of Blues" and "White Virgin,"

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As a Supplement
TO THE
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FOR
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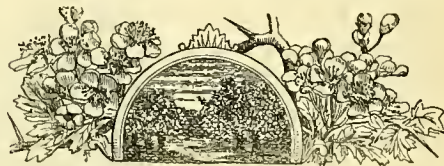
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THE

Gardeners' Chronicle.

SATURDAY, MAY 12, 1888.

GARDENING IN THE TIME OF ADDISON.

IN a century which Carlyle, with some amount of truth, designated an age of shams, we shall not expect to find, or, indeed, search for, much originality or naturalness displayed in the art of gardening. That artificialness which was so inherent a quality in the manners and times, could not fail to communicate its pernicious influences to the arrangement and laying out of gardens; and so, no matter what publication we take up on this subject, we meet with the inevitable mazes, the parterres, the fountains, and the classic statues, the trained shrubs, the symmetrical trees, the perfectly designed flower-beds, and all the rest of it. Gardening with our forefathers was first and foremost an art, but it was an art whose mission was not to "mend Nature," but rather to "improve" upon it. So far, indeed, from taking a pattern from Nature, the aim apparently was to dispute all her claims to recognition, and to controvert every item of her teachings. The "art" as then practised was, in fact, the baldest, stiffest, and stupidest that has obtained in all the many phases of the world's history. It synchronised with every form of extraneous falsity, and its evil influences are even now—when we pride ourselves so much upon our superior learning and our anxiety for everything natural—observable on all sides.

The dignified Joseph Addison may be regarded as the pioneer of reform in the laying-out of gardens. In the *Spectator* of June 25, 1712, we have a charming paper from his pen on the qualifications of Nature and Art, "to entertain the imagination." Some dozen years before this Addison had travelled on the Continent, and had evidently a keen perception for the beauties of Nature in countries other than his own, but even Mr. Addison had to admit a predilection for "the curious fretwork of rocks and grottoes" in embellishing Nature. In making the proposition that "there is generally in Nature something more grand and august, than what we meet with in the curiosities of Art," the essayist was of opinion that when "we see this imitated in any measure,

it gives us a nobler and more exalted kind of pleasure than that we receive from the nicer and more accurate productions of Art." It is on this account that he argues to the effect that "our English gardens are not so entertaining to the fancy as those in France and Italy, where we see a large extent of ground covered over with an agreeable mixture of garden and forest, which represent everywhere an artificial rudeness much more charming than that neatness and elegance which we meet with in those of our own country." After advocating, as both profitable and pleasant, the practice of growing Willows in marshes, and of shading mountains with Oaks, Mr. Addison passes on to the then vague and little-known subject of Chinese gardens. "Writers," he goes on to say, "who have given us an account of that country laugh at the plantations of our Europeans, which are laid out by the rule and line; because, they say, any one may place trees in equal rows and uniform figures. They choose rather to show a genius in works of this nature, and therefore always conceal the art by which they direct themselves. They have a word, it seems, in their language by which they express the particular beauty of a plantation that thus strikes the imagination at first sight, without discovering what it is that has so agreeable an effect. Our British gardeners, on the contrary, instead of humouring Nature, love to deviate from it as much as possible. Our trees rise in cones, globes, and pyramids. We see the marks of the scissors [sic] upon every plant and bush. I do not know whether I am singular in my opinion, but, for own part, I would rather look upon a tree in all its luxuriance and diffusion of boughs and branches, than when it is thus cut and trimmed into a mathematical figure; and cannot but fancy that an orchard in flower looks infinitely more delightful than all the little labyrinths of the most finished parterre."

Although the *Spectator* for August 12, 1712, contained an incidental reference by Steele to a "fine garden," which occasioned "a reflection upon the advantages of education or moral culture," it was not until September 6 of the same year that appeared the second of the only two essays on gardening, which were published either in the *Spectator* or *Tatler*. Like the first one, this is also by Addison, and was called forth by some of Steele's "reflections" in the number for August 12. In this long but extremely interesting essay, Addison describes himself as one looked upon "as an humorist in gardening." "I have," he says, "several acres about my house which I call my garden, and which a skilful gardener would not know what to call. It is a confusion of kitchen and parterre, orchard and flower garden, which lie so mixt and interwoven with one another that if a foreigner who had seen nothing of our country should be convey'd into my garden at his first landing he would look upon it as a natural wilderness, and one of the uncultivated parts of our country. My flowers grow up in several parts of the garden in the greatest luxuriance and profusion."

Mr. Addison's taste was, it appears, a very catholic one, for he set no value upon the abstract quality of rarity. On the contrary, if he met with a flower which pleased him in one of his country walks he did not hesitate to transfer it to his garden. The kitchen portion of his grounds was to him a very pleasant sight—finer, indeed, than the finest orangery or artificial greenhouse. "I love to see everything in its perfection, and am more pleased to survey my rows of Coleworts and Cabbages, with a thousand nameless pot-herbs springing up in

their full fragrantcy and verdure, than to see the tender plants of foreign countries kept alive by artificial heats, or withering in an air and soil that are not adapted to them." He was considered "very whimsical" by his neighbours from the fact that "as my garden invites into it all the birds of the country by offering them the conveniency of springs and shades, solitude and shelter, I do not suffer anyone to destroy their nests in the spring, or to drive them from their usual haunts in fruit time. I value my garden more for being full of blackbirds than Cherries, and very frankly give them fruit for their songs." We do not at all wonder at a man with such broad—even Utopian—ideas being considered whimsical. This same essay deals with two other matters to which we cannot do more than allude. The one is the contention that there are as many kinds of gardening as of poetry (his own compositions on the former being "after the Pindarick manner"), and the other a strong advocacy of winter gardens.

Rather more than twelve months after the *Spectator's* last essay on gardening, the *Guardian* (September 29, 1713) contained an interesting paper on the same topic from the pen of Pope, who, being as he was, the most artificial of men, would be about the last from whom to expect anything in the way of desire for naturalness. He feared that a "particular friend," whom he had invited to his house in the country, would find little entertainment either in the architecture or the gardening of the place. The man of "polite taste," however, was not only delighted with the country garden, but quoted five lines from Martial's *Epigrams* (lvi., 3), which are thus translated or paraphrased:—

"Our friend Faustinus' country-seat I've seen:
No Myrtles, plac'd in rows, and idly green;
No widow'd Platane, nor clip'd Box tree there
The useless soil unprofitably share;
But simple Nature's hand, with nobler grace,
Diffuses artless beauties o'er the place."

Pope translates, for the first time, Homer's famous account of the "Garden of Alcinous," from the seventh book of the *Odyssey*. How contrary (exclaims the essayist) to "simplicity is the modern practice of gardening! We seem to make it our study to recede from Nature, not only in the various tinsure of greens into the most regular and formal shapes, but even in monstrous attempts beyond the reach of the art itself. We run into sculpture, and are yet better pleased to have our trees in the most awkward figures of men and animals, than in the most regular of their own."

Pope, however, was an admitted authority on matters relating to gardening; for Walpole (writing in 1770) was of opinion that "the design of the Prince of Wales' garden at Carlton House was evidently borrowed from the poet's at Twickenham. There was a little of affected modesty in the latter, when he said of all his works he was most proud of his garden."

A very remarkable activity developed itself in the production of books on gardening during the first and second quarters of the eighteenth century. The distinction then between the gardener who compiled books, the botanist, and the herbalist, was a very small one indeed. Philip Miller was a case in point; and Bradley was another, with, of course, a decidedly philosophical tinge to his writings.

The influence of the two *Spectator* articles must have been much greater than is generally thought. Addison's charming manner of depicting the picturesque no doubt caused a large number of our grandfathers—when newspapers

were few, and means of intercommunication very limited—to turn their attention to gardening, and so kill some of the time which hung heavily with them. This inference is drawn from the fact that nearly every fairly good gardening book ran through edition after edition. The comparative cessation from home and foreign difficulties no doubt contributed to this highly satisfactory condition of things. The names of the eighteenth century gardening books are legion, but things were far different in that which preceded, and the number of really good books which appeared during the earlier period was very insignificant, and the intervals long. Gervase Markham's *English Husbandman* (1613) was followed in 1629 by John Parkinson's *Garden of all Sorts of Pleasant Flowers*, and in 1640 by the same author's *Theatre of Plants*. Evelyn's horticultural compilations and translations were the most important publications of the third half of the century, and the most popular work of the last years was the translation entitled *The Complete Gardener*, from M. de la Quintinye, "chief director of all the gardens of the French king." This appeared in folio in 1693, and six years later an abridgment came out under the auspices of George London and Henry Wise, both of whom were well-known to Addison and also to Evelyn. They are referred to at least twice in the *Spectator*. In the fifth number (March 6, 1711), we read, "I hear there is a treaty on foot with London and Wise (who will be appointed gardeners of the playhouse) to furnish the opera *Rinaldo* and *Armida* with an Orange grove;" and in the issue for September 6, 1712, they are termed the "heroick poets" of gardening. Evelyn describes their nursery as far surpassing all the others in England put together, extending as it did, to over a hundred acres.

It will be seen, therefore, from what we have stated, that Joseph Addison has strong claims upon our attention, not only because he contributed greatly to the popularisation of gardening, but because he was almost the very first in England to advocate a more natural system of laying out grounds. The hints which he might have gathered from the books that appeared before his essay would not have assisted him much, and so there is scarcely any debating the fact that the principles which he sought to enforce were the outcome of his own observations in England and other countries.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM CHLOROPS, *hyb. artif., Vindob., N. Rothschild.*

THIS should be called *Selenipedium chlorops*, were it not for the convenience of amateurs. It was raised at the Hohenwart, Heiligenstadt, near Vienna, in the garden of Baron Nathaniel Rothschild, by his most ardent and industrious Orchid-grower, Mr. Ferdinand Horn.

One of the parents was, I believe, *Cypripedium Hartwegii* (I saw very little), the other parent is unknown. As we have the prospect before us of getting thousands of hybrid varieties of Orchids, and hundreds of such varieties of *Cypripedium*, it is high time to protest against plants of unknown parentage—it is so very easy to avoid this result. Take double signatures (have a two-fold record), and keep a book. Put one number on the label, and have the same number painted at a certain constant place on the pot or basket, and enter the number with notes in your book, and you will be certain to keep order. It would be best to keep a copy of the book. I know of a case where one of

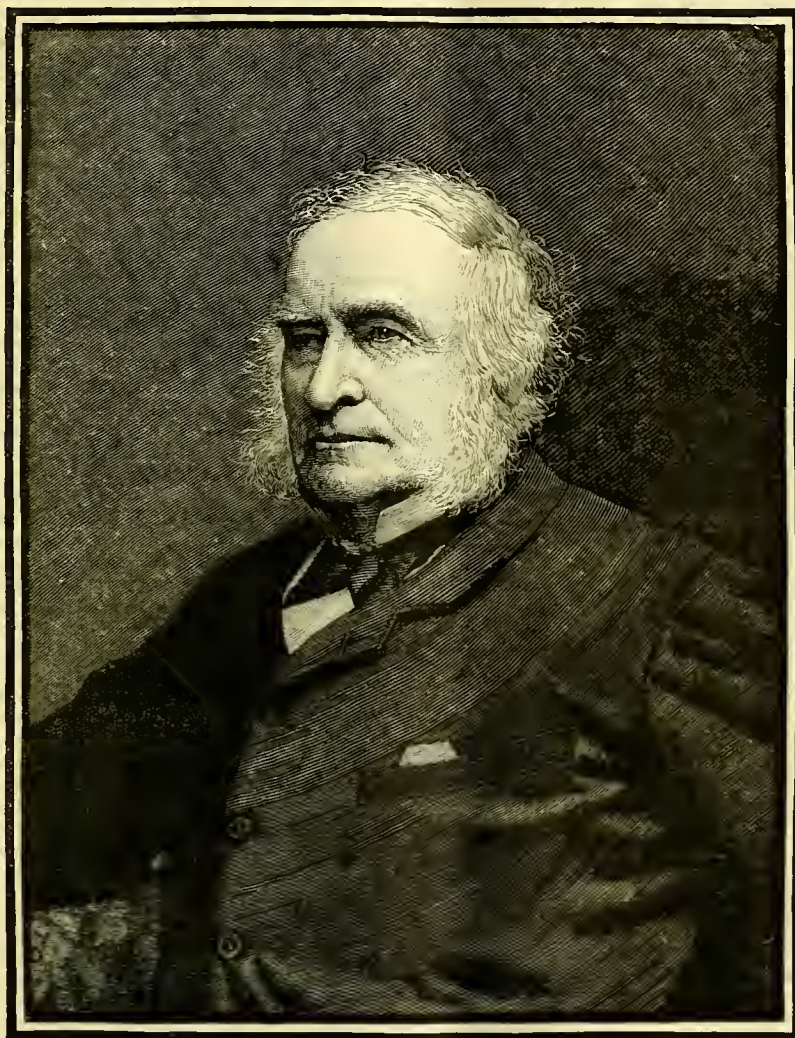
the most intelligent amateurs (a gentleman who has a scientific library) lost his book when he ceased to grow Orchids.

The plant has the rather narrow leaves of *Cypripedium Pearcei*, but somewhat broader. The long peduncle reaches $1\frac{1}{2}$ foot, and bears seven, perhaps more, flowers, two of which expand at once. It is purple, green and marbled at the very base. There

of the mouth are blunt, semi-oblong. The broad involved margin leaves no opening into the pouch (as it appears *C. Hartwegii* does constantly), both margins being quite contiguous. It is one white mass, adorned with innumerable spots and minute dots. There is one transverse row of dark brown spots, mixed with light green spots, while around are scattered innumerable small light purple ones. The staminode is

CROSSING OF FERNS.

I HAVE been much interested in the article by Colonel A. M. Jones on the "Crossing of Ferns," which recently appeared on pp. 426, and 437—459 of the *Gardeners' Chronicle*. The important revelations therein on the crossing of species at once suggested a probable explanation of a circumstance to me



JOHN CHALMERS MORTON. (SEE P. 592.)

are scattered short hairs on it. The bracts are sheathing, acuminate, shorter than the dark purple glabrous ovaries. Upper sepal narrow, triangular, shining undulate at the margin, with dark green nerves. Inferior sepal broader, a little shorter than, or nearly equal to, the lip, with red nerves outside. Petals broader, at the base, extended into a long brown nearly glabrous tail about twice the length of the lip. The lip is unusually broad, thus reminding one of the lip of *C. Hartwegii*. The pouch is rather short and retuse. The side angles at either side

rhombic, acute in the middle in front, emarginate on the inner edge, anterior sides glabrous, upper ones covered with blackish-purple hairs. It is quite like *C. Pearcei*, having a light green surface, sometimes flushed with brown. *H. G. Rehb. f.*

THE LAWNS AT THE ITALIAN EXHIBITION.—

The lawns at this Exhibition have, we are informed, been laid down with grass seeds supplied by Messrs. J. CARTER & Co., Holborn.

otherwise inexplicable in my own Fern-collecting experience in Jamaica. I refer to a remarkable group of closely allied Ferns which I found while collecting in the interests of the Botanical Department of the island. I discovered the plants growing, under highly favourable conditions, at the base of an artificially built dry-stone wall on a hill of the coral limestone. In this position they covered an oblong space little more than two yards long, and their fronds were not only crowded but, owing to the shape and habit of many, were much warped together.

A goodly number of fronds were detached and placed in drying paper for herbarium purposes, and most if not all of the plants from which they were detached were lifted, carried to the Botanic Garden, and potted for further development and botanical determination. When the latter had become established in the pots and in a freely fertile condition condition, I used to take pleasure in arranging the set, so as to show, to interested friends and visitors, the almost if not quite complete chain of varietal links leading to the extremes, which latter were supposed to be or represent *Polypodium reptans*, Swartz; *P. r. var. gracilis*, Fée; *P. asplenoides*, Swartz; *P. a. var. tenera*, Fée; and *Nephrodium scolopendroides*, Hook.; and possibly others.

A set of specimens of the collection were deposited in the herbarium of the department, and were provisionally numbered under *Polypodium reptans* and *Nephrodium scolopendroides* until they could be determined by experts. There were seven varieties under the former and nine under the latter name, but I always looked upon them as very imperfectly representing the features of the plants as I originally found them. A detached and desiccated frond, however perfect, very inadequately represents the natural history of a species, or even the individual plant of which it once formed a part.

I had previously and elsewhere found the types of the above-mentioned species, but never before associated—closely associated; and their connecting varieties—probably hybrids—were all new to me.

But some readers may not unnaturally ask, How is it possible, as suggested, for the species of *Nephrodium* and *Polypodium* to be linked together by varieties?

Perfectly possible, when we remember that these are only book names. Not unfrequently have I found in Nature *Polypodia*, where systematic books led me to expect *Nephrodia*. Nature is less exact in the matter of indusia than are our treatises on the genera of Ferns; she is less systematic, and, as a matter of course, always more natural than they. This, by the way. I herewith forward small and not quite mature specimens of *Polypodium reptans*, Swartz, and *P. asplenoides*, Swartz (also of the *Synopsis Filicum*), collected by me in Jamaica, to prove that both are species of *Nephrodium*, as generically defined in the *Synopsis Filicum*. And as *scolopendroides* is correctly referred to *Nephrodium* in the said work, we have the way cleared for a possible, and, as I think, a very close affinity between all three.

One notable feature of the group of plants in question was that the individuals were more or less proliferous. This was generally so only on the barren and semi-barren fronds, as in the case of the well known reptans, but in other plants on all the fronds; and when buds were developed at distant intervals on the much elongated rachis, the frond was bent and undulated somewhat in the way represented in the pressed, yet elegant, frond herewith forwarded and labelled *Nephrodium scolopendroides* var.

This is really one of the most graceful Ferns known to me, and one which, were it imported, would prove to the horticultural world an acquisition of great value for pot and basket culture. It is one of the remarkable group of supposed-to-be hybrids herein referred to. I take this opportunity of thanking Mr. Jones for having unwittingly suggested to me a possible explanation of its creation. *Geo. Syme.*

[The specimens sent were referred to Mr. Baker, who says, "They represent both species I see in the herbarium of Jamaica plants introduced by my colleague, Mr. Morris. *Nephrodium scolopendroides* is so variable, that eight numbers (J. P., 359 to 366) are devoted to it. Mr. Syme should read what Colonel Beddome has said about the casual occurrence of an indusium in many species allied to *P. reptans* in his recently published *Ferns of British India*. The *Desmombroid Polypodia*, treated by Fée and Mettenius as a genus under the name of *Pheopteris*, are separated from the *Aspidieae* solely by the artificial character of the absence of an indusium. I place *asplenoides* as a

variety of reptans, and look on the plants dealt with by Mr. Syme as two very variable species. He has demonstrated the casual existence of an indusium in *P. reptans*, but I do not think he has run reptans into *scolopendroides*." *Ed.*]

APPLE CULTURE IN CORNWALL.

I WAS pleased to see so able a correspondent as "A. D." introducing the subject of Apple culture. I have often thought it might be made both a profitable and interesting business, more especially now, in these times of agricultural depression, when the question of the day is, What shall be done to make the land produce a better return? Probably there are other kinds of fruit that would give a quicker return than Apples. I shall be pleased to see those that have made a profit of such publish their experience in these columns. I have had the management of orchards for more than twenty years, and I am pleased to give the readers of the *Gardeners' Chronicle* the benefit of my experience. I have proved that such kinds as Red Astrachan, King of the Pippins, Wellington Pippin, Sturmer Pippin, and Tower of Glamis do well in orchards, and will pay to grow, with proper attention; but if planted in old orchards they require the soil to be well broken up to at least a distance of 8 feet, and a cartload of good rich soil worked round them, with periodical dressings of soil from the rubbish-heap—well rotted—once in three years; this I prefer to rank manure. My trees, treated in this way, give greater satisfaction than those in the garden; they are free from canker, they make no superfluous growth, consequently they give better crops, and the fruit keeps longer.

I do not recommend the practice of exterminating all local varieties, for they are usually very hardy, and many kinds command a ready sale; but, as "A. D." said of our nurserymen, we are also teeming with useless varieties. To grow solely for cider-making does not pay in this county, owing to the advance of the temperance cause, and a preference for beer; and, moreover, some farmers, who are total abstainers, are neglecting their Orchards, in fact many bushels of Apples were sadly wasted last summer, being given to pigs and bullocks, and even trodden under foot. All thinking men rejoice to see drunkenness diminished, but to neglect an industry is absurd, for I am informed that it will pay to make cider if you have the suitable fruit.

Last season good dessert Apples made from 8s. to 12s. per bushel of 56 lb., tart kinds at half those prices (wholesale) and for several months the demand exceeded the supply. "A. D." mentions the county of Cornwall, but I, who have had experience in other counties, find the soil here of a poor nature, even where it is deep and requiring much top-dressing; we could not, therefore compete with Kent, Worcester, or Devon. "A. D." recommends vegetables to be grown between the trees while young, and it is found that by having a piggy near the orchard a good return can be made with little labour. Some of the orchards are white with Snowdrops in February others are yellow with Lenten Lilies. These can be marketed. I quite agree with "A. D." that to select slopes and valleys as sites for orchards is the proper thing, and that exposed situations must be avoided.

A great encouragement to the cause of orchard culture in the leading article of this paper for April 28, which contained an excellent report of the acreage under orchards, which was in 1887, 202,234, as against 148,221 in 1867. Imports are equivalent to the produce of about 25,000 acres, and on the average of seven years the crop in Kent is 130 bushels, or about £34 to the acre. I should here have to be content with nearly £10 less, but of course this is taking orchards in a general way, and where such fruit is grown that we cannot grow. The telling conclusion to this report was, that the value of imports is put at £857,095, and this large sum might be secured by the home growers. I have not answered the question, "Does it pay to plant Apple trees extensively?" for that requires the

experience of practical men in various localities, and I hope to have the pleasure of reading such in these columns. At some future time I should be pleased to give further details, such as a list of local sorts, many of them having quaint names. I send a few samples, just to show that I have kept orchard fruit until May 4. *C. L., Bococonoc.* [The fruits were of fair size, good in colour, but of course much past their best. *Ed.*]

TREES AND SHRUBS.

ABIES SUBALPINA.

IN the South of Perthshire I saw, lately, a plant of *Abies* (*Picea*) *bifolia*, Murray, which was raised from seed collected by Roezl somewhere in North America in the autumn of 1874.

It is rather unfortunate that, so far as I am aware, it is not on record where, in America, Roezl found his seeds and specimens of this Fir; because, for one reason, his cone-bearing branch, originally figured in the *Gardeners' Chronicle*, 1875, p. 465, f. 96, 97, and since in the Linnean Society's *Journal of Botany*, vol. xxii., p. 183, f. 12, differs considerably from a cone-bearing branch of *Abies subalpina*, Engelman—said to be specifically identical with *A. (P.) bifolia*—figured in the same journal as No. 16, p. 186.

The leaves of the former are longer, thinner, narrower, and scarcely pointed. Notwithstanding this, these dissimilar fertile branches may have been cut from the same tree; and, if so, I should presume that the one with broad sharply-pointed leaves grew near the top, the other at a point above middle height of the tree. Or Roezl's specimen may have been cut from a comparatively young tree; or it may represent a distinct geographical variety of *A. subalpina*. I am not aware that the typical *subalpina* is in cultivation in Britain [Yes, in the form of young plants], but I am quite certain that Roezl's plant is; and I regret to say that, having been on trial these thirteen years, it cannot now be ranked among the better class ornamental Firs. It is too slow for anything. The plant I lately saw in Scotland measured only 2½ feet high, by about 3 feet in spread of branches. The latter were very dense, yet without visible evidence of ever having been cut by frost. Its roots grew in rich black loam, and have not been disturbed these ten years. The stem seemed prepared at last to make a start upward, as you may judge by the appearance of the strong adventitious shoot herewith, which I cut from the tree with a view to strengthen the proper leader in its aspirations. It might have been encouraged upward sooner had its disproportionate lower branches been timely pruned, foreshortened or thinned-out, or both. And the same treatment, or a more natural modification of it, might be beneficially applied to most of the Firs, Spruces—including Douglas "Spruce," (*Pseudo-Tsuga*)—and Pines of the Central Rocky Mountain region, as well as some others, notably Spruces natives of Japan, and the graceful *P. orientalis* of the Caucasus. They should, as nurslings, be so planted as to throw the duty of nursing and pruning one another on Nature, and what she may thus fail to effect the pruning-knife and high general culture should complete. They should, indeed, be treated as ordinary forest trees are—planted in close rows, so as to develop rapidly clean free-growing stems. [There is certainly a slight difference in appearance between specimens of *A. subalpina* and *A. bifolia*, as sent by our correspondent, but not greater than might readily occur on the same tree; moreover, we find on microscopical examination of the leaves that the leaf-structure is identical. *Ed.*]

PICEA PUNGENS, ENGELMAN.

An example of this, growing close by the *Abies* above referred to, and, like it, raised from seed collected by Roezl, was 5 feet 9 inches in height, and about 2½ feet in diameter of lower branches. It was therefore decidedly narrow, conical, and, in effect, formal, skeleton-like, not for lack of foliage, but

because of its spare arm-and-rib-like branches, which issued from the stem at painfully regular intervals of from 6 to 8 inches in the direction of the horizon, or but slightly declining. It was, indeed, distinct—I may say unique—in habit, which, together with its bold, assurgent, pungent, hoary, blue-green foliage, stamped it as peculiarly effective.

I am now truly glad that Dr. Engelmann had the bold assurance, in the face of much that was favourable to the union, to separate this from *P. sitchensis*, and raise it, so to speak, to the specific peerage; for though these extreme forms are all but linked together by geographical varieties, it was necessary to draw the line somewhere, more especially when the crank factors of systematic botany had to be considered. *G. Syme.*

NOTES FROM BELGIAN NURSERIES.

(Continued from p. 554.)

LOUIS VAN HOUTTE.—As there are nearer 300 than 200 nursery establishments in the immediate vicinity of Ghent, it is obviously impossible to do justice to them individually. The "Vans" and the "Vers" and the "De's" have, moreover, a very strong family resemblance, so that the task of the reporter is rendered difficult, not only from the similarity of the products grown in each establishment, but also from the frequent identity in the proprietor's patronymic, so that the reporter becomes confused, and at length wonders which of the Van Somebodies—Adolf, Eugène, Jean—he is visiting. There is, however, one establishment, and there is one name, which stands out among the rest, and not the most sensitive Gantois will raise objection to the homage paid to the memory of Louis van Houtte. Former visitors to this vast establishment will be interested to know that in all save one department the nursery is carried on as before. Even the Victoria-house, which one would hardly expect to find in a commercial establishment, and which had been wrecked by a storm, has been rebuilt, its crown-like form suggestive of the kingly position of its original founder. The exception is, that the printing and lithographic departments where the *Flore des Serres* was elaborated have been closed. The management of a large and diversified nursery business is quite enough to tax the energies of the managers without this somewhat extraneous department.

We should be inclined to say that the general upkeep of the establishment is better than ever. We have no intention of writing a report of this nursery; it is much too extensive and too diverse to allow of that being done; suffice it to say that, while the Ghent specialties—the Bays, the Camellias, the Azaleas, the Rhododendrons, Palms, Cycads, Cliveas—are thoroughly well done, and in prodigious quantities, Orchids are well represented; while no one would think, from what he sees here, that New Holland plants had gone out of fashion.

What casual visitor could have thought on visiting this nursery that many of the grandest groups in the show at the Casino were furnished by this establishment? There was no appearance of depletion at home. Whether the visitor was requested to "come and see" at the nursery, or to "go and see" at the Casino, the result was the same—admiration at the abundance, variety, and excellence of the exhibits made by M. Louis van Houtte.

Out-of-doors the hardy trees and shrubs and herbaceous plants, for which the nursery is famous, did not make much show, owing to the lateness of the season, though Hyacinths and Narcissus might be seen gleaming in the distance. With a large instalment of the 200 and odd nurseries to visit, with four invitations to dinner, let alone lunches and incidentals, we felt that the line must be drawn somewhere, and we contented ourselves with a mere glance over the flat acres of leafless nursery ground, and bestowing a passing look at the noble specimens

of Kämpfer's Larch, the relatively gigantic *Retinospora pisifera*, the fine *Sciadopitys verticillata*, the *Tsuga Illokeriana*, and other fine specimens of Conifers, we rushed away with the consciousness that this nursery well maintains its ancient reputation and needs no commendation from us.

ED. PYNÆRT-VAN GEERT.

M. Pynaert, whose establishment forms the advance guard of the numerous colony at Gendbrugge and Ledeborg, and which overlooks the sluggish Scheldt, is evidently determined that the fame of Van Geert shall not suffer in his hands. His house is square and substantial. Is the visitor English?—he will find on one side "Exotic Nursery;" is he German?—the inscription *Handelsgärtner* will attract him; is he French?—M. Pynaert has a side for him; while he is far too patriotic a man not to have one side of his house duly inscribed in Flemish. No doubt, were there more sides to be inscribed Russian and Italian would find their place, as they do at the proprietor's hospitable table! Ghent specialties are here as a matter of course, it would not be a Ghent nursery without them, but M. Pynaert has wider aims, and, in addition to the Ghent inevitables, there is here a large and varied general nursery stock extended in particular since our last visit by a rich collection of Orchids, including a fine collection of *Cypripediums*, as a matter of course. The Orchids are a heritage from M. van Geert, but much extended. The rapid and substantial growth which some of these Orchids were making testified to the suitability of the conditions and to the care bestowed upon them. For *Masdevallias*, *Odontoglossums*, and other cool Orchids, a cool house with a north-west aspect, with air on night and day, is found very suitable. *Chrysanthemums* also are undertaken in this establishment—an innovation, so far as Belgian nurseries go, and we should not wonder that those whose good fortune it may be to be present at another Quinquennial will find the nurseries as full of *Chrysanthemums* as they now are of *Cliveas* and *Azaleas*. An autumn Quinquennial will then become a necessity. Palms, *Aspidistras*, *Phormiums*, *Cliveas*, *Azaleas* are, of course, in profusion. Less common is a beautiful collection of *Bertolonias* and *Sonerilas*, and a fine set of the very handsome gold-striped *Dracena Lindenii*. Ferns are largely grown here, more largely than in most of the Ghent nurseries. Another class of plants altogether is represented by the *Epiphyllums*—nice little plants grafted as standards—and whose surprisingly brilliant yet soft tinted flowers make it a subject of astonishment that they should have gone out of favour on this side of the Channel. Of the "new plants" cultivated by M. Pynaert we have already spoken on various occasions. It is a comfort to find still some nurserymen exhibiting "new plants." The stock of new plants to be introduced is by no means exhausted yet, and while we have nothing but admiration for the skill and care which have produced all the acres of *Azaleas* and the like, one sees at Ghent and elsewhere, it must be admitted that there is a risk of a surfeit from which the occasional introduction of new plants may save us, to say nothing of the botanical interest of new introductions. By the way, if M. Pynaert should happen to peruse these lines, we may ask him about the "inimitable" *Aristolochia*, which finds a place in our note-book as copied from a tally in his nursery. What *Aristolochia inimitabilis* may be we should be glad to know. Of Conifers, Rhododendrons, and hardy trees and shrubs M. Pynaert has a large collection; indeed, we may say that, even as his house is not one-sided but offers a friendly face in more than one direction, so in his nursery there is more than a little of everything and most of it of excellent quality.

ÉUGÈNE VÉRYAET DE VOS.

The establishment at Swynaerde is a vast plant manufactory, in which the glass covers an area of 2600 metres, and wherein thousands upon thousands of *Azalea indica*, together with the Japanese *A. mollis* and the hardy Ghent *Azaleas* (hybrids between the North American and the Pontic species, are grown. The Indian *Azaleas* are all here grafted on

low stems of equal height, about 4 inches, and form heads a foot or 18 inches across. The "stock" is some free growing seedling of the same species. Of such market plants there are at least 50,000. Our own growers are well aware of the resources of this establishment, as we are assured that more than 40,000 Indian *Azaleas* were supplied to English nurserymen alone last year. For the formation of those little compact bushes of uniform height, M. E. Vervaeke has long been famous. It is well known that most of the new *Azaleas* are merely "sports," but the possibility of occasional graft-hybridisation must not be overlooked. Camellias exhibit no sign of decline here, and Rhododendrons and Pontic *Azaleas* are grown by thousands.

To be continued.)

NARCISSUS TRIANDRUS AND N. CALATHINUS.

A YEAR or two ago I did my best to trace the error which caused De Candolle to give to a variety of *N. triandrus* the name of *N. calathinus*, which had been adopted by Linnæus for a large-crowned form of *N. odoratus* described by Clusius and Parkinson. At that time I had not grown specimens enough of the *N. calathinus* as figured by Redouté to know how far it was distinct from the *N. triandrus* which is so abundant in the north-west of the Spanish peninsula. This latter plant has recently been imported abundantly from Oporto, and is a very variable plant both in size and form, and in other particulars. It was named *N. reflexus* by the Portuguese botanist Brotero nearly a century ago. At different times in the last four years Mr. Tait, of Oporto, has sent me a large number of bulbs collected whilst in flower from different stations in the North of Portugal, selections being made of any variation in size or colour. I have also had some bulbs sent me which were collected in Asturias; these were called *N. calathinus*, and some dealers continue to sell large bulbs of this form of *triandrus* under the name of *calathinus*; but I am convinced that both the forms as they exist in the Spanish peninsula belong to *N. reflexus* of Brotero, and though the extremes vary greatly in size, no line of separation can be drawn between them. But the *N. calathinus* of Redouté is a very distinct variety from the Spanish plant. The whole flower is larger, the crown much wider and longer in proportion to the rest of the flower, and the colour is of a much purer white; the leaves are more procumbent, and thicker for their size. The only locality where it is known to be found wild is the island of Drénec, off the south-west coast of Brittany, and any fresh flower from this island may at a glance be distinguished from any Portuguese flower by these characters. In dried specimens these distinctions are far less conspicuous. The variety *N. calathinus* is far more difficult to cultivate than *N. reflexus*; it is less hardy, as it dies in my garden even under a south wall, where the Portuguese *triandrus* thrives well, not having suffered during the past winter, though the leaves were 2 or 3 inches above ground in November. I believe that the Drénec bulbs require a little salt in the soil. Mr. Elwes tells me he can only grow them in sea sand.

Besides the two varieties of *N. triandrus* mentioned above, I have three others in cultivation; one is the *N. pallidus* of Graells, collected by Mr. G. Maw in Central Spain. It is a small, weak-growing plant, with a single leaf, and a slender flower of pale straw colour. It is described and figured by Willkomm by the name of *N. cernuus* (Salisbury). The figure is evidently from a dried specimen, and the colour is too deep.

Another variety, recently described by Don Henriquez, of Coimbra, as *N. concolor*, is certainly distinct from *N. concolor* of the *Botanical Magazine*. Only a few specimens of it have been found on the Sierra d'Estrelle in Central Portugal. It is a delicate and dwarf plant, with a short, nearly globular flower of uniform deep yellow; it has a strong and characteristic scent, exactly like the flower of *N. juncifolius*, which has led me to think it may perhaps

be a hybrid of that species; it is very distinct in appearance from any other triandrus.

Another variety is not uncommon in England in cultivation, and is known as *N. triandrus pulchellus*; it has a primrose-coloured perianth, and a pale straw-coloured crown, and is the only *Narcissus* I have ever seen which has the crown paler than the perianth. I have often raised it from seed, and the flowers come perfectly true, having all the parts and organs constant, and not variable as they are in the varieties *reflexus* and *calathinus*. I have never been able to find its native province, but I suspect it is the variety of *triandrus* described by Asso as common in Arragon; but though I have received several varieties of *Daffodils* from Arragon, I have not yet got this. Like *N. reflexus*, I find it hardy in Cheshire under a south wall.

In view of the confusion of names which is found amongst the varieties of this species, would it not be better to retain the name *triandrus*, which Linnaeus invented, for the species, adding *calathinus*, *pallidulus*, *pulchellus*, &c., as varietal names, especially as the *N. calathinus* of the *Botanical Magazine* is a variety of *N. odoratus*, and this name is still retained in some catalogues on the authority of that work? *C. Wolley Dod.*

FREESIAS.

PROFESSOR MACOWAN'S note on *Freessias*, in the *Gardeners' Chronicle*, of April 21, p. 492, leads me to send you the following memorandum, which I drew up some four years ago.

I can recognise among *Freessias* the following three types:—

A. Leaves narrow (3—5 lines), rigid, ribbed, mid-rib prominent, dark green, purplish at base, arranged in a dense distichous tuft.

Scape much branched, many-flowered, ten or more flowers on a spike from even small bulbs.

Spathe-valves acute scarious, often so divergent as to expose the yet immature ovary.

Flowers small, greenish-yellow, with purple lines; perianth segments so arranged as to form a two-lipped limb, the upper lip consisting of a broadish segment, with two lateral wing-like segments forming a hood over the stigma and anthers, the lower lip of a narrow median segment, overlapped by two lateral ones, the sides of which are raised into two ridges. Tube abruptly constricted above spathe valves.

Tritonia refracta, *Bot. Reg.*, t. 135, corresponds in every way exactly to this. The describer and draughtsman evidently had this very plant under their eyes.

Gladiolus refractus, *Red., Lil.*, t. 419, is virtually the same, though the spathe-valves are not so pointed and narrow, leaves not quite so narrow, flower not so irregular.

Tritonia refracta, *Jacquin*, t. 241, seems also to be the same, but the drawing is very inferior, and difficult to judge by.

The narrow, rigid, ribbed dark green leaves, the branching, many, but small-flowered scape, correlated with scarious pointed spathe-valves and irregular two-lipped flower, seems to me to justify its being made a type; the name should be *Freessia refracta*.

I had this plant from Mr. C. Smith, of Guernsey, and have since received from Mr. Rawson as *F. aurea* a plant almost exactly like the above, except that the flowers were of a bright rich yellow and the spathe-valves not so scarious.

B. Leaves broad, from 5 lines to 1 inch, pale green, rather flaccid, not very ribbed, few leaves only in tuft, and soon spreading, so as to diminish the distichous character.

Scape with one terminal and rarely more than two lateral spikes of usually seven flowers, needing generous treatment to produce more, spathe-valves persistent, shield-like, toothed.

Flowers white, very nearly regular, requiring care to see that some of the segments are smaller than others. Segments often reflexed, so as to turn back horizontally from mouth of tube.

Tube diminishing regularly, as an elongated cone, from the top to spathe valves, without any sudden constriction.

This is the *Freessia refracta alba* of the trade; it does not wholly correspond to *Gladiolus xanthospilus* of Redouté's *Liliacæ*, or to any other figure or description of older writers. It seems to me a distinct type, which I should propose to call *F. alba*.

C. Foliage like above, but less luxuriant. Spathe-valves and scape like the above.

These seem to me to be the three types, A and B being the two extremes, and C being intermediate.

I have not yet met with the character of A belonging to other than pure white flowers, with, however, purple lines or orange blotches more or less conspicuous. It is the largest, finest, and most vigorous.



FIG. 79.—FREESSIA LEICHTLINIANA: LIGHT YELLOW. (SEE P. 588.)

Flower smaller, less regular, almost two-lipped (deep yellow colour in type), with tube suddenly constricted above spathe-valves.

This corresponds exactly to the *Tritonia odorata*. *Lodd., Bot. Cab.*, 1820—seems to me a type—and should be called *F. odorata*. The flowers may be deep yellow, or dirty yellow, with purple stripes and blotches, or white, with more or less purple blotches and stripes.

Gladiolus xanthospilus of *Red., Lil.*, has the constricted tube of C, and therefore though not exactly *F. alba*, is nearer to it than to anything else.

While maintaining these three types I am prepared to admit intermediate forms between all of them. Thus I have had from Smith, of Guernsey, a form like A in foliage, growth, &c. (but with persistent green spathe-valves and less irregular flower); and I have a form from the Cape in general habit

like c, but with flowers very two-lipped, like a, and heavily splashed with violet.

But all these and other varieties can be arranged around and between the above three forms, and the names I have suggested for two of the forms are old names, and the third name is simple.

I have seen nothing since writing the above which has led me to change my mind, but I may add the following:—

Freesia Leichtlini (I have plants from offsets of the original plant described by Klatt; these were kindly given me by my friend Mr. Max Leichtlin) is intermediate between b and c; it has the constricted tube of the latter, but the more regular flowers of the former; the mouth is remarkably wide and open, the colour is a uniform light yellow, the foliage is broad. (Fig. 79.)

Each form has a distinct odour; that of c is

THE CLIMATE OF MANIPUR.

At a recent meeting of the Royal Geographical Society, Dr. G. Watt made some valuable remarks on his observations in the Manipur district. Manipur is a small valley surrounded by mountain ranges, and in this valley the rainfall was found to be only about 39 inches, but 17 miles off, in the mountains which formed the north-east ranges, the rainfall was as much as 120 inches, and towards the Naga country to the north it became greater and greater in certain limited tracts. In the Khasia Hills 600 inches might fall in one place, and 20 miles off only 50 inches.

Nothing in Manipur struck Dr. Watt so much, as a botanist, as the remarkable transitions of vegetation in that small region. Dr. Watt gathered twelve or more species of Oaks, many of which were

Manipur compared with Assam were connected with the evident lowering of temperature indicated by the low snow-line. There could be no doubt that the warm currents of air coming up the valleys of the Irrawadi and the Salween, and meeting the snowy mountains to the north, produced an enormous precipitation of rain, which during winter fell as snow. The consequence seemed to be that there was snow there at a very much lower level than in the mountains further to the north. That an immense quantity of rain fell in the upper portions of the valley of the Irrawadi there could be no question. Such a rainfall seemed in itself quite sufficient to account for the large volume of water that was drained off by the lower portions of the Irrawadi; and anybody who knew what Tibet was, General Strachey stated, must be aware that, even with a course of several hundred miles, the river would pick up but a small quantity of water in comparison with the enormous volumes which were collected from the rain which



FIG. 80.—THE FIRST EXHIBITION OF THE ROYAL SOCIETY OF BOTANY AND AGRICULTURE AT GHENT, FEBRUARY 7—10, 1809.

quite different from n, and that of a is remarkably peculiar, having a marked dash of Lemon.

Crosses (? hybrids) between any two of the forms, show characters of both parents; but the "blood" of n seems to me to be especially potent. Seedlings in which n is a parent turn out in many cases to be nearly pure n. So that whatever the origin of n, it has got itself well established as a distinct form. On the other hand a asserts its individuality by not breeding so regularly with n or c, as these do with each other. When crossed it does not go to seed so readily, and the seeds do not germinate readily.

Some forms of c have a distinct red blush, and I am gradually obtaining, by repeated seeding, a quite deeply coloured form.

Any one putting a and n side by side would naturally call them distinct species; and the only reason for not considering them such is the existence of a long series of intermediate forms. *M. Foster.*

new to science, and ten or twelve species of *Rhododendrons* in Manipur alone. The *Rhododendron Falconeri*, found in the Naga Hills by Sir Joseph Hooker, is now here met with in the immense tract between the Naga Hills and Sikkim. This and the epiphytic *R. Dalhousiae*, which grows on a hill 30 miles north of Darjeeling. Dr. Watt found in the Naga Hills at an altitude of 6000 to 8000 feet, and these *Rhododendrons* never occur in Sikkim below 10,000 to 13,000 feet. There were many instances of plants falling in their altitude as the traveller passed to the east and south-east from Sikkim, until at Moulmein a *Rhododendron* was found growing near the sea, a circumstance which was not met with in any other part of Asia. In Manipur the whole valley, 3000 feet high, was covered with hoar-frost in December.

General Strachey, who was in the chair, considered that the peculiarities of the vegetation of

fell in Upper Burma. General Strachey had roughly calculated that a monthly fall of rain of 18 inches over a square degree would mean 65,000 cubic feet per second for the whole month. *Nature.*

THE FIRST GHENT SHOW.

In a previous issue (p. 496) we alluded to the reproduction of the building in which was held the first show of the Royal Society of Botany and Agriculture of Ghent as being one of the most interesting features of the recent Exhibition, and at the same time we gave a list of plants shown on that occasion. We are now enabled (by the courtesy of the Editors of the *Revue de l'Horticulture Belge*) to place before our readers an illustration (fig. 80) of the show of 1809, on which occasion only one prize was awarded. In this year's schedule there were over 400 classes.

LAW NOTES.

THE VALIDITY OF NON-GUARANTTEE CLAUSES.

In a previous number we reported the result of the action, *Reynolds v. Wrench*, tried before Mr. Justice Denman. The case came before the Divisional Court, consisting of Mr. Baron Pollock and Mr. Justice Charles, on the 18th ult., by way of application on the part of Messrs. Wrench for a new trial.

Mr. Baron Pollock, in delivering judgment, said:—The arguments in this case have been of a very interesting and instructive nature. The case before Mr. Justice Denman was clear. Mrs. Reynolds, the plaintiff, received from Messrs. Wrench, the defendants, a certain quantity of Turnip seed, viz., Yellow Tankard Turnip, which was particularly suitable for old growth. When the plaintiff returned the produce we now know that it consisted of Purple Mammoth Turnip seed which was of an early growth, and it could not be distinguished by view or touch, the result could only be known after it had been grown. Wrench sold the seed to a firm in Edinburgh, who sold it to customers to be grown in Germany. It was of great importance that it should be not of an early but of a late growth. Hence arise the claims by Wrench against Reynolds. Under the circumstances it was thought best by Mr. Justice Grove, when trying the case at the Huntingdon Assizes, that there the jury should try the question by whose fault the wrong seed was sent. The jury heard all the evidence, and came to the conclusion that the fault was that of Reynolds. Then came the question of damages, and, as it was a mixed question of law and fact, it was determined that it should be settled by Mr. Justice Denman without a jury. His lordship then referred to the facts brought out in evidence before Mr. Justice Denman, from which it appeared that Wrench sold the seed to Lawsons, of Edinburgh, on November 3, 1885, and that the invoice contained the following note, printed in red:—"Messrs. J. Wrench & Son give no warranty, express or implied, as to description, quality, productiveness, or any other matter connected with the seed." This note was not only on the invoice sent to Messrs. Lawsons, but was also on that sent Reynolds. This note, continued his lordship, has been held by Mr. Justice Denman to afford protection to Wrench, but I confess that if I had to consider the construction of it *de novo* I should not agree with that view, because I should say, using the words of Lord Abinger in *Chanter v. Hopkins*, "a good deal of confusion has arisen from the unfortunate use made of the word 'warranty.' A warranty is an express or implied statement of that which a party undertakes shall be part of a contract, collateral to the express object." I should then go on to say that when a man undertakes to sell a perfectly well-known article, such as Yellow Tankard Turnip seed, whatever may be the description, quality, or other matter which is mentioned in respect of this seed, it is a condition precedent that it should be that seed, and that to deliver a different kind of seed would be a breach of the contract. But where the word "description" is mentioned I find it applicable to this question. Lord Abinger, in that case speaks of the circumstance of the parties selling a particular thing by its particular description. What was passing in his mind was, not "description" as if you speak of some collateral quality, such as "of good growth," but something more than definitive description. That is still more marked in the case of *Allen v. Bates*, to which his Lordship went on to refer and continued: "That being so we come to the conclusion that these words in red protect the vendor, and that if Lawson could not recover damages against Wrench then he could not recover against Reynolds. But then there is another question. If there was a special contract, as alleged by Wrench, that the words in red were not to apply to the sale of the seed to Lawson then it would be for Wrench to prove that Reynolds was aware that such special contract was made either by

express notice or by the usual course of trade. Reynolds ought not to have assumed that Wrench would sell the seed on any terms other than those contained on the invoices, and therefore as any damages arising from breach of a special contract were not in contemplation by both Wrench and Reynolds when the contract was made to grow the seeds, such damages cannot now be recovered.

Mr. Justice Charles entertained no doubt that the words in red protected Wrench from any claims made by Lawson, and in all other respects concurred in the judgment of Baron Pollock.

The application for a new trial was therefore refused.

ROSES.

TWO NEW ROSES.

At the fortnightly show of the Royal Horticultural Society, held at the Drill Hall on April 24, there were exhibited two new Roses which I think are likely to be very useful; they are indeed neither of them, in one sense, absolutely new, as they are not seedlings, but sports of old and well-known varieties, but none the less valuable.

May Rivers!—how delightful it is to find the old honoured name of Rivers of Sawbridgeworth connected with a new Rose. Madam Rivers has long since passed into the region of neglected Roses, and I fear I must say deservedly so, for we have so many better sorts that we can very well dispense with it. Raised by the elder Guillot, and sent out by him in 1850, it was attractive by its pretty colour and shape, but it was unhealthy and of weak constitution, and so has passed into oblivion; and now, some forty years afterwards, we again have the honoured old name associated with the Rose—a flower he did so much to popularize amongst us. May Rivers is a yellow sport from the old white China Rose, Clara Sylvain, which also appeared under the synonym of Lady Warrenden, a Rose which has by some been placed amongst the Teas, although Mr. Rivers in his *Rose Amateur's Guide* places it amongst the Chinas. Ellwanger in his book on Roses writes of it as a China with a considerable dash of Tea blood in it; while Ketten in his catalogue places it amongst the Teas; in this I think he is wrong, and Ellwanger's description of it is about the correct one. It has almost indeed passed out of cultivation, Teas and hybrids having absorbed the energies of Rose lovers. Mr. Rivers speaks of it as one well fitted for bedding, and owing to its strong and vigorous growth recommends it to be used for the centre of a bed. Of this Rose there appeared some years ago in the Sawbridgeworth Nurseries a yellow sport, and this, Mr. Rivers has been carefully trying ever since to fix, for he could not send out a Rose whose constancy was uncertain and which might hark back to the typical form. He now, considers it to be thoroughly fixed, and it will be, I believe, soon distributed. In colour it closely resembles Belle Lyonaise, but does not quarter as that flower does. In the box of twenty-four exhibited they were in all stages, from the bud to the full-blown flower, and in form and colour were admirable; moreover it is perfectly hardy, while Belle Lyonaise is not, and to have a thoroughly good hardy yellow Rose will be no slight gain to lovers of the flower.

The other Rose was exhibited by Messrs. Keynes, Williams & Co., of Salisbury, and is one of those curious sports in the matter of growth for which there seems to be no accounting, when we see a dwarf growing Rose like *Devoniensis* suddenly developing into one which makes a shoot sometimes 20 feet long in a season, budded on the same stock, as thousands of others have been, it is not easy to give a reason why it should take place; and probably there is no reason; as the Salisbury Rose is a climbing Niphetos, and it will at once be seen what a valuable help this is likely to be to those who supply cut flowers for market. If any one goes to Covent Garden at any time when Roses are to be had, it will be seen at once that the two Roses which

hold their own against all comers are Niphetos and Maréchal Niel. You will, of course, see others, and some perpetuals of bright colours, but they are comparatively few. These two Roses are to be seen in quantities, while when we go down to such places as Mr. Ladds' or Beckwith's, we find house after house devoted solely to the growth of Niphetos. How valuable, then, this sport will be for climbing on the rafters will be evident. This climbing variety makes shoots 20 feet long, and seems to be quite as floriferous as the parent, has the same long-pointed buds, and is of the same beautiful white—the whitest of all Tea Roses; and Messrs. Keynes & Co. are, I think, to be congratulated on this very desirable acquisition. *Wild Rose*.

ROSES ON WALLS.

In all parts of England except in the North, I think many more of the Tea-scented and Noisette Roses might be successfully grown on walls with a south and west aspect than is the case now. [They are grown there, but are protected in winter. En.] Many of these are vigorous growers, and the Noisettes in particular are less fastidious about soil, so long as it is fairly light and well drained. I am quite sure that it will not do to select from the Tea-scented varieties at random, for open-air culture, but by making choice of the hardiest, and planting these in suitable aspects there will be no danger of being disappointed. Amongst Teas I would recommend Homer, Safrano, and Jaune Despres; these are undoubtedly the hardiest of the moderate growing Teas. The first named is especially valuable, as it will flower abundantly in almost all parts of the country. Others of this section it is quite safe to choose are Souvenir d'un Ami, Sombreuil, and Madame Falcot. From observation extending over many years, I consider these to be the hardiest of the Teas. The hybrid Tea Roses are valuable, and there are many of them that are quite hardy enough for walls. I may mention Reine Marie Henriette as a variety rich in colour—a full bright crimson; it is also a vigorous grower. Cheshunt Hybrid is rather dingy in colour, being purplish-maroon, but the flower is large and full, and very sweetly scented; and, lastly, Gloire de Dijon, a Rose which may be said to be hardly ever without flowers. The Noisettes are represented by many excellent climbing varieties, some of them being fragrant as well as beautiful. Of these Aimée Vibert is so well known that I need not say more than that it is the hardiest of the section, and that its pure white flowers are always appreciated. Celine Forestier is, I think, the best yellow in this group, and deserves a foremost place; the plant grows rapidly, and produces beautiful clusters of flowers quite late in the season; Rêve d'Or is an excellent Rose, with large and full flowers; Solfaterre also grows and flowers well; William Allan Richardson is undoubtedly the best in its shade of colour—a deep orange-yellow. The plant is of vigorous habit, and well suited for covering a small frame 16–20 feet high. If this Rose has one fault it is its sportiveness, many flowers coming nearly white, especially towards the end of the summer.

A fairly rich and well drained soil must be provided for the Teas, but the hybrid Teas and Noisettes are less fastidious. As regards the pruning of the latter, they are sometimes badly treated; as for the sake of making the plants look tidy much of the growth is cut away during the summer that should be retained to furnish flowers the next year. A sufficient number of the young long shoots should be nailed in with this intent, the small sprays not being productive of flowers. The winter pruning should not be done until some time in February, when any weak and exhausted growth that can be spared should be cut out, and the long shoots made the previous summer laid in at nearly their whole length when space can be found for them; in no case should these long shoots be cut out and the old left, except in the case of main branches that may have to be cut away. In respect to the time to plant, the end of February is the most suitable, when

plants that are taken from the open ground may be planted, but any that have to be turned out of pots and which have been kept under glass all the winter should not be planted until the beginning of the month of May. *J. C. Clarke.*

PLANTS AND THEIR CULTURE.

CAMELLIAS.—Although these plants cannot in the later stages be forced into flower satisfactorily, the same end may be attained by forcing them when growing. All plants which have finished flowering should be encouraged to finish their growth as quickly as is consistent with safety, and a genial growing atmosphere of about 60° is very suitable for that purpose. The plants should be well syringed overhead, and shaded from bright sun; and if any require to be repotted, it is a good time to do it, just as the flower-buds are forming. Yellow loam of good quality, with a little peat and plenty of silver-sand, suit them well. They are much benefited by a moderately high temperature, and if kept in it until the flower-buds are well developed, the plants will flower early in the winter following without any forcing. Large plants in pots and have not been shifted, or such as are planted out, should be afforded some weak manure-water twice weekly, until such time as the growths cease to lengthen.

Violets in Pots.—These flowers are always much appreciated during the winter, and to that end strong well-established plants should be secured by the end of the summer. If not already done no time should be lost in getting in the required number of strong runners with prominent crowns. These should be potted singly in small pots, placed in a frame and kept rather close for a fortnight, or they may be planted out in well prepared beds on a border, the object being to secure plump crowns. The double varieties are the most useful for indoor culture, and probably Marie Louise is as good as any other; but for the sake of variety Neapolitan and Comte de Brazza may be included.

Poinsettias which have been resting should now be started by placing them in gentle heat and syringing freely, when plenty of cuttings may be taken. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

THE SEASON.—I shall make no apology for briefly noticing the abnormal character of the season in its bearing on vegetation, and especially on one or two operations in the flower garden, and which in the ordinary course of things would now be receiving attention. In ordinary seasons it is usual to begin bedding-out in southern counties about the second or third week in May, but there can be no question that in many gardens this work will have to be deferred to a later date. It must of necessity be the case where flower-beds are planted with Wallflowers, Arabis, Forget-me-Nots, Polyanthus, &c., owing to the lateness of their flowering, unless they are taken up whilst still covered with bloom, which, in my opinion, would be unwise. I do not doubt that many gardeners will be tempted to do this in spite of what may be stated to the contrary. They would do well, however, this year to exercise a little patience and for once, at least, to disregard dates, and anything savouring of "rule of thumb." In our garden we shall be obliged to defer planting certain beds to a later date than usual, owing to their being filled with Wallflowers, margined with a broad band of Stachys lanata, and which at the present time are far from being at their best, but it would be folly to forego the pleasure of seeing such a charming sight as 4000 plants present, when in bloom, merely because the planting time for Pelargoniums had arrived. In gardens where the spring bedders have suffered much from frost, summer bedders may be put out as soon as it is safe to do so. See that the work in all other departments is kept close up, so that when summer bedding-out begins all the available strength may be employed on it.

Begonias.—Look over these, and give more space to the most forward plants, which may now be moved to a house where they will have the benefit of freer ventilation. Pinch out the points of the strongest shoots, and also all flower-buds that have made their appearance up to the present, so that sturdy plants may result. Those which are backward in growth, and the young plants which were

raised from seed, had better remain in a temperature of 65° to 70° for some little time longer.

Seeds.—The majority of hardy biennials may now be sown in the open ground. The seed-bed should be of fine light soil and ought to be specially prepared by having a little finely sifted leaf-mould and sand spread over the surface and raked in previous to sowing the seed in drills. Amongst other subjects which ought to be sown, the following are regarded as being indispensable in a good garden, viz., Antirrhinums, Brompton Stocks, Campanula calycanthema and varieties, Lunaria biennis, Sweet Williams, Wallflowers Belvoir Castle and Covent Garden Blood Red; double German Wallflowers are worth growing also, and Dianthus chinensis. Cover each kind of seed with about its own depth of soil, water the bed if it becomes dry, and keep a sharp look-out for slugs as soon as the young plants make their appearance. A further sowing of hardy annuals may be made, if former sowings are not quite satisfactory, or if very late flowers are wanted. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

VINES.—When the Grapes are ripe a cool dry atmosphere is indispensable to their keeping properly; but guard against a too dry state of the soil about the roots. If water be necessary choose a fine day, and remove the mulching from the border, giving a thorough watering, and re-cover with about 3 inches of dry mushroom-bed material. Where Grapes are colouring decrease the moisture in the house, and keep up a circulation of warm air. Red spider is almost certain to put in an appearance on withholding moisture, and in order to check their ravages in the earliest stages sulphur is perhaps the best remedy use. For this purpose mix up some flowers of sulphur to the consistency of thick paint, heat the pipes until they are uncomfortable to the hand, paint the upper surfaces of the flow-pipes, keeping clear of the joints, as it is difficult to wash off again from uneven surfaces; keep the house perfectly close for the night, but admit air as early in the morning as possible, as it would be highly dangerous to allow the sun to attain any power while the house is full of the fumes. Sulphur should never be used on flues, unless the upper ones are dished to hold water, when a little may be mixed with the water, or a vessel holding a gallon or two of water may be placed at a point far from the fire; and it is not safe to use it until the berries are stoned and the skin hard, or rust would be sure to disfigure the berries more or less. Houses which are colouring may be kept about 70°, at 10 p.m. Take advantage of solar heat, shutting up with a temperature of 90°, and considerable moisture. Muscats may now be kept at about 75° at 10 p.m. Do not thin them until such time as it is apparent which berries have seeds. It is better not to thin Muscats too freely at first, as it is easy to nip out a few berries later. In the case of free setters like Black Hamburgh and Black Alicante, the sooner they are thinned after they are set—the better. Attend to the stopping and tying of shoots as growth proceeds, but it is not good practice to pinch the shoots while the Vines are in bloom, on the contrary, rather allow the shoots and laterals to grow unchecked until fertilisation is finished. Colmars and Lady Downes are better when kept at about Muscat temperature at the flowering stage, but from the period of stoning to that of colouring, Lady Downes is subject to scalding of the berries; and if the house be shut up early, and well damped, this is almost a certainty. It will therefore be the safest practice to defer shutting up till the sun has gone off the houses, and a trifling amount of top ventilation should be left on all night. As regards the shading of Vines I know that many eminent gardeners condemn the practice, but where the Vines are not in robust health, I consider a slight shade afforded to Muscats and Gros Colmar very beneficial. I always give shade, and the material I use is Williams' Eureka Shading mixed to a thin consistency and syringed over the glass when the sun shines. Look to the young planted-out Vines and keep the stems tied to the trellis; guard against wireworms where soil has been taken in from an old pasture, and if their presence be suspected, plant a few Carrots in the border, examining them daily, for should there be any of the insects in the soil they are certain to be found attached to the Carrots. Allow as many of the laterals to grow as can conveniently be retained, the object in view being to get a root development in proportion to the spread of foliage. Give every

attention to the supply of water, and frequently sprinkle the surface of the border, being careful not to allow any water to reach any very hot pipes, the steam from which produces warty foliage. *W. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

GENERAL DIRECTIONS.—Continue the disbudding of Peach and Nectarine trees, pinching in any gross growing shoots, by that means equalising the distribution of the sap. Should aphides appear the shoots should be dusted over with tobacco-powder, and after the fruit is set the trees should be thoroughly washed with the garden engine. Keep a careful look-out for blister, and as soon as it is detected the affected leaves, and shoots likewise, if necessary, should be cut off and at once burned. The protecting materials used on Apricot trees may now be dispensed with, the blinds, if such are employed, being let down for a few hours to dry before putting them into store. Any wooden copings which may have been put up should be removed. The trees should be examined, and all young shoots that are not required to furnish the trees should be stopped back to three or four buds, which by that means will form fruit-spurs for another season. The fruits are now swell fast, so that a little thinning may be done, removing some of the smallest and such as are badly situated on the branches. The final removal of the protecting material from Figs may now be done, and the wood thinned out and nailed to the wall.

All grafts must be examined, and the clay kept in a moist condition by sprinkling it with water; and when moss has been bound round the clay as advised, an occasional damping of the same will suffice. Fruit quarters and borders will be greatly benefited by being frequently hoed. Pears, Plums, and Cherries are thickly studded with flower-buds, and if the weather should continue mild the trees will soon be in full bloom. Apples are very backward, but they will now advance very fast, and the next few weeks will be an anxious time for the growers of hardy fruits. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

SCARLET RUNNERS.—The seeds of the first crop should now be sown, and where the soil of the garden is of a cold nature, or the situation is an exposed one, the warmest position for this first sowing should be given it, or much of the seed may rot. In any case it will be advisable to work the soil where the drills will be made with a fork once or twice before sowing. Scarlet Runner Beans require a great deal of water in dry weather; it is well, therefore, to sow in rather shallow trenches, made by throwing out a few inches of soil, and laying it at the sides, and in case the land has not been heavily manured already, a good quantity of rotten manure should be dug into the trench, and the seeds sown 4 inches apart. If the garden is well sheltered, rows 8 feet apart are the best. In windy places two rows of seed 9 inches apart may be sown in each trench, and the stakes put in diagonally, so as to cross each other, the tops being about 3 feet apart; other long sticks may then be placed lengthwise along the centre of the row where the others cross, and all be tied securely together, by which precautions they will then withstand the rough winds without being blown over. Another plan is to stop the plants when 3 feet high, and grow them without sticks, sowing the seed in single rows at 4 feet apart; many acres are thus grown in the market gardens near London. Champion and the old Scarlet are the heaviest croppers, but The Czar and Girtford Giant produce the finest pods.

Beet.—The main crop should now be sown, and as smallish roots are preferred generally, a plot that has not had any manure during the last twelve months should be selected for it, and if the soil be of a heavy nature it should be well worked with a fork or Canterbury hoe. Pragnell's Exhibition is one of the handsomest varieties, and the Egyptian Turnip-rooted will be found very useful on shallow and stony soils, and for coming into use early. Salsify, Scorzonera, Witloof, and Chicory require similar treatment to Beets, and may be sown now. A few French Beans should also be sown on south borders; Sir Joseph Paxton is one of the best varieties for the first crop. *W. H. Divers, Ketton Hall, Stamford.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

GARDENERS' CHRONICLE OFFICE TELEGRAMS.

NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

MONDAY, MAY 14—Chambre Syndicale of Ghent.

SHOWS.

WEDNESDAY, MAY 16 { Royal Botanic Society,
Bath Floral Fête.
THURSDAY, MAY 17 { Royal Horticultural Society: in the
Inner Temple Gardens, London
(two days).
FRIDAY, MAY 18 { Royal Botanical Society of Man-
chester National Show (till the
25th).

SALES.

MONDAY, MAY 14 { Imported Orchids from Mr. F.
Sander, at Stevens' Rooms.
TUESDAY, MAY 15 { First Portion of the collection of
Orchids formed by J. Southgate,
Esq., Streatham, at Protheroe &
Morris' Rooms (two days).
WEDNESDAY, MAY 16 { Bedding and Greenhouse Plants, at
The Nurseries, Richmond, Surrey,
by Protheroe & Morris.
THURSDAY, MAY 17 { Orchids in flower and bud, at
Stevens' Rooms.
Bedding and Greenhouse Plants,
at Child's Hill Farm Nursery,
Finchley Road, N.W., by Pro-
theroe & Morris.
FRIDAY, MAY 18 { Imported Orchids, at Protheroe &
Morris' Rooms.

ALTHOUGH some fifteen years have now elapsed since the *Agricultural Gazette* ceased to form an integral portion of the *Gardeners' Chronicle*, there must still be many of our readers who remember its genial, straightforward agricultural Editor. Mr. MORTON was associated with this journal from 1844 till 1873, and during much of that time frequent personal association—continued more or less up to the date of his death—had led us to respect him most highly for his talents and unflinching energy, and still more, to admire and revere him for his personal qualities.

His services to agriculture will long be held in remembrance, for a more thoroughly competent adviser, or one more transparently just, honest, and straightforward, never wielded pen. The possessor of knowledge of the art and science of agriculture, wider and more extensive probably than that of any of his contemporaries, he was eminently endowed with broad comprehensive views, a readiness to accept and develop new ideas, but tempered with sterling common sense. Add to this his kind-heartedness and genial frankness, and some notion of the extent of his loss may be formed even by those who had not the happiness of his personal acquaintance. Mr. MORTON was associated with the *Agricultural Gazette* from its foundation up till the present time; but such were his energies and his power of work, that he found leisure to undertake other literary work, such as the *Cyclopædia of Agriculture*, and numerous papers and memoirs in the *Journals of the Royal Agricultural Society*, the *Society of Arts*, &c., crammed with well sifted facts and careful deductions; while the Handbooks on agricultural subjects published under his editorship form a most valuable series of works, in which the teachings of modern science are brought to bear on the practical work

of the farm. Mr. MORTON also served on the Rivers Pollution Commission with Dr. FRANKLAND and Sir W. DENISON, and at the time of his death he was one of the Inspectors of the Land Commission.

Mr. MORTON, who was born in 1821, was the son of the agent to the Earls of DUCIE in Gloucestershire, and was a nephew, on the mother's side, of Dr. CHALMERS. He pursued his studies in Edinburgh, attaining distinction not only in agricultural but in mathematical subjects. On leaving the University he undertook the direction of a model farm, and from that day literally to the day of his death he was always in harness, always at work—never allowing himself to be depressed by the low estate into which agriculture has fallen, but always hopeful and confident himself, and endeavouring to inculcate cheerfulness in others.

Mr. MORTON died suddenly, at his residence at Harrow, on Thursday, May 3, after a characteristically hard day's work at the editorial desk, supplemented by a business journey into Essex. It is probable that he would have preferred such a termination to his long and useful career rather than to have awaited the inevitable lot, while no longer capable of taking part in the active duties of life. But the shock to his widow and family is such as to secure for them the most respectful sympathy. As time goes on, the knowledge of the profound esteem in which JOHN CHALMERS MORTON was held will serve to temper in some degree their abiding sense of his loss.

A number of agriculturists—including Sir JAMES CAIRD, K.C.B., Mr. ERNEST CLARKE, Secretary to the Royal Agricultural Society, and Mr. TRESHAM GILBEY—were present at the funeral, which took place at the parish church of Harrow on Wednesday afternoon. The chief mourner was Mr. E. J. C. MORTON, the son of the deceased gentleman. A number of wreaths were sent by agriculturists, including some from those employed on the *Agricultural Gazette*, Mr. MARTIN J. SUTTON, Mr. FAUNCE DE LAUNE, Mr. WALTER GILBEY, Mr. WALTER DARRIN, and Mr. JOHN THORNTON.

For the opportunity of reproducing the excellent portrait on p. 585, we are indebted to the courtesy of the proprietors of the *Agricultural Gazette*.

DISA RACEMOSA.—This beautiful South African terrestrial Orchid, which had been known to science for many years, flowered for the first time in cultivation with Mr. JAMES O'BRIEN, of Harrow-on-the-Hill, in October and November, 1887, its description, with a lengthy cultural note from its successful cultivator, appearing in the *Gardeners' Chronicle* of December 31, 1887. We are also indebted to Mr. O'BRIEN for the means of giving our present illustration (fig. 81). From the cultural note accompanying the description at p. 811 referred to, it appears that *Disa racemosa* is of the simplest culture, those which flowered having been grown in a shady place outdoors all summer and early autumn, and were afterwards removed to a shelf in a cold-house, where their handsome rosy-crimson and purple flowers were produced from four to nine on a spike, abundance of rain-water being given the plants always. It belongs to the free-growing section of *Disa*, of which that general favourite, *D. uniflora*, Berg. (grandiflora), may be taken as the type, and, with which *D. racemosa* is in every way worthy to be associated.

THE GARDENERS' ORPHAN FUND.—A novel and original idea has occurred in connection with this Institution, and one which, if carried out, as it doubtless will be, with the zeal and business-like skill with which the affairs of this new Institution have hitherto been conducted, will doubt-

less prove a great success. The proposal is to hold an evening *fête* in the wholesale flower market in Wellington Street, adjoining this office. There will be no exhibits in the ordinary sense of the term, and no prizes, but the holders of the stalls will form an exhibition of their own produce, just as they do on ordinary market nights, with the exception, that when the flowers have been arranged as they usually are for the purposes of sale, the ordinary business will be suspended or postponed for an hour or two, the place swept and garnished, and the public invited to come and see, and contribute to the coffers of the Orphan Fund. His Grace the Duke of BEDFORD has most willingly consented to the scheme, and it is confidently expected that the growers and salesmen will lend cordial co-operation. The particular evening, as well as other details of the scheme, have yet to be settled, but every one who sympathises with the object in view, and every one who can appreciate the skill and enterprise of the market growers, and the excellence and beauty of the results they obtain, as well as the originality of the proposal, will assuredly view it with favour.

THE TEMPLE SHOW.—The floral exhibition, to be held by the Royal Horticultural Society on Thursday and Friday next in the gardens of the Inner Temple under the auspices of the Lord Mayor and the Treasurer and Masters of the Inner Temple, promises to be one of great magnitude and interest. Tickets may be obtained at the office of the Royal Horticultural Society, 111, Victoria Street, S.W.

THE COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY.—We learn that Mr. DOUGLAS has been appointed to succeed Mr. WOODBRIDGE on the Council of the Society. It is much to be desired that several more representative gardeners should be placed on the Council.

GLASGOW INTERNATIONAL EXHIBITION.—We hear that Messrs. J. & R. THYNE, of Glasgow, received the thanks of the committee for the excellent manner in which the floral decorations were carried out on the occasion of the opening ceremonial. The bouquet presented to the Princess of WALES by Lady KING was prepared by Messrs. HANLEY & SONS, of Covent Garden, Glasgow, and Dundee. The flowers were white Orchids, Lily of the Valley, and Stephanotis, which were relieved by fronds of *Adiantum*.

MR. D. T. FISH.—We are very glad to hear that the new Council of the Royal Horticultural Society has taken the first opportunity to repair the scandalous injustice which was inflicted—it is not worth while to say how—by their predecessors on Mr. D. T. FISH. Mr. FISH, perceiving that the insult was the result of a blunder, and not intentional, has agreed to let bygones be bygones, and we shall hope to see him one of the most active of local secretaries.

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

Dendrobium clavatum, Wallich, t. 6993.—The pseudobulbs of this species are erect elongate, with oblong-lanceolate leaves and racemes of orange-yellow flowers, nearly 3 inches across; sepals oblong acute; petals broadly ovate, lip convolute, dentate at the edges, pale yellow, with a crimson throat, and prolonged at the base into a conical spur. It is a native of Kamaon and Assam.

Alpinia officinarum, Hance, t. 6995.—Root-stock creeping, thick, sending up lanceolate leaves and a central spike of white flowers with a white lip, striped with crimson. This is the lesser Galangale, formerly in repute as an aromatic stimulant.

Douglasia levigata, A. Gray, t. 6996.—See *Gardeners' Chronicle*, April 28, p. 525; and May 5, p. 564.

Passiflora violacea, Vellozo, t. 6997.—A very beautiful Passion-flower, native of South Brazil, with three-lobed leaves, the lobes oblong-lanceolate, spreading; the peduncles are very long, the sepals tapering into very long leafy horns; rays of the



FIG. 81.—*DISA RACEMOSA*: FLOWERS ROSY-CRIMSON. (SEE P. 592.)

corona white, in the centre, lilac at both ends; petals lilac.

LINNEAN SOCIETY: CENTENARY CELEBRATION.—The hundredth anniversary of this flourishing Society occurs this year, when it is proposed to celebrate the event in the following manner:—On Thursday, May 24, at 2.30 P.M., the President will receive the visitors. At 3 P.M., the President will take the chair. After introductory remarks by the President, and the conclusion of the formal business of the anniversary meeting, the Treasurer will lay before the meeting an account of the financial condition of the Society during the last century. The Secretaries will give a history of the Linnean books, herbarium, and other collections. The President will deliver the annual address. The following Eulogia will be pronounced:—"On LINNÆUS," by Professor THOMAS FRIES, the present occupant of the Chair of Botany at Upsala, formerly held by LINNÆUS. "On ROBERT BROWN," by Sir JOSEPH HOOKER, K.C.S.I., F.R.S. "On CHARLES DARWIN," by Professor FLOWEN, C.B., F.R.S. "On GEORGE BENTHAM," by W. T. THISELTON DYER, C.M.G., F.R.S. A Gold Medal, to be awarded annually to a distinguished naturalist, has also been instituted, and on this occasion two such medals will be presented, one to Sir JOSEPH HOOKER, K.C.S.I. (botanist), and another to Sir RICHARD OWEN, K.C.B. (zoologist). In subsequent years the presentation will be to a botanist and zoologist alternately. At 6.30 P.M. the annual dinner will be held at the Hotel Metropole, the President, in the chair. On Friday, May 25, at 8 P.M., the President and officers will hold a reception of the members and visitors in the rooms of the Society at Burlington House, Piccadilly, when the Linnean collections and relics will be exhibited.

VEITCH MEMORIAL PRIZE.—At the Bath Chrysanthemum show, November 7 and 8, the above prize will be awarded for eight plants, not blooms, as was previously stated.

THE LATE MR. J. DAY'S ORCHIDS.—This fine Orchid collection was disposed of by auction at Mr. STEVENS' rooms in Covent Garden on Wednesday and Thursday last. The following are some of the high prices realised on the former day. *Cypripediums* were most sought after, and for a plant of *C. Stonei platytanum* with two leads the sum of £159 12s. was paid—the highest price of the day; one plant of *C. Morganie* realised £35 4s.; and for the new hybrid, *C. Charles Canham*, £34 13s. was bid; *C. orphanum*, £29; *C. Arthurianum*, with four growths, £21; and the same figure was reached for *C. macropterum*; *C. Sallieri* was sold for £14, and for the same number of *guineas* *C. Curtisii* with six leaves; *C. Curtisii* and *C. Harrisianum superbum* together brought £20, and *C. Schroderae ananthum* 11 guineas. *Cattleyas* also realised well; a plant of *C. Wagneri*, with twenty-eight bulbs, fetched £15 4s. 6d.; 11 guineas was paid for *C. Reineckiana* (thirteen bulbs), and for *C. exoniensis* (seven bulbs), *C. Skinneri* going for 10 guineas; and the same price was paid for *Vanda Lowi* with thirteen leaves.

ILLUSTRATIONES FLORÆ INSULARUM MARIS PACIFICI.—The fourth part of M. DRAKE DEL CASTILLO's series of plates representing certain plants of the Pacific islands, is chiefly confined to certain shrubby Composites, which are of purely botanical interest.

SHOW FIXTURE.—A Rose and fruit show will be held in Dursley on July 4 next.

THE LATE MR. JOHN WOODBRIDGE.—To the record of the good work done by the late Mr. WOODBRIDGE may be added the fact that he was a most active member of the second Hailstorm Fund Committee—a fund raised to assist many small nurserymen and florists, who lost heavily by the hailstorm which played such havoc in the Richmond district a few years ago: and he rendered valuable assistance in visiting the nurseries and gardens, and estimating the amount of damage done.

NURSERY NOTES.

MR. W. BULL'S ORCHID SHOW.

It would appear as if the show of Orchids at this nursery was to become one of the prominent sights of the season, and we may say at the outset that there is no falling off in the beauty of the display as a whole, nor in the numbers and rarity of the plants. The bulk is, of course, composed of older favourites, themselves mostly rarities of worth in their day, and which are mostly well flowered and grown. The same house is set apart for the exhibition as in former seasons, and much artistic taste is apparent in the arrangement, and especially in bringing together at conspicuous points the finest Orchid gems in Mr. Bull's possession. Thus in one group we observed three forms of *Laelia purpurata*, *L. p. Victoria*, with petals of ivory whiteness, contrasted admirably with the deep purple lip; *L. p. erubescens*, in which the white was suffused with a faint rose colour; and *L. p. Wyattiana*, a still paler form, with an elongated lip. It is named in compliment to an enthusiastic orchidist—Mr. Wyatt, of Cheltenham.

In another little space were gathered several of those beautifully eyed species of *Dendrobium*, viz., *Paxtoni*, *suavissimum*, and *ochreatum* (Cambridgeanum), which latter produces its flowers of orange and crimson on the young growth; it is a plant to test the cultural skill of the gardener, and is seldom found in first-rate condition. Scattered through the house the following species of *Dendrobium* were found:—*D. Griffithsianum*, resembling in general aspect the better known *D. densiflorum*, but whose drooping racemes of flowers are of a purer yellow colour, and larger than those of that species; *D. fimbriatum*, pure yellow, and the lip of a darker shade, with fringe on its lower margin; *Farmeri*, the handsome bearded *Brymerianum*, in nicely flowered examples; *Dodsoni*, one bloom only on the plant—a rarely flowered species; *grandiflorum*, white and yellow flowers in racemes; a particularly fine *nobilium*, with half-a-dozen blooms, and with an almost prohibitive value attached to it; *albo-sanguineum*, a widely expanded flower, of pale fawn, and throat of a crimson colour; *densiflorum* *Wardianum*, and *clavatum*. Although *Dendrobies* are taken first, they do not give quite so much character to the present aspect of the house as do the *Mendellii* section of *Cattleyas*, and some few other species of *Cattleyas*. Of the former may be noted *C. M. grandis*, of suffused pink on white, lip fine purple, and with a faint yellow stain in the throat; *C. M. magnifica*, *C. M. tineta*, of a rich rose colour, lip light purple, and the opening to the throat of a pure white—a fine thing; *C. Marstonianae*, petals and sepals of amethyst, pure white side lobes to the lip, and the middle lobe of an intense purple—a seedling from *C. labiata*; *C. Schilleriana*, of rosy-brown, and the lip edged with pink; the new Roraima species, *C. Lawrenceana*, of which several plants were observed; *C. Skinneri*, a late flowering form of *C. Trianae*, named *magnifica*, with sepals and petals white, suffused with rose, and lip a rich crimson; the pale *C. Schröderi*, palest pink coloured, and very fragrant; also the white form of this species; many *C. citrina* hung from the roof.

Next to the *Cattleyas*, *Odontoglossum crispum* in many superb forms were perhaps the most numerous species; plants of *O. citrosum* and *O. citrosum roseum* and *album* were suspended from every point of vantage, and added considerably to the felicity of the arrangement. *O. Pescatorei*, *O. triumphans*, and *O. polyanthum* were in considerable numbers. *O. Cervantesi*, *O. Rossi majus* were arranged in little groups, nestling amongst the larger species; also observed was the newer *O. phymatophilum*, a long spike, with numerous flowers.

In *Epidendrums* there were observed *E. Hantburyanum*, a fine spike of small green and brown; *E. leucophilum*, *E. Stamfordianum* *Wallacei*, and *E. Wallisi*. A few *Saccolabiums* were distributed here and there, as *S. retusum*, *S. præmorsum*, one fine large spike of this now seldom seen species. Of *Cyn-*

bidiums were *C. Lowianum*, *C. L. atropurpureum*, which lasts three months in bloom; and *C. L. lutescens*. The latter has much the larger flowers of any of the *Lowianum* section, and all of these plants carried numerous long spikes of flowers.

Adding still more to the brilliant mass of colour were plants of *Masdevallia regalis*, *M. acanthifolia*, and *M. Crossi* with several flowers on one stem; *Epidendrum prismatocarpum*, *Laelia cinnabarina*, and *Anguloa Ruckeri sanguinea*.

In white flowers we noticed a plant of the summer blooming species of *Angraecum sesquipedale*, with three blooms; *Calanthe veratrifolia*, *Lycaste Skinneri alba*, with five flowers; besides several pieces of the Trentham variety of *Cœlogyne cristata* and *Miltonia Roezlii*. *Miltonia vexillaria* was represented in many shades of rose, numbers of new varieties and species of *Cypripedium*, and many other Orchids which want of space forbids our mentioning, were to be observed in the collection.

THE BULB GARDEN.

NOTES ON SOME VARIETIES OF NARCISSUS.

NARCISSUS INCOMPARABILIS LEEDSII.—This should be grown extensively in every garden by all lovers of the *Narcissus*. The perianth segments are rich yellow, and the cup is stained a fiery orange colour, and which keeps bright for many days; the perfume, too, is most refreshing. Pick the flower just as the points are separating and let it open gradually in the house.

N. BARRI CONSPICUUS.

I wish that, with each returning spring, flowers of this beautiful variety could be on the table in every English home. I am not sure that any other kind has so many good points—hardiness, free growth, and free flowering, fine form, cheerful colour, with a bright orange edge like a halo of sunshine to the large cup, and, to crown all, delightful perfume. I first bought this in 1879, before it was *Barri conspicuus*, and again a year later under its present name, but I do not grumble at this, as I have none too many even now.

N. M. J. BERKELEY.

If this were plentiful I am sure it would be a very great favourite. The flower is the largest I have ever seen; the colour is clear bright yellow, and it is almost a self, the difference between the shades of the perianth and the trumpet being scarcely perceptible. The trumpet is a good length, and the way in which it is recurved or rolled back at the mouth attracts the eye at once, and the laceration or jagging of the edge is remarkable. A flower that I measured was $4\frac{1}{2}$ inches across the perianth, and $2\frac{1}{2}$ inches across the trumpet. It appears to have a good constitution, and to grow freely. This and *N. maximus* were planted side by side in 1885; *maximus* has made no progress, and is giving but a single bloom, whilst this has grown into a nice little clump with four fine flowers.

N. MINIMUS.

A real little gem, of which considerable quantities were imported last autumn; consequently, the price is now reasonable, and it ought, therefore, to be largely grown. There has been great difficulty in obtaining the true variety, *N. nanus* being usually substituted for it; but in 1884 I was so fortunate as to get a bulb of the true kind from Backhouse. This was planted on the rockery, and it is now a nice little clump, and has given me six of its lovely flowers this spring. In 1886 I had some imported bulbs from Ware, which appear to be true, although the foliage is very long and narrow—quite different from that of Backhouse's bulb. In the importation of last autumn there is a good deal of variety in the character and colour of the flowers, as also in the foliage and height of the plant. Some of the flowers are scarcely 2 inches from the ground,

whilst others are nearly 6 inches high. This variation will give additional interest to this beautiful little flower.

N. NELSONI.

What a peculiar beauty there is about this flower; its form and colour are so chaste and unlike any other kind. The perianth segments are stout, of the purest white, and are most elegantly curved, whilst the yellow straight trumpet has a wonderful finish about it. In one way this flower always causes disappointment, as it gives one the impression of being scented, and usually it is at once carried to the nose, only to find that it lacks one point of being perfect. It is a grand grower. I have it under trees and in the open: in poor, rich, light, and heavy soils, and everywhere it thrives and gives its lovely blossoms. N. Nelsoni aurantius is not nearly so perfect a flower as the typical plant, neither is it such a free grower; but the trumpet has usually a good deal of orange stain on it, which gives it great brightness for several days, and makes it very attractive. *Jay Aye.*

THE APIARY.

It appears from a contemporary that modern bee-keeping has penetrated to the Holy Land. Most

see them filling glass supers, and may be witnessed with perfect safety. It is only necessary to keep the glass warm with a piece of flannel. There are some who find it difficult to dispose of bell-glasses; but if resident near a town they need not be kept long, as persons are sure to be found ready and able to buy these beautiful things.

We regret to hear that the British Honey Company is about to wind-up, as they are unable to meet their liabilities. The shareholders are the greatest losers by this, and not the general bee-keeper. Each bee-keeper will be obliged to find his own market. We do not consider this to be an evil. If a company were established to sell Carrots, for instance, small growers of Carrots would get very little for their produce. It is always the notorious middleman who gets what profit is to be had. However, the promoters of the Honey Company worked for the general good, and we are sorry to find they have been unsuccessful. *Bee.*

USEFUL INVENTIONS.

RICHARDSON'S PATENT UNIVERSAL JOINTS (FIG. 82).

HOT-WATER engineering is so closely connected with gardening that it may rightly be termed a

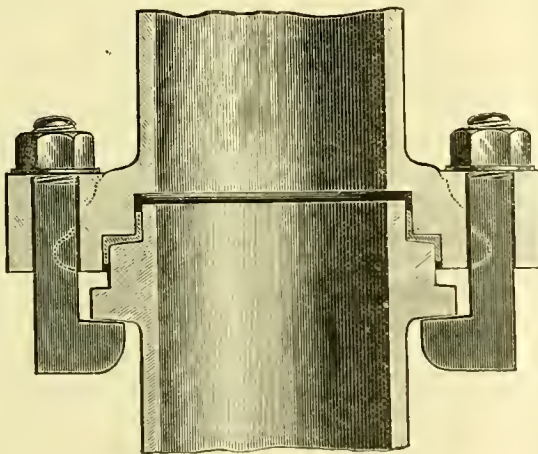


FIG. 82.—RICHARDSON'S PATENT UNIVERSAL INDIA-RUBBER EXPANSION JOINT.

good and devout people think that the time is soon coming when the Jews are going to return to their own land; and in anticipation of this, some of our own countrymen are setting up industries there. Many of the most interesting places mentioned in the Bible have apiaries already established, and now we hear there is a large one to be established on Mount Carmel. Mr. Howard, of Peterborough, is to make and send fifty hives there. It would, however, be a good thing for every one concerned if our race of bees got established there, as the Palestine bees are great stingers. We hope to report further about this apiary at a future time. The flora of the Holy Land is eminently adapted for bee-keepers, and many a modern Jacob will in the future be able to send his son "a little honey."

In the same paper we hear a good word also spoken for our old friends, bell-glass supers. Since sections have been introduced, glass supers have more or less gone into the shade; but surely there is nothing more beautiful than a bell-glass full of pure honeycomb. They seem to be appreciated by strong colonies of bees, and readily filled. Some people say bees do not readily take to them, but if a hive is boiling over with bees, as it is when honey is abundant, they will take to anything, and store honey in anything. It is also a beautiful sight to

branch of the profession, and a knowledge of the latest improvements is of service to many, especially where it is desired to carry out alterations on the best principles. J. H. Goodacre, The Gardens, Elvaston Castle, Derby, in a communication, says:—"It is generally admitted that the india-rubber expansion joints, providing the joint is formed on the pipe or connection, and not by loose rings, are safer than the old socket joints caulked with yarn and cement, these latter often bursting in the most awkward positions, and leaking during severe winter weather. In Richardson's universal joint the work of connection may be carried out in any position or angle with the same freedom as the ordinary socket pipes, and it may be fixed to any existing apparatus without additional special castings, as all the fittings are ready made with a plain seating for the rubber at one end, and a clip flange and hooked bolt lugs on the other, and withal so simple in construction that any ordinary workman can fix them. The joint is very durable, and will withstand an internal pressure of 125 lb. to the square inch. We have a range 350 feet long, heated with pipes connected on this system, which has proved most satisfactory, never having had a single leakage or trouble of any kind, and I shall have pleasure in showing it to any one at any time."

HOME CORRESPONDENCE.

IRIS STYLOSA ALBA.—"Honour to whom honour is due." This plant, for which Mr. Ware obtained a First-class Certificate at a recent meeting of the Royal Horticultural Society on April 10, was discovered some years ago by the Rev. Edwyn Arkwright in the neighbourhood of Algiers, and transplanted into his garden there; it was a unique specimen, and as the news of the discovery spread, Mr. Arkwright received many applications for pieces of it. He gave it to several people, myself among the number, and it has lately blossomed here in the open ground. It is a lovely and distinct variety, and the pure white flowers with their spots of yellow stand up well above the mass of leaves instead of being buried amongst them, as in *Iris stylosa*. *C. Sullivan, Broom House, Fulham.*

EUCALYPTUS URNIGERA.—I was much interested in the notice of the Whittinghame Gum in your paper of April 14, to which my attention has only to-day been directed. I was also much pleased to see the engraving. It must be a beautiful tree. Why are its measurements not given? You were right in supposing that it was to it that I alluded in my paper to the Edinburgh Botanical Society, which appeared in the *Transactions*, and also in the *Gardeners' Chronicle* (1886, November 27, and December 4). In it I mentioned that "it was planted (sown?) at Whittinghame in 1845, was cut to the ground by frost in 1860, but sprang again from the root, and is now more than 60 feet in height." You do not, however, mention the most interesting fact in connection with this tree—that it not only blooms but matures seed, and that Mr. Lindsay, of the Edinburgh Botanical Gardens, in 1886 succeeded in raising plants from the seed. This was enough to make the Whittinghame Gum famous, as from it we are possessed of Scotch Gum trees. It is, however, further notable by having borne four distinct names. In early life it was known as the Whittinghame Weeping Gum (*Eucalyptus viminalis*), having been declared to be such by a high authority in the botanical world. In deference to another high botanical authority this name was changed to the Whittinghame Cider Gum (*Eucalyptus Gunnii*). Under this name the plants raised from seed by Mr. Lindsay were sent out. I saw these when seedlings, and at once said—"The name is a misnomer." The seedlings are now so far grown that their characteristics are somewhat fully developed, and I write to say that the name of the Whittinghame Gum must a third time be changed, and that it must appear under a fourth name. It is neither *Eucalyptus viminalis* nor *E. Gunnii*, nor is it *E. urnigera*; but it is *Eucalyptus cordata*, of which *E. urnigera* is a variety. Both *E. cordata* and *E. cordata* var. *urnigera* grow in Arran. *D. Landsborough.* [*E. urnigera* is now considered distinct from *E. cordata*. *Ed.*]

MASSING OF ROSES.—I am exceedingly sorry that "Rosa" should feel aggrieved at any remarks of mine, and can only assure him that the question about Madame Favart was asked simply for information. A name so celebrated seems a natural enough one for a Rose, and I cannot but think that the names Madame Lambard and Madame Favart (if it was Madame Favart; it seems to me as it had been another name) [Yes, Madame Favart was a printer's error], sufficiently different to excuse anyone's instinctively interpreting the one to be the other. There are myriads of Roses in existence whose names are no longer generally familiar, and it is only necessary to look into a Continental Rose grower's catalogue to find dozens of varieties which have never been in cultivation to any extent, if at all, in this country; so that there was nothing improbable in the supposition that "Rosa" had found useful some variety which other growers had overlooked. However, my sympathy is so entirely with "Rosa's" object, that if I was thereby betrayed into any unnecessary abruptness of expression, I can only offer (if you think it worth the space) to compile a list for "Rosa" to pull to pieces, and hope that if the printer succeeds in "fixing" any new sport, that "Rosa" will not hesitate to inquire how, when, and whence it was raised. *Theta.*

GOLDEN HODGENS' HOLLY.—I am sorry to see reproduced the statement about the Golden Hodgens' Holly, which I did what I could to correct many years ago when I found it out, that it never originated at Bangholm Nursery, but at Mr. Hodgens' nursery at Clough Jordan in Co. Tipperary,

whence grafts were taken, and Messrs. Lawson sent it out, first as *Ilex Lawsoni*, but ultimately dropped this name. All these facts I had from Mr. Hodgkins himself. *W. E. Gumbleton.*

IVY ON TREES.—"Who shall decide when doctors disagree?" In one of your numbers last autumn a correspondent told us that in removing Ivy from trees one ought first to kill it, and not be in too great a hurry to take it from the tree. Now, in your last number we are told that the worst thing to do is to leave the dead Ivy on a tree, as it will infallibly ["in all probability"] kill the tree if it is so left. Probably the truth lies somewhere between the two statements. One can understand that a tree which has for a long time been encircled by Ivy may become tender, and that it may not be well to remove the Ivy all at once. But when the Ivy is dead, and its hold on the tree relaxed, then it is probably best for the tree to remove it. I have several trees here that have been killed, and are being killed by live Ivy, but I have yet to see that those on which the Ivy has been cut will be killed by it. I should be glad if some one who knows would throw some more light on the subject, as I have many trees here which are more or less overgrown with Ivy, and I am anxious to know the right way of dealing with them. *R. E. J.*

—We have upon the lawn here some very old Scotch Firs clothed with Ivy to the topmost branch. It is the wish of my employer to rid the trees of this burden, but I fear that, after being covered for so many years, the trees would feel the loss too much, and the losing of the trees would be irreparable. Will some of your correspondents say if we may venture with safety to sever the Ivy at the base, also if it is detrimental to the growth of timber? *Head Gardener.*

DESTRUCTION TO SPRUCE FIR BRANCHES.—It may be interesting to know that the same sort of injury to the young shoots of Spruce Fir trees has been going on here for the last two or three months as represented by two correspondents in last Saturday's issue of the *Gardeners' Chronicle*. My attention was first attracted to the mischief done while walking along a public road overhung at the sides by the branches of several large Spruce Firs. The part which they overlapped was literally strewn with fresh young shoots of last year's growth. On picking up some of them for examination to find a cause, I could soon discover that it was the work of crossbills, which are numerous in the woodlands here, more especially this season, which possibly may be owing to the severity of the winter on the Continent. The buds surrounding the base of last season's growth of the denuded spray, as well as others nearer the extremities, were mostly all extracted, thus showing that it could not be the work of any other creature than birds, and although I have not actually seen them at work on the Spruce Fir, I have frequently watched their operations in extracting the seeds out of Larch cones, and the very interesting manner in which they twist and wriggle round the pendent spray to get the seed out, and the not unfrequent disappointment they receive by the dropping of the cones before many of the seeds are extracted. The enclosed samples of spray and cones will show the effects of their work, and the force required to twist the cones off, with a footstalk of wood attached to each. As will be seen by the freshness of detachment in some of the specimens, these birds are still here; and I imagine there are some of them remain here constant, as some years ago several nests were found near the top of smooth-stemmed Scotch Fir trees on this estate, from 30 to 40 feet in height. I may mention that we have very few squirrels in the woods here at present, a man being constantly employed to shoot them, and both he and the keepers are remunerated for every squirrel's tail they bring in, so that there are now very few to be seen. *J. Webster, Gordon Castle Gardens.*

AMMANFORD GARDEN.—I have just now found myself at the house of an old friend, though miles away from the spot where I saw her last. The proprietor's heart was nearly broken by the asperity of the climate with which she had to do battle at Ashmore Rectory. Plants and bulbs quite refused to be happy there, and as her husband's health was very much on a par with that of her plants—certainly no better—they thought they had the best of all reasons for striking tent, and for seeking a habitation elsewhere. Just about the same time her son was intent upon agriculture; but agriculture did not look so very

kindly upon him, and the upshot of it all was, that after some deliberation, horticulture was what found most favour in their eyes, and to horticulture Mrs. Davidson and her children have entirely given themselves up. It is not often that business and pleasure go so completely hand-in-hand, and while the main consideration is certainly thought of here, the whole family is so devoted to the cultivation of flowers, that a cursory inspection of the place might almost lead one to suppose that pleasure rather than business is what is mainly desired. It is, however, because the business is pleasure and pleasure is business, that the whole thing is so well done at Ammanford. Mr. and Mrs. Davidson have taken a property on lease for twenty-one years, and they hope soon to get it by purchase completely into their hands. The house stands in the midst of gardens and fields of about 22 acres in all in extent, and already large glasshouses and numerous beds of flowers show what progress has been made. Indeed, it is wonderful that in two years so much should have been done. Of course, some mistakes were made at the outset, and here, as elsewhere, experience has to be bought at a price; but if anything may be prognosticated with certainty about gardening affairs, it is that the worst of the difficulty is over, and that this new and very enterprising firm is on the way to success. I use the word firm merely because I am writing of a *bona fide* business affair, and that seems to be the most suitable word to employ. It really is a very happy family, which is very happily engaged. Large glasshouses, some of them 100 feet long by 20 feet broad, meet the eye at once as you drive up to the place; others are of lesser dimensions, but there is no mistaking the nursery look of the whole affair, and that much work is being done here. One house is nearly full of Tea Roses, which climb up all over the rafters, and myriads of buds must have been cut in it during the dark days of winter. They have now quite passed their best, but still it is a very pretty scene. In another house *Lilium candidum* reigns supreme, and large pots are full of this queen of all Lilies in full bloom, whose elegance is not to be surpassed. But *miscuit utile dulci* is by no means forgotten here, and hard by, in a large erection which suits them, Tomatoes are being taught how they are to grow into money; and so also it is with many other things which are conducive to the main chance; and most of them seem to be doing well. There is an energetic, painstaking foreman hard at work, who takes the greatest interest in the rise and success of this new South Wales nursery. Apart, however, from all other considerations whatsoever, there is much in this place to interest any lover of flowers. Mrs. Davidson would not be herself if she were not growing under glass, and away from glass, in large prepared borders, and in retired nooks and corners, many of her favourites of former days. In her greenhouses, *Eschynanthus grandiflorus*, *Streptosolen Jamesoni*, and *Schubertia grandiflora*, especially attracted my notice; and *Hymenocallis macrostaphana* and *Stephanotis floribunda* were thoroughly at home, *Narcissi* may be counted by the thousand in the open ground, and a rich feast was provided by them to the eye; and as much may be said of many other things. But those who care for flowers should come and see for themselves. It is business which is avowedly carried on here, but I should have taken it for pleasure if I had been left only to myself. *H. E.*

M. BRASSEUR'S NEW BOILER.—My attention has been called to a description in the *Gardeners' Chronicle* of a patent for heating hot water by M. Brasseur. There are so many good boilers by various makers in England that I think it hardly possible now to produce better. The boiler in question may be very good, but the information that is given requires to be extended before any opinion can be formed about it. For instance, the length, width, and height of the houses where it has been tried; also the size of the pipes; also whether the houses are half sunk in the ground, well sheltered or otherwise; the amount of heat kept up, &c. The true test of a boiler is the number of pounds of water it will evaporate in a given number of hours with a weighed quantity of coal. *Robert Warner.*

SMUT (USTILAGO SEGETUM) IN OATS AND BARLEY.—The communication on this subject which appeared in the *Gardeners' Chronicle* of last week was from my friend Mr. J. L. Jensen, of Copenhagen. Owing to inadvertence his name does not appear anywhere in it, and it is attributed to me. I much regret this, and hasten to make the present correction. I have since received a much longer and more detailed

communication on the same subject from Mr. Jensen, in which he gives me particulars of his experiments and investigations on the experimental farm of the Royal Agricultural School, Copenhagen. *Charles B. Plowright, 7, King Street, King's Lynn.*

EREMURUS HIMALAICUS.—In reference to your answers to correspondents *re Eremurus himalaicus*, I can quite bear out my friend, John J. Smyth's (the introducer of this fine plant into European gardens) assertion that your woodcut is not an accurate representation of the flower-spike, being too globular in form [The illustration represents a long cone.] The plant from which your woodcut was done was sent by me to our late lamented friend, the floral priest, Crewe, and does not vary in form. Mr. Crewe's plant now belongs to Mr. E. J. Loder, of Floore, Weedon. *W. E. Gumbleton.*

SINGLE DAFFODILS TURNING DOUBLE.—Without fear of contradiction I may say that no one in the kingdom has worked harder than I have to prove the truth of the prevalent popular belief, that the typical small single wild Daffodil will, under certain conditions of soil and cultivation, become transformed into the large double garden Daffodil (see p. 564). During the last fifteen years I have planted thousands of these single wild Daffodils in every available situation, and in every combination of soils, with every variety of manure, or without any. I have obtained them from very many sources, especially wild beds, from which it was asserted that they had, when transplanted, been converted to Daffodils with large double flowers. These converted bulbs have also been sent to me by several correspondents, but when planted in my garden, both the singles and the doubles persistently continue the same as when first planted. Sometimes if I plant them in poor soil, and in a sunless situation double Daffodils gradually become single; but these same bulbs, when put into sunny spots and rich soil, become double again, but in all cases *Telamonius* remains *Telamonius*, and the typical wild Daffodil retains its relative size and colour. Five years ago I found the belief I have mentioned so prevalent that I made an offer through the gardening journals to supply all believers in the change with a sufficient number of single wild Daffodils to make an experiment. I supplied them to about forty gardens in different parts of the kingdom, adding strict instructions as to isolation, and an exhortation to watch their progress every year; and to send me the first double flower produced by them. Out of thousands of bulbs I sent not one double flower has yet been returned to me. Many of those to whom I sent bulbs have corresponded with me. In some gardens my bulbs died out rapidly; in others they deteriorated, producing only one or two shabby single flowers; in others they are healthy, but continue single wild Daffodils. I have suggested that the transformed and doubled bulbs should be planted again amongst the single in the field from which they were supposed to have come; but, strange to say, when this is done, the doubles refuse to descend again to their former state, but continue amongst their single relations to produce large double flowers; and this seems the most remarkable part of the transformation. Though two years magnifies these little wild Daffodils into large double *Telamonius*, ten or twenty years will not change *Telamonius* under reversed conditions into single typical wild Daffodils; but the single and the double clumps remain side by side for a generation. I would not think of calling in question the good faith or the intelligence of any observers who record their experience about this, but the above facts are from my own observation. *C. Wolley Dod, Edge Hall, Malpas.*

THE CROWN IMPERIAL.—I was much surprised in reading in this paper some short time since a remark made by your very able correspondent, Mr. Wolley Dod, that his did not flower—I think he said—at all. I cannot imagine the reason of such being the case, unless his plants are cut off before they are ripe, which I believe is a great mistake. When they begin to decay they do look rather unsightly, but it would be better to have an unsightly object for a short time and have a good show of flower-heads in return, if that should be the cause of some plants not having any flowers; but still that may not be the reason for some not flowering. Now, mine are quite different to those of your correspondent. I have a row with, as near as I could count them, 150 heads of bloom, and from 3 to 4 feet high, and some of the heads 7 inches in diameter; another with about ninety-six, and one more with over sixty,

and some of the roots are quite on the top of the soil. They have not been transplanted for years, although they much need it now, as they stand too much crowded together, but generally after they are ripe I plant some other kind of things round about them, it may be annual flower seeds, or, sometimes, Radishes or Cabbage seed. There are three or four kinds of them, but yellow, and reds, grown together mixed, are I think this year much finer than I ever remember to have seen them. In the autumn I give them three or four buckets full of good strong manure-water out of the yard two or three times, and that gives them strength to stand up strong and firm against the wind, and produce a better head of flowers. I was very sorry to hear the gentleman was so unsuccessful with them, and hope he may be rewarded with better results than he has hitherto obtained with this noble flower. *J. S. C.*

WHINHAM'S INDUSTRY GOOSEBERRY.—This variety, which originated in Northumberland, is fast becoming a favourite, as will be seen from the following figures:—One firm in the North of England, sold in the years 1886, 1887, and 1888, a total of 183,000 bushes. This amount, we believe, is unprecedented in the trade. Large quantities have been shipped to many of the temperate parts of the world. The yearly increasing demand for this variety is ample proof of its sterling merits. It is an enormous cropper, and since its introduction there is no season in which the crops have been known to fail. The berry swells to a large size at an early date; hence it is ready for marketing quite three weeks' earlier than any other variety, and consequently it commands the highest market prices. When ripe the colour of the berry is dark dusky red, and no Gooseberry is better suited for jam making. The habit of the variety is good and vigorous, and the fact that it comes into leaf some time before it flowers, and is thus protected from spring frosts, should not be lost sight of. *X.*

RAILWAY RATES OF TRANSIT.—Home fruit and vegetable growers who have been building hopes for some enforced alteration in the incidence of railway rates of transit of articles of food in their favour because of the adoption recently by the House of Lords of an amendment in support of the home grower, moved by Lord Jersey, to the Railway and Canal Traffic Bill, may find their hopes to be baseless. An important deputation from the town of Southampton recently waited upon the President of the Board of Trade for the purpose of pointing out the exceeding injury which might result to that as well as to other outports were the bill to pass as thus amended. The deputation was able to show that there are to this question three sides at least, for whilst the home growers desire an increase in the railway rates for the carriage of foreign articles, the consumer has an important interest in the matter, as increased rates mean restriction of trade and higher prices, whilst the seaport interests are concerned, lest higher charges for railway transit of all articles of food, which are produced at home also, may lead to the diversion of the traffic from outports to London direct per steamer. So that whilst the home grower would gain nothing the present important shipping interests at the outports might be ruined. We are here shown somewhat more forcibly than is usually seen in discussions respecting the incidence of foreign trade, how wide and deep have our trade interests become under Free Trade, and to touch anything avowedly in the interests of the home grower is to do some one or other incalculable harm. The home grower, who none the less may feel that he has the gravest cause for complaint, sees his own interests only, and cares little, of course, for those of the consumer or of the carrying trade interests—so great that, as Lord Salisbury told the House the other day, it is impossible to deal with them in the matter of restriction without endangering the peace of the community. But the President of the Board of Trade was enabled to assure the Southampton deputation which waited upon him, that they, as well as everybody else apparently, had misunderstood the purport of the clause inserted in the bill by Lord Jersey, and that it would not affect seaborne goods. That is to say, that in the case of goods sent under similar conditions presumably from home stations no difference of rates may be made, but a difference may be made in the case of seaborne goods. This interpretation of the clause, whilst of comfort to the deputation, naturally gives little to the home grower, and shows how a coach and four may be driven through what is assumed to be

clear parliamentary drafting. Happily the bill has to pass the Grand Committee of Trade in the House of Commons, when the real interpretation of the clause, which seems to be of such mystifying character, will be fully given. It is extremely doubtful however, whether the clause, passed in the Lords by a very narrow majority and in opposition to the wishes of the Government, will not be removed in the Commons, where the measure will have to pass through a severe ordeal, and however it may prove unfair to home growers that railway charges should thus appear to favour foreign produce, it becomes evident that the apparent preference arises out of shipping competition, and if the railways will not carry at a low rate from outports, and thus ensure the traffic, the steamers will go to London direct, and thus greatly injure both the railways and the outports, whilst the home grower would really gain nothing, for to compensate for the loss of the foreign traffic, the railway companies would probably have to increase these charges for the transit of home produce to help recoup them for loss in the other direction. *Spade.*

WANTED A GARDENER.—I have been much interested in the articles that have appeared in the *Gardeners' Chronicle* under the above heading. It seems to me that the firms which advertise men in that way do so to the disadvantage of gardeners generally. Nurserymen by such advertisements lead employers to consider the market to be so overstocked that it is no wonder that wages are now so low. About the market being overstocked there can be no two opinions. Gardeners have themselves to thank for much of this state of things, the delight of some being in training as many young gardeners as they can find room for, instead of making more use of garden labourers. The Royal Horticultural Society would certainly do no harm in granting certificates to candidates who have successfully passed their examination, but heavy would be their work if there are so many young gardeners as your correspondent from Harroby would have us believe. There are, he also says, hundreds that would emigrate, and I think there is no reason to doubt his word. The successful candidates would consider they had a prior claim to any vacant situation, but I fail to see how they would justify their claim, and I am afraid employers would not consider their certificates of much importance, but would still prefer the man who would take a moderate wage. It is well known that some of the best men are not in the best places and that many of the most successful cultivators are filling very small places. An eloquent man, though an indifferent cultivator, seems to succeed the best, and I feel sure a Royal Horticultural Society's certificate would not impart eloquence to the candidate. Some gardeners seem to see brighter days in store, but I do not. Many years ago, when travelling was more difficult, the rich interested themselves in their establishments to a greater degree than now, for they spent the greater portion of their time at home. Now the case is quite reversed. It is an easy matter to run all over the world and enjoy all the interesting scenery, and in consequence very little interest is felt for the country home, and very little time spent there. I have been in gardening twenty years, in some of the best gardens in England, and have for five years held the position of head-gardener. I have (from no fault of my own) been out of a situation nearly twelve months, and cannot get so much as a day's employment from any nurserymen, not even from those with whom I have dealt when in place. I have, however, done my best to learn another business, and having secured premises, shall shortly start on my own account. I shall do my best to succeed, and I trust I shall be rewarded by seeing my business flourish, and, considering the present state of gardening, I would advise others, when out of place, to turn their attention to some other employment, and I sincerely wish them every success. *A Disgusted Gardener.*

DESTROYING WEEDS ON WALKS.—In response to "J. S." (p. 566), I beg to inform him I have used sulphuric acid very extensively on our walks and carriage drives, of which last-named there are about two miles. The quantity used was about one pint to a gallon of water, which was distributed with a watering-pot having a fine rose. The mixture is very effectual; so much so, that after a few seasons' use very few weeds grow where it has been applied. Great care is needed in its application, as it is very damaging to clothing and boots [and water-pots. *Ed.*] *J. M. Johnston, Hints Hall, Tamworth.*

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, MAY 8.—A large display of Daffodils by the nurserymen, and a few exhibits of a miscellaneous character, took place at the Drill Hall, James Street, on the above date, and the record of which is given under the heading of the several committees.

Scientific Committee.

Present: D. Morris, Esq., in the chair; and Messrs. Burbidge, Lynch, O'Brien, McLachlan, Pascoe, Michael, Smee, Ridley, G. Murray, Professor Scott, Professor Church, Dr. Hogg, and Dr. Masters. This meeting was held in the new library, at 111, Victoria Street.

Mr. Lynch, of the Cambridge Botanic Garden, showed the following specimens:—

Eichornia tricolor.—A tropical aquatic plant from Pernambuco, where it was gathered by Mr. Ridley. The flowers are in erect terminal panicles, each of a rich blue colour, with a small yellow spot on the lower perianth-segment. Mr. Lynch had grown it in a pot submerged to the rim. A discussion ensued as to the culture of these beautiful plants, Mr. Burbidge narrating his method of inducing Pothos crassipes to flower. This he does by not allowing the plant to float but by placing it in a pot on a shelf fully exposed to light, and thus checking its wandering tendencies.

Chrysanthemum hematomia.—Mr. Lynch also showed flowers of this plant little if at all better than our common ox-eyed Daisy, though in its native country, as shown in the following extract from Lowe's *Flora of Madeira*, it must be a fine thing:—"In the island of Madeira a bush of this species on its native black or grey and barren crags—one mass of lovely rose-pink flowers, and conspicuous from afar like a Camellia or Rose bush—is a truly splendid and surprising sight."

Haplocarpha Leichtlinii.—A pretty yellow-flowered Composite, with the backs of the ray-florets flushed with purplish-brown. It seems as if it would make a handsome bedding plant.

Pilocarpus pinnatifolius.—A Rutaceous plant, with dark green pinnate leaves, the segments broadly oblong. The plant is interesting as being the source of the drug Jaborandi, and of the substance known as pilocarpine.

Pentapterygium serpens.—A curious Vacciniaceous plant, from the Sikkim Himalaya, with angular tubular flowers of a bright red colour. The leaves are in two rows, small, ovate, and the stems which bear them spring from a very large woody tuberous growth. The plant grows upon the branches of trees.

Zinnia elegans.—A Mexican weed, shown to illustrate the vast advance that has been made in the culture of these plants, and the art of the florist.

Dipladenia boliviensis.—Young stems of this plant were shown, in order to show the herbaceous stipular outgrowths at the base of the leaf, and which are divided into narrow lobes in a palmate fashion. These, instead of falling off or drying up, become woody and may serve to aid the plant in climbing from tree to tree.

Dendrobium Quelchii.—Mr. Ridley exhibited a photograph of this North Australian Dendrobe, which is nearly allied to *D. ligibium*, but is not yet in cultivation.

Monstrous Lelia purpurata.—Mr. Smee exhibited flowers of this species variously malformed. One had three anthers (A 1, a 1, a 2).

Odontoglossum retusum.—Mr. Bonney, Swanley, Kent, showed a plant of this rare species, remarkable for its orange-scarlet flowers. A Botanical Certificate was awarded.

Erythronium grandiflorum.—Mr. Loder sent a fine spike of this flower, with no fewer than fourteen flowers, most of them fully expanded. This is the finest specimen of this plant yet exhibited.

Lily Disease.—From Mr. L. Castle came leaves of *Lilium candidum* in a rotting condition, probably from the effects of a fungus (*Peronospora*). Mr. Geo. Murray undertook to report on the specimen.

Fir Branches and Squirrels.—The Editor of the *Scientific News* sent shoots of the common Spruce Fir gnawed off by squirrels, which seem specially destructive this season. The object of the animal in inflicting this injury is not obvious.

Malformed Cucumber Blossoms.—Messrs. Carter sent specimens of Cucumber flowers in which the calyx was leafy, and also showing other deformities,

which were referred to Dr. Masters, for further examination and report.

Iris Sari var., &c.—Professor Foster sent the bloom of an *Iris* which had been received from Nazareth, and which is said to grow wild there. In coloration it somewhat resembles *I. iberica*, but in essential features—rhizome, foliage, form of flower, &c.—it is more nearly allied to *I. Sari*. Subject to the results of further study, Professor Foster "would be inclined to call it provisionally *I. Sari* var. *Nazarena*; but I do not wish to name it definitely at present. The other smaller *Iris*es, as *I. Suworowi* (Regel) and the one with beard on inner perianth segment, is what Regel described as *I. lineata* (Foster), but which is really only a variety of *I. Suworowi*."

Gentiana acaulis.—Mr. G. F. Wilson showed flowers of this species with a curious spongy outgrowth from the outer surface of the corolla, on which Dr. Scott promised to report at another meeting.

Fertilisation of Tigridia and Hippeastrum.—A paper was read on this subject from Dr. Bonavia, in which he described how bees search for the nectar under each edge of the inner petals of *Tigridia*; but as they do not touch the stamens and pistil they must have discovered the concealed glands through scent, and so ride the flower, just as ants do, without pollinating it. *Hippeastrum* is fertilised by pollen-seeking bees or bee-like insects in India. One kind of bee balances itself on the wing opposite the tuft of anthers, and then, suddenly making a sort of somersault among them, brushes off the pollen with the hairs of its body, when the stigma gets dusted all over with pollen. A second kind, after balancing itself, by a sudden movement brushes off the pollen with the hairs of its legs. Lastly, a third kind of bee settles on the anthers, scoops out and devours every grain of pollen. After alluding to the fact that some flies are also pollen-eaters, the author suggests that certain humming birds provided with feathers on their feet may possibly be the true fertilisers of *Hippeastrum* in its native country.

In the course of the discussion on this subject it was pointed out that humming-birds hover over the flowers and perforate them with their beaks, and hence that the tufts of feathers on the legs of some of the species are not likely to act as pollen-brushes. Mr. Morris related how in Jamaica the humming-birds, which at first had not attacked the flowers, suddenly began to split the tubes of the *Cinchona* flowers and thus ensured the fertilisation of the flower. Mr. Barbidge called attention to the fact, that in South America the Scarlet Runner does not set its fruit, but in this country it fruits freely owing to the bees, which bore through the base of the flower—a curious illustration of a foreign flower rendered fertile by the agency of British bees. The meeting then adjourned.

Floral Committee.

Present: G. F. Wilson, Esq., F.R.S., in the chair; and Messrs. H. Herbst, W. Bates, G. Duffield, T. Baines, G. Nicholson, C. T. Drury, R. Dean, C. Noble, E. Ballantyne, C. Pilcher, J. Dominy, H. M. Pollett, J. O'Brien, E. Hill, A. F. Lundy, B. Wynne, J. Fraser, W. Goldring, Dr. M. T. Masters, F.R.S., G. Paul, J. Walker, and Rev. W. Wilks.

A small collection of new varieties of *Amaryllis* was exhibited by Messrs. Kelway & Sons, Langport, the flowers being in all cases with either scarlet ground colour and white bars and stripes, or *vice versa*. A basketful of *Azalea indica*, in new varieties, together with a choice collection of seedling alpine *Auriculas* came from Mr. C. Turner, Slough. Of the former, *A. i. Vervaeana*, a semi-double white flower, each petal being suffused with rose and striped with carmine, was considered worthy of a certificate; *A. i. Theodore Reimers* is a fine large double-flowered purple, but not so good as some others we have. In *Auriculas*, Mrs. H. Turner, with primrose paste dark purple edge, running out to a shade of lilac at the margin, a large smooth, regular-formed flower. Harry Turner has sulphur-yellow paste, a maroon ring shading off at the edge to a lighter tint, equally good with the first-named. Probably *A. Loveliness*, a very bright flower, would have received a Certificate had the truss been composed of pips of regular size.

From Messrs. Paul & Son, The Old Nurseries, Cheshunt, came a new Fairy China Rose—Red Pet—similar in colour to Fellenberg Noisette, but of dwarf, slender habit of growth; the new Rose, Lady Alice, carrying some fair blooms for its second crop; *Phillyrea decora*, Vilmorin's variety, a handsome evergreen shrub, with short spikes of creamy-

white flowers, and narrow dentate lanceolate leaves, free in growth, and said to be able to withstand smoke and fogs with impunity; *Prunus Pissardi*, *Acer Negundo aureo-marginata*, with pale greenish-yellow variegation, less effective than the white variegated form; a few flowering Montan *Paeonies*, and the *Azalea*-like *Rhododendron exoniensis*, a species with white flowers.

Mr. W. Paul, Waltham Cross, showed the new Tea Rose, Madame Hoste; it is creamy-white, with few petals, a nicely formed flower when half expanded.

A number of small well bloomed plants of *Olearia* Gunni were shown by Messrs. J. Veitch & Sons, Chelsea.

A grand lot of cut blooms of *Magnolia conspicua* were shown by Mr. J. Hudson, Gunnersbury House Gardens, Acton, and formed one of the most noticeable items of the whole show, the delicious fragrance and pure white colour of the flowers renders them very attractive, and the tree itself forms a delightful object when covered with its freely produced flowers, which are borne before the leaves.

Mr. J. H. Virgo, Walton-in-Gordano, Clevedon, showed two vigorous varieties of *Myosotis dissitiflora* with large blue flowers freely produced, but the two forms as shown are not sufficiently distinct to justify their being named.

Certificates were awarded to Mr. R. Dean, Ealing, for a very pretty new decorative *Polyanthus* Primrose named John Woodbridge: the flowers were rich port-wine colour with a prominent yellow eye; and for a white-centered alpine *Auricula* Hetty Dean: the corolla lobes were white at the extreme margin, with an intense purple-mauve spot in the centre, the colour of which faded to the white of the margin—a bright attractive flower. The same exhibitor also showed a pretty pure white form of *Primula Sieboldi*, named Snowflake; the corolla was finely crested, and gave a very capital effect; and a useful dwarf, compact, bright yellow *Wallflower*, Bedford Yellow, which has been exhibited in former years.

Two interesting specimens were shown by Mr. F. Ross, Pendl Court Gardens, Bletchingley—*Cantua dependens*, the long tubular flowers with bright rose lobes and orange-yellow tubes are very bright and pleasing; the other plant was *Callistemon salignus*, with flowers of pale yellow, not so showy as the crimson-flowered species, but still ornamental.

Roses (cut) were shown in fairly numerous quantities; Mr. J. Walker, Thame, Oxon, had two boxes of one each of *Maréchal Niel* and of *Niphetos*, the flowers being remarkable for their large size, fully deserving the award made—a Silver Banksian Medal.

Mr. W. Bennett, Shepperton, Middlesex, received similar recognition; also for an exhibit of cut Roses; he showed four boxes of *Lady Mary Fitzwilliam*, which made a capital display; there were also *Princess Beatrice* and a *Polyantha* variety, named Little Dot—all excellent samples, especially *Lady Mary*.

Mr. W. Rumsey, Waltham Cross, N., contributed a collection of cut Roses, embracing several popular varieties, among which were included *Maréchal Niel*, *Souvenir d'un Ami*, *Madame de Watteville*, *Niphetos*, *Etoile de Lyon*, *Madame Margottin*, *Souvenir d'Elise Vardon*, *Catherine Mermet*, and the *Polyantha* forms *Mignonette* and *Paquerette*; and in this instance a Silver Banksian Medal was again awarded.

Messrs. H. Cannell & Sons, Swanley, Kent, showed a handsome hybrid *Calceolaria* *Souvenir*, of which *aurea florabunda* was probably one of the parents; it is of a tall habit, compact, and produces very freely its clusters of bright yellow flowers, just the sort of plant to make a grand appearance in a border if it prove hardy. A new seedling *Coleus* was sent by Mr. W. Seaman, gr. to G. Biggs, Esq., Westbury, Brentwood, a highly-chequered and brightly-coloured form. A hybrid *Primula* was shown by Mr. W. T. Thompson, Tavern Street, Ipswich; the foliage was glaucous, dark green, and the purplish-lake flowers borne in an umbel. Pots of *Mignonette* were sent by Mr. C. Smith, Brighton; and Messrs. G. Bunyard & Co., Maidstone, showed *Deutzia*, *Pride of Rochester*, a variety of *crenata*, with large double flowers of pure white.

Daffodils were again numerous, Messrs. Barr & Son, Covent Garden, W. C., and Mr. T. S. Ware, Tottenham, N., each occupying an entire side of the hall, and to each exhibitor a Silver-gilt Banksian Medal was awarded. Messrs. Barr were also awarded two Certificates for new Daffodils, viz., *N. incomparabilis Gloria Mundi*, with broad, flat,

bright yellow perianth segments, and a corona of about one-half the length of the segments, wide at the top, rich orange shaded to a paler hue at the base, the margin frilled; the other variety was *N. bicolor* Mrs. J. B. M. Camm, very pale sulphur-yellow, almost white throughout; the perianth segments twisted. Of other specially noticeable varieties shown, mention may be made of the following:—*maximus*, *Sir Watkin*, *Poeticus*, *Lady Seymour*, *Leedsii*, *Beatrice*, *Mrs. Langtry*, *Katherine Spurrell*, *Beauty*, and *H. E. Buxton*. Messrs. Barr also showed *Fritillarias*, Mexican *Anemones*, *Trilliums*, arranged with the Daffodils.

In Mr. Ware's exhibit somewhat similar varieties were to be seen and of equal merit, but most noticeable were *Captain Nelson*, *Horsfieldi*, *Poeticus*, *Leedsii* and its vars., *odorus minor* and *grandis*. He also showed a few hardy plants such as *Gentiana verna* (a charming plant), *Cypripedium macranthum*, *Primula Sieboldi grandiflora*, and *Anemone apennina alba*, a pure white flower; and *Polemonium confertum*, with blue flowers—a very dwarf plant, and remarkably pretty. Certificates were awarded for both these.

Orchids.—A pretty collection of *Cypripediums*, and a few other *Orchids*, &c., was shown by Mr. B. S. Williams, Victoria and Paradise Nurseries, Holloway; the former consisting of *C. Boxalli* and the sulphur-yellow form of it, *C. B. aureum*; *C. selligerum*, and the improvement on it, *C. s. majus*, which has much darker tints, and is larger than the type; *C. grande*, a fine plant of large growth, and one spike, which carried two or three flowers; *C. Dayanum*, the much lasting *Druryi*, and others. The *Lycaste coelestis*, with yellow flowers, whose petals and sepals are curiously twisted; *Oncidium sarcodes superbum*, in which the lip is almost wholly of a yellow colour; an *Amaryllis*, and a fine *Clivia*, concluded the exhibit. A Silver Banksian Medal was awarded.

Mr. Lawrence, gr. to D. Knox, Esq., 17, Gloucester Place, Portman Square, showed *Oncidium curtum* *Gardnerianum*, which differs from the type in the lip, which has its margin less densely spotted with brown, and also in the looser panicle of blooms. *Odontoglossum Ruckerianum*: a one-spiked plant of this very handsome species, came from the same exhibitor.

Mr. Cummins, gr. to A. H. Smee, Esq., The Grange, Wallington, showed a specimen of *Odontoglossum Marriotianum*, which had been grown in the open air there during the season 1887, and which had produced two well-developed spikes, one with thirteen, and the other with eighteen blooms; *O. crinitum saphiratum*, a small flowered species, and one in which the lip is the largest developed part of the flower. It is white, three-quarters of an inch in width, with three acute tailed lobes, and mauve spots. The rest of the flower is greenish-brown.

Poe's variety of *Odontoglossum Pescatorei* came from the garden of J. T. Pöe, Riverstone, Nenagh. In this variety the broad white petals and sepals are covered with a suffusion of light rose and purplish-brown flakes irregularly distributed.

Cattleya Lawrenceana *delicata*, a flower of a lilac-purple hue, and throat white, came from H. J. Buchan, Esq., Wilton House; and *Odontoglossum ciriosum* from Mr. P. Blair, Trentham.

FIRST-CLASS CERTIFICATES.

To *Anemone apennina alba*, from Mr. T. S. Ware.
To *Polemonium confertum*, from Mr. T. S. Ware.
To *Narcissus incomparabilis Gloria Mundi*, from Messrs. Barr & Son.
To *Narcissus bicolor* Mrs. J. B. M. Camm, from Messrs. Barr & Son.
To *Rose* (Tea) *Madame Hoste*, from Messrs. W. Paul & Son.
To *Azalea Vervaeana*, from Mr. C. Turner.
To *Auricula* (alpine) *Harry Turner*, from Mr. C. Turner.
To *Auricula* (alpine) *Mrs. Harry Turner*, from Mr. C. Turner.
To *Polyanthus* *John Woodbridge*, from Mr. R. Dean.
To *Auricula* (alpine) *Hetty Dean*, from Mr. R. Dean.
To *Phillyrea decora* *Vilmoriniana* (as a plant suited to smoky districts), from Messrs. Paul & Son.

Fruit Committee.

Present: H. Veitch, Esq., in the chair; and Messrs. J. Lee, J. Cheal, G. W. Cummins, C. A. Ross, C. Howe, W. Marshall, J. Wright, J. Smith, R. D. Blackmore, and Harrison Weir.

This committee had but little on which to adju-

dicate; the exhibits consisted of a brace of Cucumbers, Sutton's Improved Telegraph, and a dish of good Asparagus from Mr. Palmer, gr. to W. F. Hume Dick, Esq., Thames Ditton House; a seedling Apple, Barron's A 1, from Messrs. W. Barron & Son, Elvaston, Derby; a collection of Rhubarbs from the Society's garden; a boxful of President Strawberry; and some well preserved Lady Downe's seedling Grapes, cut on January 2 from the garden of H. H. Gibbs, Esq., Aldenham House, Elstree (gr., Mr. Beckett).

Narcissus Committee.

A meeting of the Narcissus Committee was held in the Drill Hall on Tuesday, when a number of specimens from different sources was considered and reported on.

The following varieties were registered:—Incomparabilis Queen Bess, which is somewhat similar to Princess Mary in form, but with pure yellow crown, and probably the first to bloom of this section in some gardens, being always in advance of what is known as Stella; Maurice Vilmorin, and a variety of Burbridge named Pet. C. R. *Serese Dickinson, Hon. Sec.*

THE SCOTTISH PRIMULA AND AURICULA.

This Society held its second show in the Calton Convening Rooms, Edinburgh, on the 9th inst. The retarding character of the weather recently was shown in the backward condition of the blooms, there being very few that might be described as fully up to the exhibition standard in respect of expansion; yet there was a freshness and substance about the majority of the exhibits that was extremely pleasing. Competition was more keen and close than last year, and the number of competitors was more than doubled. They came from Newcastle, Leek, Staffordshire, Ayr, Perth, Dundee, and the districts surrounding Edinburgh, so that the Auricula growers of the country were fairly represented. Some improvement in the handling and setting up of the flowers was observable on last year's exhibits, but especially in the matter of thinning the trusses, and the efforts of northern exhibitors tend to further improvement in the flower. This was noticeable when the majority of the latter exhibits were compared with the finished plants staged by Mr. Ben Simonite. These were undoubtedly the feature of the show as regards show Auriculas. The latter were the more numerous, alpine being sparingly shown for competition.

For six show Auriculas Mr. W. H. White, Newcastle, carried the 1st prize, with a splendid Prince of Greens, Ajax, Frank Simonite, Conservative, Beauty, and Mr. Douglas. The Prince of Greens in this lot also was awarded the prize for the premier green edge in the show. Mr. Kerr, Douglasfield, Broughtyferri, Dundee, took 2nd prize, with a lot which would have attained a better position a week later; Mr. William Marshall, Ayr, was 3rd with a good set. Mr. E. Adams, Swallow, Newcastle, took the 1st place in the class of four stage varieties, his lot consisting of Lovely Ann, George Lightbody, Meteor Flag, and Acme; Mr. J. Black, East Calder, was a close 2nd; and Mr. W. H. White, 3d.

Space will not admit of following the schedule in detail, but the exhibitors already named figured in nearly every class of stage varieties, Mr. Kilgour, Blair Adam; Mr. Bainfather, Leek, Staffordshire; Mr. Scott, Forgan, and others, dividing honours with them.

The prizes for premier stage varieties, other than the green-edge Auriculas already mentioned, were taken by Mr. Kerr, for grey-edged Alderman Wisbey; by Mr. E. A. Adams, for white Acme; and by Mr. Kerr, for self Topsy.

Polyanthus Primroses and *Primula obovata* were fairly represented and closely competed for. In the class of three distinct species Mr. Straton, the Secretary of the Society was the only exhibitor, and staged fine samples of *P. denticulata*, *P. viscosa*, and *P. Auricula*.

A very interesting collection of Primulaceæ from the Royal Botanic Gardens, Edinburgh, proved a most attractive feature of the show.

Mr. Calder, sculptor, Bellona, exhibited a number of his seedling forms of *P. viscosa* and *P. ciliata*, which were much admired.

Messrs. Laird & Sons set up an excellent and varied collection of Auriculas and Polyanthus; and Messrs. Dicksons & Co., a fine collection of Auriculas.

One end of the hall was decorated by Messrs. Jas.

Dickson & Son with Rhododendrons, &c. The President, R. Cathcart, Esq., Pitcarlie, and W. B. Boyd, Esq., Faldonside, Melrose, sent excellent exhibits of stage Auriculas.

The special prize of a Gold Medallion, presented by Mr. W. Straton, Secretary of the Society, for six self show Auriculas, was taken by Mr. J. D. Kerr.

A fine lot of blooms, including some very promising seedlings, were exhibited by the Rev. F. I. Horner.

COLONIAL NOTES.

THE NATIVE FLOWERS OF NEW ZEALAND.

MRS. CHAS. HETLEY is about to bring out, through Messrs. Sampson Low, Marston & Co., a series of coloured illustrations of New Zealand plants. Judging from the sample before us, the publication will be very serviceable, for while the book is pretty enough for the drawing-room table, it has the more solid qualities of botanical accuracy and artistic design. Rarely indeed have we seen plants rendered with greater truth to Nature, the perspective and light and shade being admirably managed, while the outline and the arrangement of the several parts are such as to satisfy the requirements of a botanist. The plants are correctly named. The text would be improved by a little more amplification.

COCO-NUT PALM.

Coco-nuts are exported from the West Indies to the extent of £50,000 annually (3,000,000 nuts). Any disease in so valuable a tree is therefore a matter of much moment. In the *Bulletin* of the Jamaica Botanical Department we find that the two principal enemies are the Coco-beetle, which attacks the trunk and the terminal bud, or "cabbage," and the coccos or scale. The best cure for the beetle is a handful of salt, or unslaked lime, dusted into the centre of the bud where the beetle is at work; but this remedy can only be applied when the Palm is young. The scale insect is a more serious pest. The remedy proposed is to place burning leaves, or other rubbish, at the base of the stem in such a way that dense smoke without flame is produced, the smoke penetrating amid the leaves of the Palm and killing the insect.

NATAL BOTANIC GARDEN.

According to Mr. Medley Wood's interesting report for the year 1887, drought was as pronounced at Durban as in the home country, although the total rainfall is given at 31 inches. The temperature, is, however, much higher, the mean maximum for the year being given as 80°, the mean minimum as 60°. To protect Roses from the attacks of white ants, the shrubs were planted in large earthenware tubs sunk in the ground like drainpipes. The plan so far has been successful. A list of native plants occurring within 5 miles of Durban is given as an appendix to this unusually interesting report.

BOTANIC GARDENS, CAPE TOWN.

The annual report is discouraging; wholly insufficient means, want of interest on the part of the authorities, dilapidated structures, deficient water supply in the hot season—these are a few of the obstacles the Director has to contend with. As a compensation the newly instituted Agricultural Department will relieve the Director of much time and labour, now expended in replying to enquiries about cultural matters in all parts of South Africa.

THE WEATHER.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MAY 19. (AVERAGE OF FORTY-FOUR YEARS.)

May 13	59.8	May 17	51.8
" 14	51.0	" 18	55.1
" 15	51.3	" 19	55.4
" 16	54.6	Mean for the week ...	54.6

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending May 7.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	1 below	30	8	— 66	+ 188
1. SCOTLAND, E. ...	1 above	41	6	— 101	+ 140
2. ENGLAND, N.E. ...	1 above	48	0	— 105	+ 72
3. ENGLAND, E. ...	2 below	55	3	— 165	+ 147
4. MIDLAND COS. ...	1 below	52	0	— 184	+ 144
5. ENGLAND, S. ...	3 below	45	0	— 224	+ 203
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 below	34	0	— 131	+ 105
7. ENGLAND, N.W. ...	2 below	41	0	— 158	+ 118
8. ENGLAND, S.W. ...	3 below	40	0	— 234	+ 254
9. IRELAND, N. ...	2 below	41	0	— 144	+ 64
10. IRELAND, S. ...	2 below	47	0	— 181	+ 117
— CHANNEL ISLANDS	2 below	50	0	— 215	+ 154

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.
Principal Wheat-producing Districts.	Teeths of Inch.		Inch.	
0. SCOTLAND, N. ...	4 more	90	14.6	28
1. SCOTLAND, E. ...	0 (aver.)	78	9.2	33
2. ENGLAND, N.E. ...	4 less	70	7.7	40
3. ENGLAND, E. ...	2 less	70	6.9	34
4. MIDLAND COS. ...	1 less	62	6.5	38
5. ENGLAND, S. ...	1 less	63	7.6	31
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	3 more	61	13.0	27
7. ENGLAND, N.W. ...	1 more	71	7.1	26
8. ENGLAND, S.W. ...	0 (aver.)	65	9.6	37
9. IRELAND, N. ...	2 more	71	9.8	31
10. IRELAND, S. ...	2 more	61	10.6	41
— CHANNEL ISLANDS	1 less	82	9.6	54

THE PAST WEEK.

The following summary record of the weather for the week ending May 7, is furnished from the Meteorological Office:—

"The weather has been somewhat changeable and unsettled in the western and northern parts of the kingdom, with frequent falls of rain, but over the greater part of England the conditions have been finer and the rainfall slight. At the close of the period much fog was experienced over the St. George's, Bristol, and English Channels.

"The temperature has continued below the mean generally, the deficit ranging from 1° to 3°. In 'Scotland, E.' and 'England, N.E.' however, an excess of 1° is shown. Towards the end of the week the thermometer became high for the season in the eastern parts of Scotland and over eastern and central England, but remained low on our south and south-west coasts. The highest of the maxima, which were recorded on the 7th, ranged from 60° in 'Scotland, W.' and the 'Channel Islands,' to 69° in 'England, N.E.,' 'England, S.,' and 'Ireland, S.,' 70° in 'Scot-

land, E., and 72° in 'England, E.,' and the 'Midland Counties.' The lowest of the maxima were registered at most stations either on the 4th or 5th, when the readings varied from 31° in 'Ireland, N.,' to 38° in 'England, N.E.,' and 42° in the 'Channel Islands.'

"The rainfall has been rather more than the mean over Ireland and the greater part of Scotland, as well as in 'England, N.W.,' but less over eastern, southern, and central England.

"Bright sunshine has been rather less prevalent than it was last week in the Scotch districts, but more so over England and Ireland. The percentage of the possible amount of duration ranged from 26 in 'England, N.W.,' to 40 in 'England, N.E.,' 41 in 'Ireland, S.,' and 54 in the 'Channel Islands.'"

DIED, on May 1, GEORGE VENN, aged sixty-four; for thirty-two years the faithful and attached servant and Head Gardener to Mrs. Buchan, The Grove, Hanwell.

MARKETS.

COVENT GARDEN, May 10.

A STEADY business doing all the week, with good supplies. Large quantities of vegetables from the Continent at low prices. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 0-6 0	Peaches, dozen	12 0-12 0
Grapes, per lb.	3 0-6 0	Pears, per dozen	3 0-8 0
Keat Cobs, 100 lb.	4 0-45 0	Pine-apples, Eng., lb.	1 0-2 0
Lemons, per case	12 0-21 0	—St. Michael, each	2 0-5 0
Melons, each	4 0-6 0	Strawberries, lb.	4 0-8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz.	6 0-...	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., bund.	1 0-5 0	Mustard and Cress,	...
— English, 100	12 0-...	punnet	0 4-...
Beans, Kidney, lb.	2 6-...	Guions, per bushel	9 0-...
Beet, red, per dozen	1 0-2 0	Parsley, per bunch	0 6-...
Carrots, per bunch	0 6-...	Potatoes, per cwt.	4 0-5 0
Cauliflowers, each	0 3-...	— kidney, per cwt.	4 0-5 0
Celery, per bundle	1 6-2 6	Rhubarb, per bundle	0 4-...
Cucumbers, each	0 9-1 0	Seakale, punnet	2 0-2 6
Endive, per dozen	2 0-...	Shallots, per lb.	0 6-...
Green Mint, bunch	1 6-...	Spinach, per bushel	4 0-...
Herbs, per bunch	0 4-...	Spruce, per bundle	1 0-...
Leeks, per bunch	0 6-...	Tomatoes, per lb.	4 0-...
Lettuce, per dozen	1 6-...	Turnips, per bunch	0 6-...

POTATOS.—All old Potatoes lower by 10s. to 20s. per ton. New stuff very plentiful. Kidneys, 15s.; Rounds, 8s. per cwt.

REDDING-OUT PLANTS.

By the box, 1s. 6d. to 3s.; or by the dozen, 1s. to 2s. Now coming good.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ferns, in var., doz.	4 0-18 0
Azaleas, per dozen	18 0-30 0	Ficus elastica, each	1 6-7 0
Bouvardias, per dozen	9 0-12 0	Foliage plants, vari-	...
Calceolarias, dozen	8 0-12 0	ous, each	2 0-10 0
Cinerarias, dozen	8 0-12 0	Ruchias, doz.	9 0-12 0
Colias, dozen	4 0-6 0	Geaistas, dozen	8 0-12 0
Cyclamens, per dozen	9 0-18 0	Heliotropes, dozen	6 0-9 0
Cypripis, per dozen	4 0-12 0	Lily of the Valley,	...
Dendrias, per dozen	6 0-12 0	12 pots	12 0-18 0
Dracæa terminalis,	...	Marguerites, doz.	9 0-12 0
per dozen	30 0-60 0	Mignonne, 12 pots	6 0-18 0
— viridis, per doz.	12 0-24 0	Musks, dozen	3 0-4 0
Dielis, dozen	12 0-15 0	Myrtles, per dozen	6 0-12 0
Ericas, various, per	...	Palms, in variety,	...
dozen	9 0-18 0	each	2 6-21 0
— ventricosa, doz.	15 0-39 0	Pelargoniums, doz.	12 0-18 0
Eucalyms, in var.,	...	— scarlet, dozen	4 0-9 0
per dozen	8 0-18 0	Roses, dozen	12 0-24 0
Evergreens, in var.,	...	Spireas, dozen	9 0-15 0
per dozen	8 0-24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemone, French, 12	...	Lily of Valley, 12 spr.	0 6-1 0
bunches	1 6-4 0	Marguerites, 12 bun.	3 0-6 0
— fulgens, 12 bun.	2 0-4 0	Mignonne, 12 bun.	3 0-6 0
Aran Lilies, 12 blms.	2 0-4 0	Narcissus, various,	...
Azaleas, 12 sprays	0 6-1 0	12 bunches	3 0-6 0
Bouvardias, per bun.	0 6-1 0	Pelargoniums, 12 spr.	0 6-1 0
Camellias, 12 blms.	1 0-3 0	— scarlet, 12 spr.	0 3-0 6
Carnations, 12 blms.	1 6-3 0	Polyanthus, 12 bun.	2 0-3 0
Cinerarias, 12 bun.	6 0-12 0	Primroses, 12 bun.	0 6-1 0
Cowslips, 12 bun.	1 0-2 0	Primulas, double, 12	...
Cyclamens, 12 blms.	0 4-0 6	sprays	1 0-1 6
Daffodils, double, 12	...	Roses, Tea, per doz.	1 0-3 0
bunches	2 0-4 0	— coloured, dozen	2 0-4 0
— single, 12 bun.	2 0-4 0	— red, per dozen	2 0-9 0
— Leaf Lily, 12 bun.	1 0-2 0	Tuberose, 12 blms.	1 0-2 0
Deutzia, 12 bunches	4 0-9 0	Tulips, 12 blooms	0 6-1 0
Eucharis, per dozen	4 0-6 0	Violets, 12 bunches	0 6-1 0
Gardenias, 12 blooms	1 6-4 0	— French, bunch	1 6-2 0
Heliotropes, 12 spr.	0 6-1 0	— Fr. Parme, bun.	2 0-3 0
Hyacinths, Roman,	...	Wallflowers, 12 bun.	2 6-4 0
12 bunches	1 0-2 0	White Lilac, French,	...
— Dutch, per box	2 0-5 0	per bunch	1 6-6 0
Lilium longiflorum,	...		
12 blooms	3 0-5 0		

* * * Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: May 9.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report that a quiet feeling is now beginning to pervade the seed trade. Sowing orders for Clover and other seeds still come to hand, which are executed at the extremely low prices now current. Stocks all round are quite moderate, so that an early speculative inquiry appears probable. Spring Tares continue in short supply, and some quantity yet will still be wanted. In Rape seed the

tendency continues upwards. Mustard is cheap and abundant. There is no change in Hemp or Canary seed. Blue Peas are exceedingly firm. Feeding Linseed is dull.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended May 5:—Wheat, 31s. 2d.; Barley, 30s. 6d.; Oats, 16s. 4d. For the corresponding week in 1887:—Wheat, 33s. 2d.; Barley, 23s. 2d.; Oats, 16s.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: May 9.—Good supplies of all kinds of fresh vegetables. Prices moderate; demand fair. Potato trade quiet, except for superior kinds. Quotations:—Asparagus, 2s. 6d. to 4s. per bundle of 100 heads; Cauliflowers, 2s. 6d. to 7s. 6d. per tally; Broccoli, 3s. to 3s. 6d. per bushel; Spinach, 1s. to 1s. 6d. per sieve; Turnip-tops, 1s. to 1s. 6d. per sack; Greens, 5s. to 7s. per dozen bunches; Turnips, 1s. 6d. to 2s. do.; Carrots, 2s. to 3s. do.; Parsley, 1s. 6d. to 2s. do.; Mint, 1s. 6d. to 2s. do.; spring Onions, 2s. to 3s. do.; Radishes, 1s. to 1s. 6d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; Horseradish, 10d. to 1s. 2d. per bundle; Beetroots, 8d. to 1s. per dozen; Endive, 10d. to 1s. 3d. do.; Cabbage Lettuces, 8d. to 10d. do.; English Onions, 7s. to 8s. per cwt.; foreign Onions, 5s. to 7s. per bag of 110 lb.; Carrots, 45s. to 100s. per ton; Swedes, 28s. to 30s. do.; English Apples, 4s. 6d. to 9s. per bushel; American Apples, 14s. to 22s. per barrel.

STRAFORD: May 8.—Both trade and supply have been good. Quotations:—Cauliflowers, 3s. to 4s. per dozen; Carrots, household, 60s. to 80s. per doz.; cattle feeding, 25s. to 30s. do.; Mangels, 19s. to 22s. do.; Onions, Egyptian, 6s. 6d. to 8s. per bag; Apples, English, 3s. to 7s. per bushel; do.; American, 18s. to 25s. per barrel; Watercress, 6d. to 8d. per dozen bunches; Apples, 13s. to 15s. 6d. per half-sack; spring Onions, 4s. to 5s. per dozen bunches; Radishes, 1s. to 1s. 2d. do.; Beets, 7d. per score; Asparagus, 2s. to 3s. 6d. per bunch; Wallflowers, 3s. to 4s. per dozen bunches; Lettuce, 1s. 4d. to 1s. 6d. per dozen; Cucumbers, 2s. to 6s. do.; Broccoli, 2s. to 3s. per bushel; Rhubarb, 1s. to 2s. per dozen bunches; Spinach, 2s. to 2s. 6d. per bushel; Parsley, 2s. to 4s. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: May 8.—Old Potatoes come on offer in larger supply than required, and prices are drooping. Many new Potatoes are arriving, but not in sufficient quantity to quote. Quotations:—Regents, 100s. to 115s.; Magnum Bonums, 50s. to 90s.; Dunbar, 100s. to 110s.; Champions, 45s. to 110s.; Dutch Rocks, 55s. to 100s. per ton.

SPITALFIELDS AND COLUMBIA: May 9.—Quotations:—New Potatoes: Malta kidneys, 10s. to 14s.; Malta rounds, 9s. to 11s. per cwt. Old Potatoes: Presidents, 60s. to 100s.; Regents, 60s. to 80s.; Imperators, 50s. to 90s.; Magnums, 40s. to 80s.; Victorias, 50s. to 65s.; and Champions, 50s. to 60s. per ton.

STRAFORD: May 8.—Quotations:—Scotch Magnums, 80s. to 90s.; Regents, 80s. to 85s.; lightland, English, 50s. to 80s.; blackland, do., 45s. to 55s. per ton. New: 8s. to 12s. per case.

Imports.—The imports into London last week consisted of 8772 bags from Hamburgh, 60 from Calais, 200 from Bremen, 14,607 packages and 111 cases from Malta, 5 boxes from Adelaide, and 22 sacks from Stettin.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 86s. to 104s.; inferior, 80s. to 84s.; hay, prime, 84s. to 100s.; inferior, 75s. to 80s.; and straw, 38s. to 47s. per load.

NOTICES TO CORRESPONDENTS.

ADDENDUM: SCOTTISH HORTICULTURAL ASSOCIATION.

—Our reporter omitted to state that Mr. Kidd, the winner of the certificate for Dendrobiums (see p. 563 in our last issue) is head gardener to Brooman White, Esq., Ardarrack, Garelochhead.

BOUSSINGAULTIA: *A. Pakenham*. Plant in a well enriched sandy loam, in a thoroughly drained and warm situation. B. Lachaumei (with pink flowers) requires stove treatment. You were answered in our issue for December 17, 1887, p. 762.

CATTLEYA WEEVIL: *O. E. H.* The insect breeds in hothouses in this country.

CAULIFLOWER FOR EARLY SUPPLY: *Peach*. Early Dwarf Erfurt is very early, and has small compact heads; and Early London, a taller, more vigorous plant, and well flavoured.

DAFFODIL SPORT: *St. Brigid*. Many thanks; not uncommon.

FINE ASPARAGUS IN FRANCE: *E. W.* The superiority is due partly to climate, but more to deep soil, wide space between the plants, and other items of cultivation. At some places sewage is run over the beds by means of irrigation canals.

FLOWERING OF VANILLA AROMATICA: *C. P.* No, it is not uncommon.

INSECT: *Cunje*. The insect had taken himself off.

LANTANAS: *W. E. G.* We were not aware that the trial occurred so long since. The communication in question reached us two or three months ago only without such intimation.

MELONS RIPENING: *F. F.* About twelve weeks from sowing to cutting during the summer; some early varieties require less time.

MUSHROOM ONE ON ANOTHER: *B. P.* Common, and often figured. The cause is not known.

NAMES OF PLANTS: *P. C.* Ornithogalum nutans.—*J. W.* 1. Amygdalus nana; 2. Populus monilifera; 3. Abies Douglasii; 4. Cupressus Lawsoniana var.; 5. Retinosporasquarrosa; 6. Abies Douglasii.—*H. P.* 1. Certainly not Tarragon, but we cannot say what it is; 2. Acer monspessulanum.—*D. W. G.* Dendrobium chrysanthum; Polystichum angulare proliferum.—*W. Sorby*. Dendrobium Wardianum.—*M. L. D.* Brassia maculata.—*A. W.* 1. Sanguinaria canadensis; 2. Pholidota imbricata; 3. next week.

PEACH LEAVES: *Head Gardener*. The appearance is due to the sun acting on drops of water, and converting them into so many burning-glasses.

POPLARS: *T. D.* Cuttings of 18 inches in length put into sandy soil, in a sheltered position in October, or layering in late summer.

PURPLE VINCAS: *A. D. W.* V. minor atropurpurea and V. m. multiplex have purple flowers.

COMMUNICATIONS RECEIVED.—E. Vervaeet & Cie.—E. B.—W. R.—E. P., Ghent.—E. B., Ghent.—H. J. G.—M. Kaudin Antibes (many thanks).—E. V. de V.—G. S.—W. E. G.—G. F. W.—E. G. L.—Messrs. Carter & Co.—Ed. Sc. News.—L. C.—C. V., Ghent.—C. J. E. J.—W. B. G.—C. B. P.—R. McL.—Rev. G. H.—J. W.—H. L. & Co.—J. R. B.—J. D. & Sons.—W. B. H. (many thanks, but we cannot accept your obliging offer).—W. R.—W. C. B.—E. J.—T. R.—H. M.—R. D.—H. Low & Co.—W. B. H.—J. R. J.—W. S.—J. A.—J. D.—C. R. H. (next week).—J. B. T. (next week).—C. W.—W. S.—W. S. & Son.—W. B.—A. H.—W. W.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

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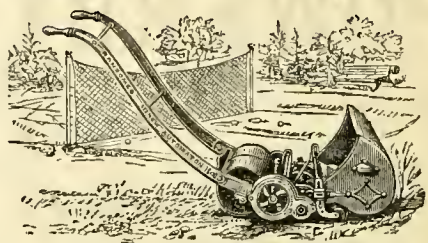
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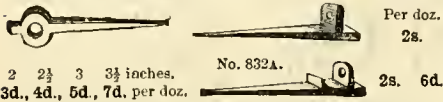


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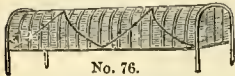
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Best Galvanised Wire, 1/3, 1/6, 1/9 per 100 yards.

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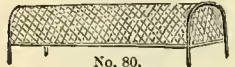


No. 76.

3 feet long.

Galvanised after made.
Either Pattern.

Price 5s. per doz.



No. 80.

For Cash with order only.

Two end pieces included
with each dozen.

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JAS. BOYD & SONS,
HORTICULTURAL BUILDERS
AND HEATING ENGINEERS,
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HORTICULTURAL
STRUCTURES

of every description,
in either Wood or Iron,
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Hot-water Apparatus
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BOXES, AQUARIA, ARTIFICIAL ROCKWORK for Ball-
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HARPHAM AND HOWES,

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Estimates and Illustrated Lists Free.

CHEAP HORTICULTURAL GLASS.

Packages and packing free, and delivered to any London Station.

100 squares of Glass, quality guaranteed.

15 oz. 21 oz.

13½ by 8½ for 10/- for 14/-
12 " 9 " 10/- " 14/- or 300 squares 15 ounce, 8 by 8,
12 " 10 " 11/- " 15/6 or 250 squares 8½ by 8½, or 220
14 " 10 " 13/- " 19/- squares, 8½ by 8½, or 170 squares,
14 " 12 " 17/6 " 24/- 9 by 7½, or 150 squares, 10 by 8,
12 " 12 " 13/- " 20/- for 10s. Carriage paid for all orders
18 " 12 " 21/- " 31/- over £3.
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Glass cut to any size at the above proportionate prices.
Best LINSEED-OIL PUTTY. PAINTS, ready mixed for use,
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NEW SEASON'S ARCHANGEL MATS.

Taganrog, Petersburg, and every other description
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RAFFIA FIBRE.

SPECIAL QUOTATIONS on APPLICATION.

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THE "NEW EASY" LAWN MOWER.



Has an Open Steel
Roller.

A man can work a
24-inch machine, cutting
Grass 5 inches high clean
to roots.

There is no easier
working, no better
finished, no stronger, no
more durable mower in
the market.

The Front Roller, with
simple adjustment, en-
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very close to the ground,
and to do fine work.

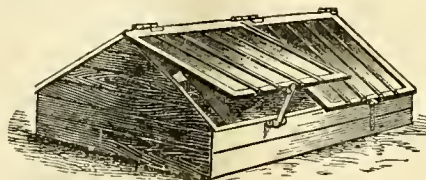
The machine will also
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To be obtained through
all the leading Iron-
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GLASS.—CHEAP GLASS.

8s. 6d. per 100 feet 15 oz. 12x10, 18x12, 18x14, 24x14,
14x12, 20x12, 18x16, 24x16,
12s. per 100 feet 21 oz. 16x12, 16x14, 20x16, 24x18, &c.
Putty, 6s. 6d. per cwt.; White Lead, genuine, 21s.; Our
Speciality, 17s. 6d. per cwt.; Paints ground in Oil, Stone Ochre,
20s.; Oxford Ochre, 24s.; Green, 16s.; Black, 16s. per cwt.;
Varnish, from 5s. 6d. per gal.—Full Price List on applica-
tion to THE CHEAP WOOD COMPANY, 95, Bishopsgate
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PORTABLE PLANT FRAMES.

The above are without exception the most useful kind of
Frame for Plant Growing, and every one with a garden should
possess one. The sashes turn right over one on to the other, and
the boxes are put together with wedges, and can be taken apart
in a few minutes. Sizes and prices, carriage paid to any station
in England, ready glazed and painted:—

6 feet long, 4 feet wide, packing cases free	£2 15 0
12 feet long, 4 feet wide, " " "	4 15 0
6 feet long, 5 feet wide, " " "	3 15 0
12 feet long, 5 feet wide, " " "	8 10 0

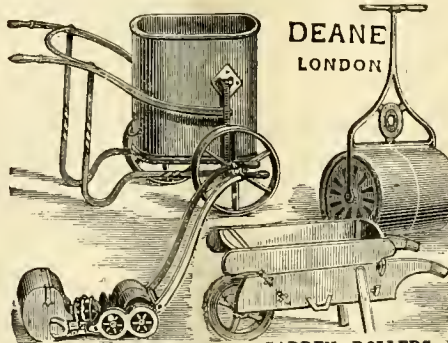
The glass is nailed and puttied in.

R. HALLIDAY & CO.,

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ROYAL HORTICULTURAL WORKS, MIDDLETON,
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LAWN MOWERS.

All the best makes in stock:

Excelsior, Invincible, Godiva,
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Swing Water-Barrows.

15 Gall... 30s. 30 Gall... 45s.

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Double Cylinder. Single.

20 by 18 in. 50s. 16 by 16 in. 32s.

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26 by 24 in. 80s. 22 by 22 in. 52s.

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Well made and cheap ... 24/6

With loose top, as shown 32/6

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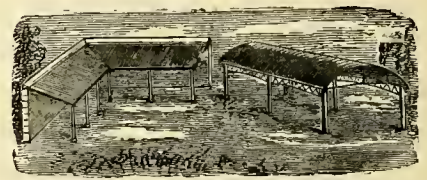
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IRON FENCING, HURDLES, GATES, &c.



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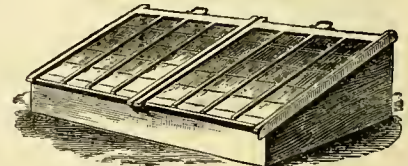
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Our 8 by 6 feet

2-LIGHT MELON AND CUCUMBER FRAMES



are £3 each, carriage paid.

Made of the best red deal, English 21-oz. glass, painted 3 coats
best colour.

3-LIGHTS, 12 by 6 feet, £4 5s.

For other sizes, see NEW PRICE LISTS, Post-free.

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HORTICULTURAL GLASS.

A large quantity of all descriptions and
sizes in stock, at the lowest possible prices.

NICHOLLS & CLARKE,
SHOREDITCH, LONDON, E.



4-INCH Expansion-joint Hot-

Water PIPES, 9 feet long, 4s. 3d. each;
large quantities in stock; also 3-inch and
2-inch. Likewise common Socket Hot-water
Pipes, Coil Wrought Iron Boilers, Gold
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Pumps, Spouting, Corrugated and Flat Sheet Iron. Estimates
to plan or cut to plans. Apparatus guaranteed. Lists and prices
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for large quantities.—HY. ROBINSON, Stewkins Pipe and Boiler
Works, Stourbridge. Wire address, "Stewkins," Brettle Lane

To Nurserymen, Seed Merchants, and Florists.

J. BLACKBURN AND SONS are offering Arch-
angel Mats lower than any other house in the trade; also
Petersburg Mats and Mat Bags, Raffia Fibre, Tobacco Paper,
and Shading. Prices free.—4 and 5, Wormwood Street, E.C.

PILCHARD NETTING, ¾-inch mesh, 12 yards
wide, 9d. yard; extra stout strong TANNED NET,
2 yards wide, 1½d. yard; 4 yards wide, 3d. yard; or 2 yards
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TWINE NETTING, 1 yard wide, 1½d. yard; 2 yards wide, 3d.
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COTTON NET, nine meshes to square inch, 1½ yard wide, 6d.
to 7d. yard run.

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RAFFIA—ARCHANGEL MATS.—We can
offer Special Parcels, of the finest quality, at Lower
Prices than ever quoted for many years past, to the Trade only,
MAREDAZ AND FISHER, James Street, Covent Garden, W.C.

NETTING.—Buy your Netting direct from
the Makers. Write for sample piece, of our best quality,
waterproof, tanned and oiled, 4 yards by 50 yards, 8s.; second
quality, 5s. 6d. Any size made to order. Trade supplied.
SPASHETT AND CO., Net Manufacturers, Lowestoft.

"MANCHESTER"**LAWN MOWERS.**

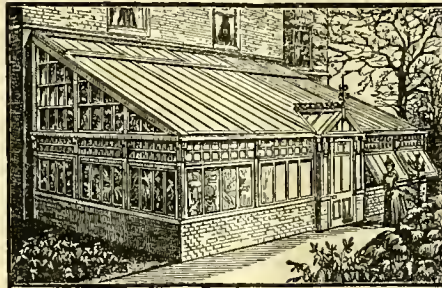
The Best in the World.

NEW "TENNIS" LAWN MOWER.
 NEW "MANCHESTER" LAWN MOWER.
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 HORSE and PONY LAWN MOWER.

Good Lancashire-made Machines. Far superior to American and other imitations. They have been awarded many Silver Medals and Prizes at International Exhibitions.

To be obtained from all Ironmongers and Seedsmen carriage paid.
FOLLOWS & BATE (Limited), GORTON, MANCHESTER.
 Machines of any make REPAIRED and made equal to new.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bambo Canes, Rustic Work, Manures, &c. Cheapest Prices of
WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

RICHARDSON'S**HORTICULTURAL BUILDINGS**

Fixed in any part of the Kingdom
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 complete.

Numerous
 Prize Medals and
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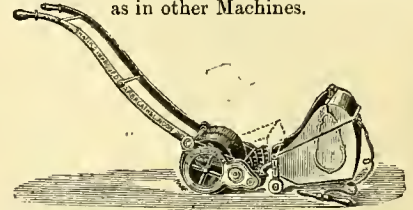
MANUFACTURERS,

Neptune Works, Manchester.

COTTON WOOL and WADDING for Florists and Nurserymen. Send for Samples and Prices.

SHANKS'S IMPROVED LAWN MOWER.

THE ONLY LAWN MOWER FITTED WITH
DOUBLE EDGED SOLE-PLATE,
 Enabling the Cutting Parts to last twice as long
 as in other Machines.



THESE MACHINES are strong, substantial, and very easily worked. They make the Lawn like velvet, and are not liable to get out of order.

Prices of Hand Machines, with Grass Boxes, complete.

To cut 10 in. wide...	£3 10 0	To cut 19 in. wide...	£8 0 0
" 12 " ...	4 10 0	" 22 " ...	8 10 0
" 14 " ...	5 10 0	" 24 " ...	9 0 0
" 16 " ...	6 10 0		

Small Lawn Mowers, 6 in., 25s.; 7 in., 35s.; 8 in., 45s.
 Horse and Pony Machines, with or without Patent Delivery Apparatus.

SHANKS'S NEW LAWN MOWER, 'THE IMPROVED AMERICAN.'

The working parts are greatly reduced in number, and this MACHINE is easier to work than any other in the Market. Every working part is protected. It can be used with or without Grass Box.

PRICES.

10-inch Machine ...	£3 0 0	14-inch Machine ...	£4 15 0
12-inch " ...	4 0 0	16-inch " ...	5 10 0

Grass Boxes extra—10 and 12 in. sizes, 7s. 6d.; 14 and 16 in. sizes, 10s.

GARDEN ROLLERS OF ALL SIZES.**ALEX. SHANKS & SON,**

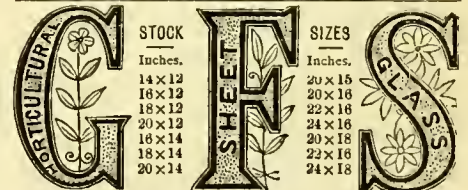
Dens Ironworks, Arbroath,

And 110, Cannon Street, London, E.C.

A large Stock of all sizes of Machines is always kept in LONDON, where Repairs can also be executed by experienced workmen.

LONDON ADDRESS for Repairs:

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21-oz. Foreign of the above sizes, in 100 and 200 feet boxes, 3rds and 4ths qualities, always kept in stock.

A large stock of similar current sizes of 15-oz. glass in 200 feet boxes.
 English Glass, cut to buyer's sizes, at lowest prices, including free delivery in the country in quantities.

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Stock List and Prices on application. Price List of Colours, Varnishes, Designs of Stained & Leaded Glass. Quote Chronicle.

The "Gardener's Friend" HOT-WATER BOILER,

For Greenhouses, Vineries, Conservatories, Forcing Houses, &c.

Advantages

Equally applicable for Domestic or Warehouse Heating.

Baths, Lavatories, and

Laundries.

Minimum Cost of Setting.

Free Access to all Flues.

Certain Continuance of

Heating at night.

No Night Watching required.

Slow Combustion.

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Large Heating Surface.

Equally Suited for Gas Coke, common or Anthracite Coal.

For full particulars and Prices, apply to the Manufacturers.

JOHN WARNER & SONS, The Crescent Foundry,

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And The Foundry Works, Walton-on-the-Naze, Essex.

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CAMBRIC POCKET HANDKERCHIEFS.

	Per doz.	Hemstitched:—	Per doz.
Children's ...	1s. 2d.	Ladies' ...	2s. 11½d.
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Gent's ...	3s. 6d.		

Embroidered Handkerchiefs, from 1s. each.

Pretty FANCY BOXES, suitable for half-dozen or dozen of Handkerchiefs, encased in Cardboard Covers, so as to pass uninjured by post,
 3d., 6d., 9d. to 1s. 6d. each.

IRISH DAMASK TABLE LINEN.

Samples and Illustrated Price Lists, post-free.

FISH NAPKINS, 2s. 11½d. per dozen. Dinner Napkins, 5s. 6d. per dozen. Table Cloths, 2 yards square, 2s. 11½d.; 2½ yards by 3 yards, 5s. 11½d. each. Kitchen Table Cloths, 11½d. each. Strong Huckaback Towels, 4½d. per dozen. Monograms, Initials, &c., Woven and Embroidered.

ROBINSON & CLEAVER,

By Special Appointments to H.M. the Queen and H.M. the Empress of Germany,

BELFAST.**ROBINSON**

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CLEAVER'S**MATCHLESS****SHIRTS.**

Best Quality Long Cloth, with 4-fold finest Linen Fronts, 35s. 6d. per half-dozen, (to measure or pattern, 2s. extra). Patterns of materials used, also of newest styles in Fancy Cotton, Flannel, Silk, and Silk and Wool Shirtings sent free on application.

OLD SHIRTS

made as good as new, with best material in Neckbands, Cuffs and Fronts, for 14s. the half-dozen.

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26 words, including name and address, 1s. 6d.,
and 6d. for every additional line (about 9 words) or part
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This scale does not apply to announcements of Vacant
Situations, which are charged at the ordinary scale.

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against having Letters addressed to Initials at Post-offices, as
all Letters so addressed are opened by the authorities and
returned to the sender.

BIRTHS, DEATHS and MARRIAGES, 5s. each insertion.
Advertisements for the current week must reach the Office by
Thursday noon.

All Subscriptions Payable in Advance.

THE UNITED KINGDOM: 12 Months, 15s.; 6 Months,
7s. 6d.; 3 Months, 3s. 9d.
FOREIGN (excepting India and China): including Postage,
17s. 6d. for 12 Months; India and China 19s. 6d.
Post office Orders to be made payable at the Post Office,
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PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS,
41, Wellington Street, Strand, London, W.C.

TO CAPITALISTS.

A NURSERYMAN, with an OLD-ESTABLISHED FIRST-CLASS BUSINESS,
IS IN WANT OF £3000 to £5000,
to further Develop a Largely Increasing
Business.—Address, in first instance, Box 32,
Gardeners' Chronicle Office, 41, Wellington
Street, Strand, London, W.C.

Orchid Grower.

WANTED, AT ONCE, for a very comfortable
situation, where Orchids a specialty, a good MAN.
Must be a thoroughly reliable and sober man.—State particulars
and salary required.—BETA, Gardeners' Chronicle Office, 41,
Wellington Street, Strand, W.C.

WANTED, a KITCHEN GARDENER, to
Grow Vegetables for Market in the country. Must
have knowledge of Forcing Potatoes, Lettuce, Asparagus,
Charge of Outdoors under Foreman. Wages, 16s., Cottage and
Garden. Married man, active and willing.—Apply by letter,
M., 29, St. George's Road, London, S.W.

WANTED, a SECOND GARDENER, one
who understands Stove and Greenhouse, Mowing, and
Assist in General Garden Work. Wages 17s.—Mr. LUCAS,
Beenhall House, Reading.

WANTED, an UNDER GARDENER, not
under 23, for Outside Garden. Opening for a man.
Wages, 14s. Bothy on premises. Milk, vegetables, and firing.
Scotchman preferred.—Apply, by letter, JAS. WALLACE, The
Gardens, Newlands Park, Sydenham, S.E.

WANTED, for a Branch Nursery of 22 acres,
a WORKING FOREMAN, to take Charge and Sell
Stock—principally Evergreens. No glass.—WM. PAUL and
SON, Waltham Cross, N.

WANTED, AT ONCE, a practical, energetic,
sober, and trustworthy MAN, to take charge of Her-
baceous Plant Department. Must be well versed in the Propaga-
& Cultivation of Florists' Flowers, Chrysanthemums,
&c.—Apply, by letter only, at string wages expected, &c., to
JOHN LAING AND SONS, Nurserymen, Forest Hill, S.E.

WANTED, a MAN, to take Charge of Glass,
one accustomed to Grow Flowers for Market.—State
experience to Mr. W. D. CLARKE, Hanworth Road, Hounslow.

WANTED, an experienced Grower of Cut
Flowers for Exeter. Present wages 30s., with a liberal
increase. None but a first-class Grower of high character need
apply.—JOHNS, Queen Street, Exeter.

WANTED, a GROWER of Tea Roses for
the London Market.—Liberal wages to a compe-
tent man.—P. L., Gardeners' Chronicle Office, 41, Wellington
Street, Strand, W.C.

WANTED, a young MAN, well up in Propaga-
ting Stove Plants and Small Ferns. Quick and
active.—W. ICETON, Granard Nursery, Putney Park Lane,
Putney, S.W.

WANTED, a young MAN, well acquainted
with the Cultivation of Pelargoniums for Cut Bloom
purposes. State wages and references.—ROBERTS BROS.,
East Grinstead.

WANTED, an industrious persevering MAN,
with a good knowledge of Herbaceous Plants and their
Cultivation, to take charge of a Large Collection at the Chad
Valley Nurseries.—Apply with full particulars as to experience,
&c., to R. H. VERTEGANS, Chad Valley Nurseries, Birmingham.

WANTED, AT ONCE, a steady, active, and
sober young MAN, of good moral character, from 24 to
30 years of age. Well up in Growing Plants and Flowers for
Market, and to take the Management of Greenhouses. State
wages required.—WM. BALLANCE, 27, Market Place,
Dewsbury.

WANTED, TWO quick active Young MEN
where Cucumbers and Tomatoes are extensively Grown
for Market.—M. ROCHFORD, Durrant's Arbor Nursery,
Ponders End.

WANTED, AT ONCE, ONE or TWO respect-
able Young MEN. Constant work for good hands.—
H. B. MAY, Dyson's Lane Nursery, Upper Edmonton.

WANTED, a respectable young MAN, of
good experience, quick at Potting, Tying, Watering,
&c., in a Market Nursery.—S. HILL, Latimer Road, Forest
Gate, E.

WANTED, a young MAN, quick at Water-
ing, Potting, &c., from a Market Nursery, in the
Houses. Wages, 18s. per week.—LEWIS and WILLIAMS,
The Embury Nurseries, Thames Ditton, Surrey.

WANTED, at ONCE, TWO or THREE
thoroughly respectable Young MEN accustomed to
Jobbing Work. Wages, 21s. per week.—F. N. SILVER,
Streatham and Norbury Nurseries, S.W.

WANTED, a YOUTH who has been used to
General Market Nursery Work. Wages 12s. per
week.—W. DALE, Hickmandies Nursery, Knockholt, Kent.

WANTED, by a Provincial House, a first-
class TRAVELLER for the Wholesale Seed Trade. One
with a connection in the North of England preferred.—Address
in first instance X., Gardeners' Chronicle Office, 41, Wellington
Street, Strand, W.C.

WANTED, an ASSISTANT, for the Seed,
Plant, and Florist Business. Must be of good address,
and well up in Counter Work.—Apply, stating age, experience,
wages expected, reference, &c., to H. C. FOLL, The Putney
Horticultural Depot, 138, High Street, Putney, S.W.

GARDENING APPOINTMENTS.

MR. ARCHIBALD BAXTER, late General Fore-
man at Wentworth House, Rotherham, has been
appointed Head Gardener at Sprotborough Hall,
Yorkshire.

MR. H. STARK, Foreman for the last four
years at Stoke Edith Gardens, Hereford, has
been appointed Gardener to W. GARRAD, Esq.,
Kingswood Grange, Hockley Heath, Warwick-
shire.

WANT PLACES.

Letters addressed "Poste Restante" to initials or to fictitious
names are not forwarded, but are at once returned to the
writers.

NOTICE TO ADVERTISERS.—In many instances
Remittances in Payment of Repeat Advertisements are
received without name, address, or anything beyond the
postmark on envelope by which to identify the sender; this
in all cases causes a very great deal of trouble, and fre-
quently the sender cannot be identified at all.

Advertisers are requested when Remitting to give their
Names and Addresses, and also a Reference to the Adver-
tisement which they wish repeated.

POSTAL ORDERS.—To Advertisers, Subscribers, and
Others.—It is very important in Remitting by Postal Order
that it should be filled in payable to No. 42, DRURY LANE,
to W. RICHARDS, as, unless the number of a Postal Order is
known, and it has been made payable at a particular office, and
to a particular person, it is impossible to prevent any person
into whose hands it may fall from negotiating it.

N.B.—The best and safest means of Remitting is by POST-
OFFICE ORDER.

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—JOHN DOWNIE (of the late firm of Downie & Laird),
Seedman, 144, Princes Street, Edinburgh, has at present on
his List a number of SCOTCH GARDENERS, waiting re-
engagements. He will be pleased to supply full particulars
to any Lady, Nobleman, or Gentleman requiring a trustworthy
and competent Gardener.

RICHARD SMITH AND CO.
beg to announce that they are constantly receiving
applications from Gardeners, seeking situations, and that they
will be able to supply any Lady or Gentleman with particulars,
&c.—St. John's Nurseries, Worcester.

Gardeners, Bailiffs, &c.

JOHN LAING AND SONS, having filled many
important places, can RECOMMEND with every confidence,
energetic and practical MEN of tested ability and first-rate
character. Ladies and Gentlemen in want of Gardeners and
Bailiffs, or Gardeners for first-rate establishments, or Single-
handed situations, can be suited, and have full particulars by
applying to us. No fees charged.—JOHN LAING AND SONS,
The Nurseries, Forest Hill, S.E.

ORCHIDS.—A Man of first-class qualifications
and character is at liberty to engage with a Gentleman
to take charge of a Collection of Orchids, or combine that with
the other duties of a Garden. He was a pupil of the late Mr.
Snyers.—H. BURBERRY, Marks Tey, Essex.

To Nurserymen.

ORCHIDS.—A thoroughly good hand, conver-
sant with the Trade, requires re-engagement.—For re-
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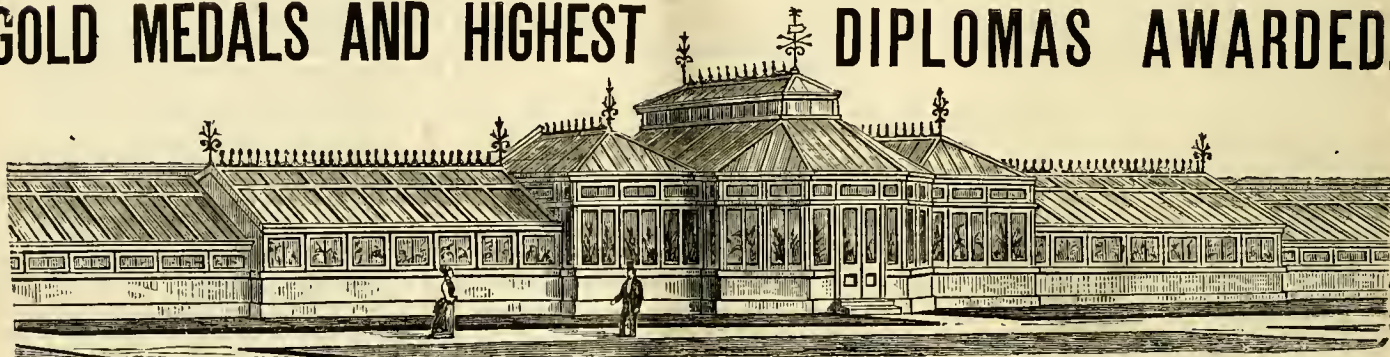
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HOOPER AND CO. (Limited) Receive and Dispose of any quantity of above at best Market Prices. Boxes, &c., supplied.—Address, Commission Department, HOOPER AND CO. (Limited), Covent Garden, London, W.C.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

SURPLUS CUT FLOWERS. Highest Market Prices Guaranteed. Boxes Free.
R. J. GATER, Jun., Commission Agent, New Flower Market, Spitalfields, London, E.

WANTED, TWO HUNDRED LOADS of first-rate TURF, to be delivered at West Kensington immediately. Apply, by letter, giving full particulars, with price, to R. H. J. Chas. Tayler & Co.'s Advertisement Offices, 151-157, Fleet Street, London, E.C.

The Best Present for a Gardener. VINES and VINE CULTURE.

The most complete and exhaustive Treatise on Grapes and their Culture ever published. New Edition. Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.

A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate disposal—Latania borbonica, Seedorfthia elegans, Chamerops excelsa, and Phoenix reclinata—from 10s. per pair. GARDENER, Holly Lodge, Stamford Hill, London, N.

EUG. VERVAET DE VOS, Indian Azalea Nurseries, Swynaerd, near Ghent, Belgium, is preparing his CATALOGUE of Indian Azaleas, Azalea Mollis, Hardy Azaleas, Camellias, Rhododendrons, and Decorative Plants, which will be sent gratis to all applicants.

BEGONIA LUBBERSI, Ed. Morren; DICHORISANDRA TENIENSIS, M. T. Masters.

To these two Plants was awarded at the last Grand Floral Show of Ghent, the 1st and 2d Prizes for the plant newly introduced. For description see *Gardeners' Chronicle*, April 21 last. Price 10s. each. Free to all parts of England.

M. E. PYNAERT VAN GEERT, The Brussels Gate Nurseries, Ghent, Belgium.

SPECIMEN HOLLIES.—Now is the time to plant. LIST, containing heights and prices of the finest Green and Variegated varieties in cultivation free.

N.B. These trees are perfect, and very cheap. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Verbenas—Verbenas.

WILLIAM BAUMAN offers clean, healthy, well-rooted VERBENAS, at 6s. per 100; 50s. per 1000. Purple, White, Scarlet, Rose, and Crimson; or, 1000 Choice Named Sorts for 8s., if post-free 3d. per 100 extra. Packing included. Terms cash.
Cemetery Nursery, Gravesend.

Plant Now.

TROPÆOLUM SPECIOSUM, the well-known hardy scarlet Climber. Fine strong plants, with numerous strong growths, free and safe by post, out of pots, 1s. each; 9s. per dozen. Cash with order.

HOWDEN AND COMPANY, The Nurseries, Inverness, N.B.

LILY OF THE VALLEY CROWNS for Early and Late Forcing. Delivery in November next.

The Advertiser is in a position to compete for the above with any respectable House in the Trade, either at home or abroad, as to price and quality. Particulars on application. Early Orders respectfully solicited.

T. JANNOCH, by Special Warrant, Lily of the Valley Grower to H.R.H. the Prince of Wales, Dersingham, King's Lynn.

BEGONIAS.—Splendid tubers, Davis's Gigantea erecta superba, crimson or mixed, for pots or bedding, 4s., 5s., and 6s. per dozen; from 25s. per 100. Superb Seedlings, splendid varieties, 4s. and 5s. per dozen, 25s. and 30s. per 100. Choicest named varieties, Single and Double. See LIST, Free.

GERANIUMS, CALCEOLARIAS, and other Bedding Plants, in quantity. Special Offer on application.
B. R. DAVIS, Yeovil Nurseries, Yeovil.

GRAPE VINES, most excellent Canes, best varieties, 3s. 6d., 5s., 7s. 6d. Descriptive LIST Free. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

Home-grown VEGETABLE and FIELD SEEDS. H. AND F. SHARPE are now prepared to make special offers of their fine selected stocks of VEGETABLE and FIELD SEEDS, all of which they have harvested in splendid condition. The prices will be found very advantageous to purchasers.
Seed Growing Establishment, Wisbech.

W. H. LASCELLES AND CO., HORTICULTURAL BUILDERS, 121, BUNHILL ROW, LONDON, E.C. Plans and Estimates Free. See large Advertisement, May 5, page 551.

SALES BY AUCTION.

Thursday Next.—(Sale No. 7684.)

ARUNDINA, new species. A most lovely Orchid, producing quantities of rosy-white flowers.
The Sale will also contain fine importations of ONCIDIUM PYRAMENSE, a fine yellow-flowered species; O. OLIVACEUM, BOLLEA CÆLESTIS, PESCATORIA KLABOCHORUM, ONCIDIUM CHESTERTONI GIGANTEUM, and many other fine species.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 24, by order of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7684.)

CYPRIPEDIUM STONEI.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 24, by order of Mr. F. Sander. The finest importation ever offered of CYPRIPEDIUM STONEI, amongst which are unusually large plants in splendid condition; this well known species is still unrivalled for exhibition and general decorative purposes.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7684.)

ONCIDIUM ENOI and UNDULATUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 24, by order of Mr. F. Sander, a very superb importation of ONCIDIUM ENOI and UNDULATUM. Two more beautiful Oncidioms cannot possibly be grown. The importation is in simply grand order—the finest ever made. ODONTOGLOSSUM VEXILLARIUM VARIETY. From this variety the O. vexillarium superbum have all emanated. These are from the same locality from whence we imported the O. v. superbum a few years since. The importation is just to hand. No plants of this kind have been previously offered. The radiatum varieties come from quite a different part.

On view morning of Sale, and Catalogues had.

Thursday Next, May 24.

VALUABLE IMPORTATIONS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, May 24, at half-past 12 o'clock precisely, a superb importation of ONCIDIUM ENOI and UNDULATUM in grand order, ODONTOGLOSSUM VEXILLARIUM varieties, in splendid condition, from two new districts; a new species of ARUNDINA, producing quantities of rosy-white flowers; some unusually large masses of CYPRIPEDIUM STONEI; also good plants of ODONTOGLOSSUM PESCATORIA and TRIUMPHANS, LELIA ACUMINATA MAXIMA, ONCIDIUM BIFOLIUM and MAJUS, CATTLEYA LAWRENCEANA, large-flowered variety; ONCIDIUM LEUCOCYLUM, CATTLEYA sp., ODONTOGLOSSUM GRANDE, the rare ONCIDIUM SPENDIUM, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7684.)

RADIATUM and other Extraordinary Varieties of ODONTOGLOSSUM VEXILLARIUM.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, May 24, by order of Mr. F. Sander, a fine lot of ODONTOGLOSSUM VEXILLARIUM, consisting of the finest possible forms.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7684.)

Six cases of a fine variety of VANDA SUAVIS, just received direct from Java. Also four cases of CATTLEYA LABIATA, ONCIDIUM ROGERSII, O. CRISPUM, LELIA PRESTANS, L. PERRINII, and other Brazilian ORCHIDS.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 24, by order of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

A further Portion of the Valuable Collection of ORCHIDS formed by the late John Day, Esq., of Tottenham. MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 8, at half-past 12 o'clock precisely, a further Portion of his COLLECTION of ORCHIDS, consisting of the choicest species and varieties, and including many plants of exceptional interest.

Further particulars in next Advertisement.

Wednesday Next.

6000 LILIUM AURATUM from Japan. GREENHOUSE PLANTS in variety, AZALEAS in flower, PALMS, FERNS, CARNATIONS, PICOTEES, and OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 23, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Barnes, S.W.

ANNUAL SALE. 20,000 well grown GREENHOUSE and BEDDING PLANTS, including 10,000 GERANIUMS, of the best varieties; thousands of LOBELIAS and CALCEOLARIAS, 1000 CHRYSANTHEMUMS, DAHLIAS, a new Scarlet Bedding GERANIUM, PALMS, AZALEAS, CAMELLIAS, TEA ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises, The Barnes Nursery, High Street, Barnes, close to the Railway Station, on WEDNESDAY NEXT, May 23, at 12 o'clock precisely, by order of Messrs. Bristow & Son, without reserve.

On view the day prior to Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

ESTABLISHED and IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 25, at half-past 12 o'clock, precisely, a very fine lot of imported ODONTOGLOSSUM ALEXANDRE, O. GRANDE, CATTLEYA TRIANE, and other ORCHIDS, from Messrs. Shuttleworth, Carder & Co., also about 200 lots of selected and well grown ESTABLISHED ORCHIDS, a small importation of CATTLEYA BOWRINGIANA, received direct, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Leytonstone.—Annual Sale.

15,000 BEDDING and GREENHOUSE PLANTS, well grown; 5000 GERANIUMS of the best sorts, choice AZALEAS, FUCHSIAS, PELARGONIUMS, PALMS, FERNS, and a great variety of OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises, the American Nurseries, Leytonstone (3 minutes' from the station), on SATURDAY, May 26, at 1 o'clock.

On view the day prior and morning of Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone.

Monday, May 28.

VANDA HOOKERIANA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY, May 28, at half-past 12 o'clock precisely, a grand importation of VANDA HOOKERIANA. This species is very difficult to import, and the consignment is in a specially fine condition.

On view morning of Sale, and Catalogues had.

Monday, May 28.

ODONTOGLOSSUM NEVADENSE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY, May 28, at half-past 12 o'clock precisely, fine established plants of this extremely rare and beautiful Odontoglossum, very few of which exist in collection.

On view morning of Sale, and Catalogues had.

Monday, May 28.

IMPORTANT SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY, May 28, at half-past 12 o'clock precisely, a grand importation of VANDA HOOKERIANA, in specially fine condition; the extremely rare and beautiful ODONTOGLOSSUM NEVADENSE, good plants of O. HASTULATUM, splendid masses of O. PESCATORIA, CYMBIDIUM LOWIANUM, with fine healthy breaks; CATTLEYA GIGAS, ODONTOGLOSSUM species, O. TRIUMPHANS, a specially good lot of O. SCEPTUM, ONCIDIUM LEUCOCYLUM, ODONTOGLOSSUM PHALENOPSIS, ONCIDIUM BIFOLIUM and MAJUS, in exceptional masses; CATTLEYA MENDELLI, &c.

On view morning of Sale, and Catalogues had.

Forthcoming Sales of Greenhouse Plants.

MESSRS. PROTHEROE AND MORRIS desire to call attention to the following SALE:—MONDAY, May 28.—At the PRIORY NURSERY, Chaucer Road, Acton.

Catalogues forwarded on application.

Orchids in Flower.—Special Sale, May 29.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER, will take place as above, for which they will be glad to RECEIVE NOTICE OF ENTRIES as early as possible. 67 and 68, Cheapside, E.C.

The Broomfield Collection of Established Orchids.

Important Unreserved Sale of the Second Portion of the celebrated collection of ESTABLISHED ORCHIDS, formed by Robert Warner, Esq., who is giving up their cultivation in consequence of long-continued ill health.

MESSRS. PROTHEROE AND MORRIS are instructed by Robert Warner, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, June 1, at half-past 12 o'clock precisely, the Second Portion of his well-known collection of ESTABLISHED ORCHIDS, without reserve.

Further particulars will appear next week.

Established Orchids.

Unreserved SALE of the First Portion of ESTABLISHED ORCHIDS formed by Dr. Duke, of The Glen, Lishams.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Dr. Duke to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, June 5, at half-past 12 o'clock precisely, without Reserve, the First Portion of his Collection of ESTABLISHED ORCHIDS, comprising, amongst others, splendid plants of the following:—

Cyclopogon Massangeana	Cypripedium Lindeni candidum
" Lowii	" Sanderianum
" tomentosa	" Leelia elegans
" Parishii	" amanda
Odontoglossum mulus	" anceps, white, true
" Uro-Skinneri	" Dawsoni
" Edwardi	Miltonia candida, true
" Cervantesi decorum	" Moreliana atro-purpurea
Cattleya Wagneri	" Regnellii purpurea
" gigas	
" Sanderiana, &c.	

No plants will be sold privately prior to the Sale. Catalogues will be ready in due course, and may be obtained of the Auctioneers, 67 and 68, Cheapside, E.C.

Beckenham.

Re Nunas. Under distress for rent.

To NURSERYMEN, FLORISTS, and ORCHID BUYERS.

Entirely without reserve.

MESSRS. EDMUND ROBINS and HINE (of 5, Waterloo Place, Pall Mall) will SELL by AUCTION, at the Victoria Nursery, Beckenham, on MAY 25 and 26, valuable STOVE and GREENHOUSE PLANTS, including 3000 Maidenhair Ferns, 2000 Geraniums, 2500 Arum Lilies, 1500 Spireas, 2000 Tuberoses, 100 Orchids, quantity of Heliotropea, Camellias, Gardenias, Aloes, Palms, Evergreens, and Bedding-out Plants, two VANS, GARDEN TOOLS, also the HOUSEHOLD FURNITURE, Bed and Sitting Room Suites, and a variety of useful effects.

Catalogues on application.

Beckenham, Kent.

To NURSERYMEN, FLORISTS, and CUT FLOWER GROWERS.

The VALUABLE GROUND LEASE (57 years unexpired at only £18 per annum) of the Victoria Nurseries, Bromley Road, comprising a substantial Dwelling-house, 10 Large Glass and Forcing Houses, with heating appliances and every possible convenience for carrying on a lucrative Business. Standing in Nursery Grounds of 3 Acres. To be Sold, with possession, at the Mart by

MESSRS. EDMUND ROBINS and HINE (of 5, Waterloo Place, Pall Mall), on JUNE 15, by order of the Mortgagees.

Particulars of EDWIN ELLIS, Esq., Solicitor, 23, Birchinn Lane, E.C.; or of the Auctioneers.

N.R. Vide Advertisement above.

To Orchid Growers.

The Magnificent Collection of ORCHIDS formed by the late T. A. Tittley, Esq., of Oakley House, Gledhow, Leeds.

MESSRS. HEPPEL and SONS are instructed by the Executors to SELL by AUCTION, in their Rooms, East Parade, Leeds, on WEDNESDAY and THURSDAY, May 30 and 31, commencing each day at 11 o'clock prompt, the COLLECTION of RARE and CHOICE ORCHIDS, amongst which may be mentioned a fine healthy lot of Cool-house ORCHIDS, including many hundreds of the fine Odontoglossum crispum, Pescatorei, large specimen Uro-Skinneri, extra fine plants of vexillarium var. rubellum and superbum, &c.; a very selected and grand lot of Lycaste Skinneri, in extra strong plants; magnificent pans of Disa grandifolia, two specimens of the true Caloglyphis cristata hololeuca (alba); a grand lot of well-grown Cattleyas, in compact specimens, such as Mendelli, gigas, Dowiana, Gaskelliana, Mossie, Sanderiana, &c.; a fine group of various Cypripediums, Angulosa; extra strong plants of the grand Dendrobium Wardianum, thyrsiflorum densiflorum, &c.; the rare Sobralia zantholeuca, and other choice things. The collection is in fine healthy condition, and most of the plants are in compact masses, suitable either for public exhibition or private decoration.

Also on FRIDAY, June 1, the GENERAL COLLECTION of GREENHOUSE PLANTS, formed by the late Mr. Tittley.

Catalogues may be had 7 days before the Sale of the Auctioneers, East Parade, Leeds; or 12, Piccadilly, Bradford.

The whole Collection of plants may be inspected at Oakley House on Saturday and Monday, May 26 and 28, and in the Sale Rooms, on the respective Sale mornings.

To Florists, Nurserymen, and Others.

At a nominal reserve.—Lewisham, Kent, 10 minutes' walk from Station.

COLLEGE PARK NURSERY, comprising nearly 3 acres, with 500 feet run of Glass (stocked with Camellias, Stephanotis, &c.), and an excellent Residence. Lease twenty years. Ground Rent, £35.

MR. WM. HODSOLL will SELL by AUCTION, at the Auction Mart, E.C., on THURSDAY, May 31, the above DESIRABLE PROPERTY, with the Goodwill of the Business, by order of the Proprietor, who is relinquishing, owing to ill-health. The Nursery is within easy reach of Covent Garden, and in the heart of a good residential district, and an excellent opportunity is offered for the acquisition of a business of a pleasant and profitable character.

Particulars of Messrs. HUGHES and GLEADOW, Solicitors, 40, Gracechurch Street, E.C.; and of the Auctioneer, Farningham and Gravesend.

Langley, Bucks.

ORCHARD and BUILDING LAND, with BRICK EARTH. MESSRS. BUCKLAND and SONS have received instructions to SELL by AUCTION, at the Mart, Tokenhouse Yard, London, E.C., on WEDNESDAY, June 6, 1888, at half-past 12 o'clock precisely, in lots, about 113 acres of most valuable FREEHOLD and COPYHOLD LAND, together with a Residence known as "South End Lodge," Farm Buildings, and Cottages, situate in the parish of Langley, Bucks, intersected by the Great Western Railway and the Grand Junction Canal, and abutting on capital roads.

The Residence stands in the midst of Cherry Orchards of good growth and in full bearing, at only a short distance from the Langley and Slough Stations, and easily accessible for carriage by both railway and canal. The Land is also most suitable for Nursery Market Gardens and Seed Trial Grounds, and much of it contains Brick Earth of the best quality.

Particulars at the Mart; of Messrs. TAYLOR, HOARE and BOX, Solicitors, 28, Great James Street, Bedford Row, W.C.; and of the Auctioneers, 23, Hart Street, Bloomsbury Squares, W.C., and Windsor.

£1000.

To NURSERYMEN and GARDENERS.—Fifty-two years' LEASE, GOODWILL, &c., of SMALL NURSERY of 2 Acres, within 5 miles of Covent Garden.

TO BE DISPOSED OF, with Six-roomed House, Six Glasshouses, Frames, Potting and other Sheds, one Horse, Stable, and Coach-house, with portion of Stock. Rental, £50 per annum. £200 down, the remainder can be paid by yearly instalments at 4 per cent.

Apply, in first instance, by letter only, Point Pleasant Nursery, Putney Bridge Road, S.W.

FOR SALE, a Small FLORIST BUSINESS, Four-room COTTAGE, SIX GLASSHOUSES, large GARDEN. Long Lease, at Low Rent. Apply to E. OSMAN, Goldsworth Road, Woking Station.

TO BE SOLD, a well-established FLORIST'S BUSINESS, with lately-added Fruit and Greengrocery. Large Nursery covered with Glass. Good Jobbing Connections. Main Road in St. John's Wood. Principals only. Apply, **GOWING AND CO., 41, Finsbury Pavement, E.C.**

London, S.E.—Dissolution of Partnership.
TO BE SOLD, on advantageous terms, a compact NURSERY of 2 acres, with 7 Greenhouses, all heated, and 81 Frames. Lease, 7, 14, or 21 years. Rent, £120. Stock, £700, which can be greatly reduced by an auction. Apply to **PROTHEROE AND MORRIS, 67 and 68, Cheap-side, E.C.**

Blunham, Bedfordshire.
Seven Miles from the County Town, about One Mile from London and North-Western Railway Station, Blunham, and Two and a half Miles from Great Northern Railway Station, Sandy.

THE ORCHARD, a Gentleman's Compact Residence, situate in nicely-planted Grounds, comprising GARDEN, LAWN, and PADDOCKS, with pretty Carriage-drive and Entrance, with several enclosures of highly productive garden land, altogether about 50 acres, in a high state of cultivation. The House, which is on a gravel soil, contains Hall, Stairs, Drawing-room, 14 feet by 15 feet 6 inches; Breakfast-parlour, 12 feet by 12 feet; Dining-room, 20 feet 6 inches by 15 feet; a Gentleman's Room, 8 feet by 10 feet 6 inches; large Store-room, well fitted; Kitchen, Scullery, Cellar, and Wash-house; Four principal Bedrooms, Servant's Bedroom, Closets, Dressing-room, Water-closet, and Back Stairs; there is a small Homestead, Two-stall Stables, Coach-house, and Loft over. The front Paddock is enclosed with Ornamental Timber, and the Garden is well planted, and includes a small Conservatory. Good Fishing may be had near, and the meets of the Oakley and Cambridgeshire Hounds are within an easy distance. The drives in the neighbourhood are pretty, and the roads very good. The Residence is within range of the celebrated Bedford Schools, which are available by cheap railway School tickets.

For Cards to View, Rent, Terms, &c., apply to Messrs. **USHER AND ANTHONY, Estate Agents, 9, St. Paul's Square, Bedford.**

TO LET, a NURSERY, in S.E. district, within 7 miles of Covent Garden Market, containing 5 acres of Land (walled in), 12 GREENHOUSES and PITS. A good private trade can be done. Stock at valuation. For further particulars address
A. A., 231, High Road, Lee, S.E.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

THE BURIAL BOARD for the Parish of St. Margaret, Barking.

The above Board desire to receive TENDERS for the ERECTION of a GREENHOUSE and TOOLSHED at the Burial Ground, Rippleside.

The Drawings and Specifications can be seen, and Form of Tender obtained, by application to Mr. C. J. DAWSON, Architect, East Street, Barking; or at the Offices of the Board.

Tenders to be delivered at the Board Offices, addressed to the CHAIRMAN, not later than 6 o'clock, on MONDAY, the 28th instant.

The Board do not bind themselves to accept the lowest or any Tender. By Order,
C. H. MILLS, Clerk to the Board.
East Street, Barking, May 17.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,
Have recently received Large Importations of

ORCHIDS,

Including a fine lot of
ODONTOGLOSSUM VEXILLARIUM,
ONCIDIUM KRAMERIANUM
And many other fine species,
All in the best possible condition.
Full particulars will be sent on application.

The Company have just completed
a new List of their
ESTABLISHED ORCHIDS,
which will be sent post-free on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

SUTTON'S FLORISTS' FLOWER SEEDS.
Begonia, Calceolaria, Cineraria, Cyclamen, Oxolinia, Primula, &c., the finest strains in existence. See SUTTON'S AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct from **SUTTON AND SONS, Reading.**

PRIMULAS—PRIMULAS—PRIMULAS.

Nineteenth year of distribution. Williams' superb strain, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS same price.
Also double white PRIMULAS, 6d. each.
Carriage free for cash with order.
JOHN STEVENS, The Nurseries, Coventry.

SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious MUSHROOMS. See Seed LIST, Free.

RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. and F. SHARPE will be pleased to make SPECIAL OFFERS of their fine selected stocks of Home-grown MANGEL WURZEL and TURNIP SEEDS, raised from picked transplanted bulbs, and harvested in splendid condition. Prices and Samples may be had on application. Seed Growing Establishment, Wisbech.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 3½ inch pots, 2s. 6d. each. Descriptive LIST on application.—**RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.**

BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 24s. per dozen; Bedding, choicest, 6s. and 8s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. The best and cheapest combined procurable. CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

WM. CLIBRAN AND SON'S general Plant CATALOGUE for 1888 is now ready, post-free 3d., also CATALOGUE of the best Vegetable and Flower Seeds.

Herbaceous and Border Flowers.
CARNATIONS and PICOTEEs to name, 6s. per dozen; Border and Clove varieties, from 4s. 6d. per dozen.
DELPHINIUMs, of sorts, unnamed, 4s. per dozen.
IRIS, German varieties, 2s. 6d. and 4s. 6d. per dozen.
English varieties, 1s. and 3s. per dozen.
MIMULUS, or MONKEY FLOWER, 3s. per dozen.
PANSIES, Show and Fancy varieties, 3s. per dozen, 2s. for 6s., or 21s. for 100.
PÆONIES, select herbaceous kinds, 3s. per dozen.
Tree varieties, 2s. 6d. and 3s. 6d. each.
PHLOXES, Herbaceous, of sorts, 2-yrs. 5s. per dozen; 1-yr. old plants, 3s. per dozen, 24 for 8s. 6d., 50 for 12s.
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THE NATIONAL SEED AND NURSERY TRADE ASSOCIATION.

The ANNUAL GENERAL MEETING will be held in the "Waterloo Hotel," Edinburgh, on WEDNESDAY, June 6 next, at 5 o'clock afternoon, for the Election of Office-Bearers and the transaction of the Ordinary Business of the Association.

The ANNUAL DINNER will take place in the "Waterloo Hotel" on the same day, at 6 o'clock P.M.

DAVID HUNTER, S.S.C., Secretary.
29, Dundas Street, Edinburgh.

TO THE SEED TRADE OF THE UNITED KINGDOM.

On the occasion of the ANNUAL MEETING of the NATIONAL SEED and NURSERY TRADE ASSOCIATION, to be held as announced in the foregoing advertisement, a MEETING of the SEED TRADE generally will be held in the "Waterloo Hotel," Edinburgh, on WEDNESDAY, June 6 next, at 3 o'clock P.M., for the purpose of considering the "Non-Warranty" clause used by the great majority of Wholesale Houses in connection with the sale of Seeds, of which the following is a copy:—

"Messrs. _____ give no warranty, express or implied, as to 'description, quality, productiveness, or any other matter' of any Seeds they send out, and they will not be in any way responsible for the Crop. If the Purchaser does not 'accept the goods on these terms they are at once to be 'returned.'"

The Meeting will more especially consider the bearing of the said clause upon the Retail Trade, in view of recent legal decisions both in London and Edinburgh.

As the matter is of such vital importance to the Agricultural interests of the Country, a large meeting is requested.

DAVID HUNTER, S.S.C., Secretary.

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HELIOTROPE Jann d'Amour, Miss Nightingale, dark, 6s. per 100, 50s. per 1000.
AGERATUM Imperial Dwarf, blue, 5s. per 100, 40s. per 1000.
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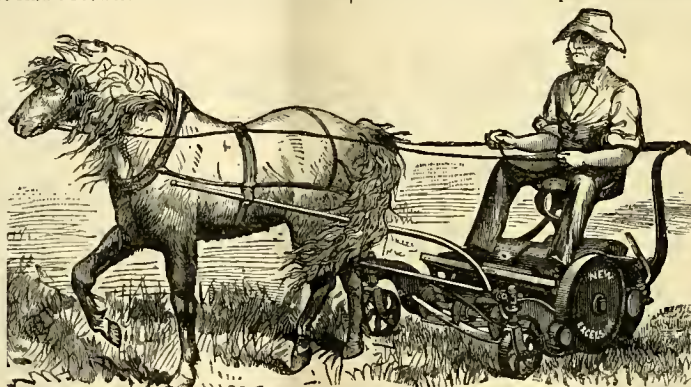
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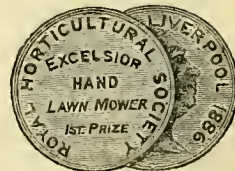
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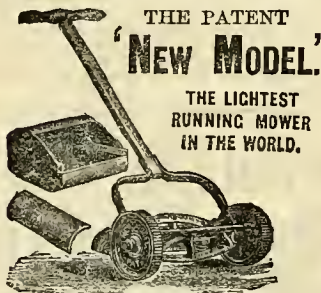
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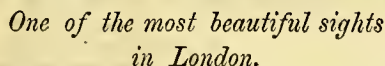
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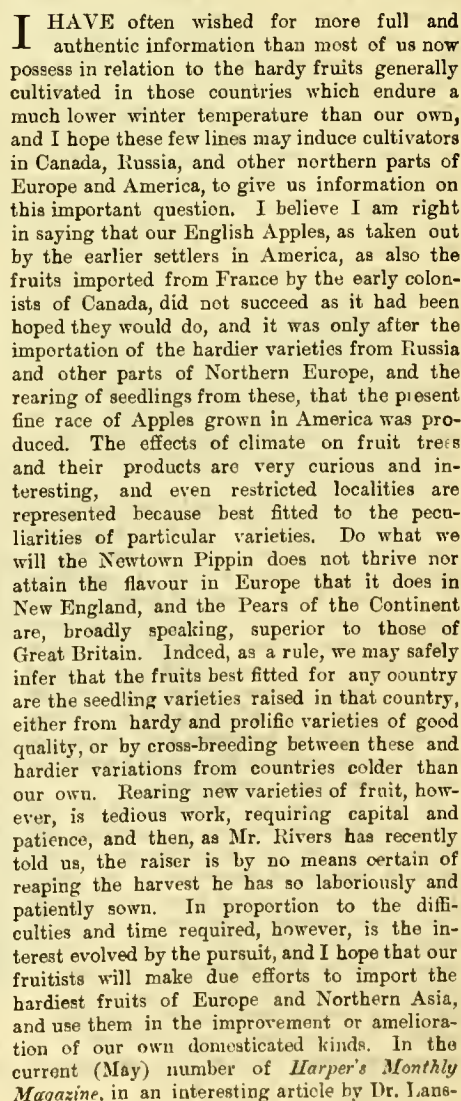
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dell on the salt mines of Netsk, I came upon the following extract relating to fruit culture on the banks of the Volga:—

"The Volga seemingly is a very old fruit-growing region, for in Russian poems of a thousand years ago the maiden whose neck was like that of a swan, and whose lips were like Cherries, had cheeks like a Volga Apple. In the southern part of the Government of Kazan through which we had passed there are twelve villages where the peasant proprietors are Apple growers, and so hardy are their little trees that they are often loaded with fruit after a winter when Fahrenheit's thermometer has sunk to more than 50° below zero.

"In the public square at Simbirsk, with a climate as severe as that of Quebec, the wild Pear is a fine ornamental tree, and is cultivated around in orchards to the number, it is said, of 10,000 trees. Russia's Cherry district we had passed between Moscow and Nijni, the Vladimir Cherries being known all over the country. More than a hundred growers each had 15,000 trees, and sometimes entire trains are loaded with this one product. Cherries are grown also in villages of the Volga, and Plums likewise. About Moscow and Vladimir the Plum trees are dwarfs, often bushes; which seems to be a provision of Nature, for if a Plum bush is killed by cold to the ground, new shoots soon grow and bear."

Of course I know that Apple trees which grow on the Volga and can endure a depression of 50° below zero, may not be in all ways suitable for culture in English gardens, but the chances are that the best of such varieties, if crossed with our own Cox's Orange Pippin and other choice varieties, would yield us a race hardier, and so better fitted for the exposed parts of northern England or Scotland than any we now possess. They being both dwarf and prolific naturally—that is to say, without any grafting or working of any kind—would suggest their being readily propagated by layers or cuttings, and thus eminently fitted as stocks. Of course I know that to enable a tree to withstand a low winter temperature a high and tolerably dry summer temperature is necessary. For example, the climate of Ireland is relatively mild during the winter season, but less sunny during the summer season than Great Britain, and as a consequence shrubs and other plants are less able to withstand an exceptionally severe winter depression than is the case in England. In like manner I know that these dwarf Russian Apples and Plums would prove less hardy here than beside the Volga, but yet they would prove much hardier than those we now cultivate, and their introduction would doubtless add strength to our own cultivated races.

In fruit growing, as in gardening generally, there is no standing still. We must either improve or we shall go back, and the best way to improve our native fruits will be to cross-breed with new blood in the shape of hardier kinds, from widely separated habitats and different soils. The Asiatic Grape Vine did not succeed in America, but by inter-breeding it with native species a race of Grapes better suited to the climate has been obtained, and even the French vineyard cultivators, have been glad to procure these American varieties to repair the ravages of the Phylloxera during recent years.

One of the very best undertakings for our Royal Horticultural Society to undertake just now would be this task of collecting the wild species and cultivated variations of our hardy fruits, other than those now grown in England. It has always seemed to me, and doubtless to others also, a sad waste of time and capital to grow at Chiswick the ordinary kinds of Apples, Plums, Pears, Cherries, Grapes, &c., which are now to be seen in most nurseries and private gardens. The true work and business of a horticultural society is not with the old but with

the new, and to be worthy of enlightened support the very fringe of progress must be lifted for us as it was lifted for our predecessors in the days of Lindley and Knight, Fortune, Douglas, Hartweg, and many others one need not name.

In conclusion, I venture to differ altogether from those who say that the days of collecting wild plants is past or played out, and that the hybridisers can now carry on the work, and supply the collector's place to greater advantage. This view is the subtlest of all errors, viz., half a truth. There is room for the collector now as in the past, for the cultivator always, but the hybridist cannot with safety kick down a ladder on which he stands. The hybridiser may give us a few ephemeral forms of Orchids, Arads, Amaryllids, or florists' flowers, but what can he hope to do with our hardy fruits, vegetables, and grain-yielding grasses, when their wild prototypes are as yet unintroduced to our gardens? Looking broadly at the question, there is as much room for collectors now—more in fact—than at any other time. The world of hardy flowers, now so popular, is practically untouched, and as I have said of the hardy fruits of Northern Asia, we know practically nothing more than the late Karl Koch has told us in his books.

Instead of collecting wild plants, and especially hardy fruits and flowers, being played out, I believe the appointment by the Royal Horticultural Society of a really good collector, would be one of the most profitable investments the Society could make at the present time. Gardening is changing its ground now as it ever has done, and people generally are opening their eyes to the fact that the glasshouse culture of a few stove plants or Orchids is a very small part of a great question. Gardening is creeping out into the fields, and every day the demand is greater for the best fruits, vegetables, and flowers, that will grow in the open air. *F. W. Burbidge.*

NEW OR NOTEWORTHY PLANTS.

LISSOCHILUS GIGANTEUS, *Welwitsch.*

This is one of the most extraordinary plants in the vegetable kingdom. [See fig. 83, p. 617, from a specimen shown at the Temple Show of the Royal Horticultural Society.] I saw in September last two plants at Sir Trevor Lawrence's. They were not of a surprising growth, so that I never thought it possible one of them could flower so soon. They had a few cuneate oblong-acuminate plicate leaves, about 3 feet in length. That was all. The peduncle is stated to reach, in its native country, 16 feet in height. It bears a rather lax raceme. The very conspicuous bracts are cuneate-oblong convex apiculate, shorter than the stalked ovaries, and are upwards of 1 inch in length. The cuneate ligulate apiculate greenish sepals are retrorse. Two wide oblong broad petals form a hood over the lip; they are lilac, with darker veins. The lip has a wide goitre-like spur, apiculate at the top, and a three-lobed lamina. There is a purple border to the anterior lacinia. Three yellow keels project from its centre, two over the part of the spur under the column, and two mauve-coloured lines on each side. The column is trigonous-green, with yellow at the base inside. The anther is biapiculate. The pollinarium is not quite identical with that of the wild-grown specimens—a very unusual circumstance. The flowers are twice as large as those of a good *Warrea tricolor*. Sir Trevor kindly sent me a flower of the plant collected on the Congo by Monsieur Auguste Linden.

I regard this achievement as one of the greatest successes ever earned in horticulture. The plant is one of our Orchid wonders, and is without a worthy

rival. It displays well formed flowers, whereas *Grammatophyllum speciosum*, no doubt its nearest rival, indulges in monstrous flowers. But this is not all. It belongs to a group that has tormented our best collectors. We may not speak of *Lissochilus streptopetalus* and *L. speciosus*, species which, under the old régime, flowered regularly during my early youth. The conditions under which those plants grow are widely distinct and cannot be compared to those of *Lissochilus giganteus*. Sir Trevor brought over from Ghent two plants at the end of September last, and after seven months one was in flower. Such a success, decidedly not fortuitous, is quite extraordinary, and will partly repay Sir Trevor for the many disappointments which are unavoidably connected with the possession of such a collection as his.

The plant was discovered by our good friend, the late Dr. Frederic Welwitsch, before 1862 or 1863, in the Angola district of Golungo Alto, where it is widely spread over nearly the whole district in *paludosis spongiosis sylvaticis*. He assigns it to *regio secunda*—1000 to 2400 feet altitude. Dr. Welwitsch told me that this *Lissochilus* is occasionally submerged, and afterwards roasted in a soil as hard as brick. This circumstance, indeed, it was which made me despair of the plant ever flowering in our stoves. The great *philtre* of Nature, a very copious suddenly spread watermass [syrringing], representing the dew, might be more used than it is nowadays.

The plant was found further to the north by the excellent observers, Mr. and Mrs. Monteiro. They observed it growing at the mouth of the River Zaire (Congo), near Porto da Leuha, on the banks of the river, in the mud, where it was covered by fresh water at high tide. *H. G. Rehb. f.*

We cite the following particulars relating to this extraordinary plant from Mr. Johnston's work on the Congo:—

"The hot sun and the oozy mud call into existence a plant life which must parallel in rank luxuriance and monstrous growth the forests of the coal measures, and reproduce for our eyes in these degenerate days somewhat of the majesty of the vegetable kingdom in bygone epochs.

"In the marshy spots, down near the river shore, are masses of that splendid Orchid, *Lissochilus giganteus*, a terrestrial species that shoots up often to the height of 6 feet from the ground, bearing such a head of red-mauve, golden, scented blossoms as scarcely any flower in the world can equal for beauty and delicacy of form. These Orchids, with their light green, spear-like leaves, and their tall swaying flower-stalks, grow in groups of forty and fifty together, often reflected in the shallow pools of stagnant water round their bases, and filling up the foreground of the high purple-green forest with a blaze of tender Peach-like colour. . . . Clumps of a dwarf Palm, *Phoenix spinosa*, which bears a just eatable starveling Date, hedge in these beautiful Orchids from the wash of the river, and seem a sort of watermark that the tides rarely pass: but the water often leaks through the mud and vegetable barrier, and forms inside the ring of dwarf Palms many little quiet lagoons, not necessarily unhealthy, for the water is changed and stirred by each recurring tide; and in these lagoons bordered by Orchids and tall bushes, with large spatulate leaves, and white shining bracts about their flower-stalks (*Mussaenda*), by *Pandanus*, by waving Oil Palms, and by Mangrove trees poised on their many feet, and telling out against the shining sky with their lace-like tracery of leaves—in these quiet stretches of still water are the homes and feeding-grounds of myriad forms of life: of blue land-crabs, whose burrows riddle the black soil; of always alert and agitated mud-fish, flapping and flopping through the ooze; of tiny amethystine red-beaked kingfishers; of kingfishers that are black and white, or large and grey and speckled; of white egrets; of the brown and stork-like *Scopus nimbretta*; of spur-winged geese; and of all-devouring vultures. A rustling in the vegetation, and a large *Varanus* lizard slips into the water; or on some trampled bank a crocodile lies asleep in the warm sun, with a fixed smirk hanging about his grim muzzle. The lagoons are places seething with life—life that is ever stirring, striving, and active; and



FIG. 83.—LISSOCHILUS GIGANTEUS: UPPER PORTION OF FLOWER-SPIKE. (SEE P. 616.)

From a plant grown by the President of the Royal Horticultural Society, and exhibited by him at the Temple Show, May 17—18. Leaves 4 feet long, 4 inches wide. Total length of flower-spike, 8 feet 8 inches. Petals rich rose-coloured; lip purple, with darker stripes,

when you suddenly arrive, slipping and splashing in the watery footholds, the sudden silence that greets you is rather the frightened expectant hush of a thousand apprehensive creatures."

The genus *Lissochilus* is near to *Eulophia*, and was first described by Robert Brown, and now includes about thirty species, natives of Tropical and Southern Africa. They are terrestrial herbs, with pseudobulbs and long plicate leaves. In Colonel Grant's *Botany of the Speke and Grant Expedition*, Professor Reichenbach describes two species of this genus—*L. Grantii*, found by Colonel Grant in flower on the east coast range, lat. 6° 38' S., at an altitude of 4700 feet; the plant grows near the water, and has a yellow flower. The other species was found at Karagué in March, and has a single unbranched erect stem, with the linear sepals green, spotted with brown, and the rest of the flower yellow.

ODONTOGLOSSUM X MASEREELIANUM, n. hyb.

Amongst an excellent collection of Orchids exhibited at the recent Ghent Exhibition by Mr. E. Vervaeet & Co., of Mont St. Amand-les-Gand, one of the most attractive objects was an *Odontoglossum* in so brilliant a state that it might have been compared to Dr. Harvey's *Odontoglossum ferrugineum*, had it not had the sepals and petals both orange, and the lip yellow. The petals were edged, with some spreading angles. The flower gave the impression that the darker orange colour was limited, forming spots on a lighter ground. The light yellow lip had a cordate, nearly square base, toothletted at the margins, suddenly dilated into a cordato-reniform lobed, denticulate anterior blade. The callus at the base is nearer to that of *Odontoglossum sceptrum* than to that of *Odontoglossum ferrugineum*. There is not the rich tomentum of the first-named plant. The wings of the column are fringed and lacerate. The bulb and leaves are those of *Odontoglossum luteo-purpureum*. This plant justly bears the name of Monsieur Masereel, a most distinguished orchidist of Ghent. *H. G. Rehb. f.*

NOTICES OF BOOKS.

THE ART OF PREPARING VEGETABLES FOR THE TABLE. By Sutton & Sons, Reading. (London: Adams & Co., Paternoster Row. 1888.)

In a country where it is the rule to serve vegetables only in one way, viz., "boiled to a pap," this little book ought to be welcome. The average English cook's only way of sending up a Cauliflower, for instance, is to boil it in water until it forms a mealy, ill-shapen mass, on which (in most cases) she "claps" the cold china cover of the vegetable dish. Messrs Sutton, in their treatise on the art of preparing vegetables for the table, endeavour to inculcate something better. Endless are the ways in which vegetables may be cooked, and rendered wholesome, palatable, and attractive on the table, and the various directions given in the work before us are so simple that there can be no difficulty in following them.

In another edition it will be as well to mention in the recipe for a salad that the Lettuces should be dried by shaking them in a cloth, or, still better, in one of the convenient little French wire salad-baskets to be procured now in this country. Very few cooks think of drying the salad after they have washed it, or if they do attempt it, they usually wrap it in a cloth, and bruise the delicate saladings by striking it with their hand on the table. It should also be hinted that a salad is much nicer if "broken up" than if cut with a steel knife. All the ordinary kitchen garden materials are dealt with in this little volume, and we trust it may do something to remove from us the reproach that, while we have the best of vegetables in this country, we are a people of one idea as to the cooking of them, and consider the subject so unimportant as to be beneath our notice, and unworthy of our attention.

NOTES FROM BELGIAN NURSERIES.

(Continued from p. 587.)

E. Vervaeet & Co., Mont St. Amand, make a great feature of Orchids, and for the better inspection of the principal ones in flower have arranged a cool and pleasant house with tiled floor, and a luxuriously arranged little sanctum at the end. In the several houses of *Odontoglossums* and *Masdevallias* some good things were in bloom, so also in those devoted to *Laelias* and *Cattleyas*, the *L. purpurata* showing excellently for flower. *Cypripediums* are well grown in large numbers; and a house is set apart for seedling in which we noted a good method of recording the parentages of the seedlings on imperishable, long triangular labels of clear glass, the names being written with a diamond. This is a good plan as such tallies are not unsightly, they are not to be obliterated, and they do not obstruct the light. A considerable collection of choice Orchids is to be found in this nursery, also a large house filled with fine Tree Ferns, some excellent Palms, &c.—all the plants exhibiting good culture.

M. A. VAN GEERT, MONT ST. AMAND.

At this fine nursery, where the sympathies of the English nurseryman with its genial and clever proprietor always lead him, we found a very fine display of Orchids, in spite of the great and numerous exhibits of those plants which were sent from this establishment to the International Exhibition. M. van Geert cultivates his plants up to the very highest standard, and has a clever way of bringing those in flower into view by neat arrangements at the entrances of the houses. Here we found one of the best Orchid shows in Ghent, very rich in *Cypripediums*. Among the newer plants are *Anthurium Comtesse de Kerchove*, *Nidularium argenteum striatum*, a very effective *Bromeliad*, and a grand lot of *Azaleas* and *Cliveas*, in all sizes and stages, from the young to the specimen flowering plant. Palms, *Aspidistras*, *Phormiums*, and other decorative plants in great profusion, and rare and good plants in the open air up to the best standard.

M. D'HAENE.

"Birds of a feather flock together," and M. D'Haene, undeterred by the presence of brother nurserymen to right of him, to left of him, in front and behind, hoists his standard at Ledeberg, and undoubtedly holds his own. This is a large establishment, excellently kept. Palms, *Rhododendrons*, *Azaleas*, *Draenas*, *Cliveas*!—what can a poor reporter find to say about them that he has not already said, or may not have to say again? But here, house after house of Orchids testify to the great strides that have been made of late in Orchid culture in Belgium. Our notes make mention of *Lycastes*, *Dendrobium albo sanguineum*, and *D. draconis*; of *Trichopilia fragrans*, *Laelia elegans*, *Cattleya Skinneri*, *Cypripedium villosum*, and others galore. We have no doubt we saw all these; but the riches of Ghent are overpowering, and their magnitude must serve as our excuse for the imperfection of the record. *Caladiums* and *Gloxinias* are done well here. Here, too, is a magnificent *Pandanus* called, we know not whether by any authorised registrar, P. D'Haenei. It has broad channelled leaves of glaucous green hue, faintly blotched on the surface, and with spiny edges. The singular and beautiful *Pavonia Wioti*, a plant described by our much-regretted friend, Morren, was in bloom. The depth of its colouring and its singular form should make this plant attractive to the plant-lover. It would not be a Ghent nursery if there were not some standard and pyramidal Bays. To form a standard, the stem is allowed to run up to the desired height, the side-buds being removed, while the leaves from whose axil they spring are carefully preserved. When the stem has arrived at the required height it is allowed to branch, the branches being pinched in from time to time, so that in due time a good symmetrical head is formed.

For the formation of pyramids an opposite course of procedure is followed, the lower branches being allowed to grow, and the upper ones pinched in so as to secure the desired shape.

As to the Ghent *Azaleas par excellence*, it may be here mentioned that they are hybrids raised originally at Ghent by crossing the oriental *A. pontica* with the North-east American species, such as *A. viscosa*, *calendulacea*, and *nudiflora*. Mr. Barbidge narrates that the first person to effect this cross was a baker at Ghent—one M. Mortier. *A. sinensis*, commonly called *A. mollis*, the Sino-Japanese plant, is very prolific of varieties, which have become even more numerous now that it has been hybridised with the Ghent section. Horticulture is truly cosmopolitan, and Ghent does appropriately to call her shows international, for in the veins of one *Azalea* (the figurative expression may be pardoned) may run the mingled blood of natives of the Atlantic States, of the Caucasus, of China, and Japan.

Both these *Azaleas*, or *Rhododendrons* as they are in reality, have the flowers surrounded by bud-scales, which, in place of remaining on the stem for some time, soon fall off. In the Pontic and American forms proper the corolla is funnel-shaped, with a long slender tube, a short limb, beyond which the stamens project, while in the true Chinese plants the corolla is rotate or bell-shaped, with a short tube and a broad five-lobed limb, beyond which the stamens and style do not protrude. This is what the books say, but *MM. les horticulteurs de Gand* have changed all that, and how we are to distinguish between these forms now we cannot say. M. Maximowicz, who has made a special study of these plants, discreetly omits to commit himself, and others with less experience will do well to follow his judicious example.

(To be continued.)

TREES AND SHRUBS.

THE CRACK WILLOW (*SALIX FRAGILIS*).

THERE is a large tree of this species standing on the bank of a small stream within view of my writing-room window, which for a few weeks every spring is one of the most beautiful objects in the landscape. Just now it is especially attractive. The outline of the tree itself is free and graceful, the green of its young foliage is of the most exquisite tint, and this, coupled with the green and gold of its numberless catkins, makes this tree one of the best for ornamental effect at this season of the year. It is more especially valuable where late leafing trees, such as Elm and Oak, predominate, as it is fully three weeks ahead of either of these. The contrast of the bright young foliage against the still bare branches of the surrounding trees, and against the deeper green of a background of meadow, at once arrests the attention. A few weeks hence the leaves will assume a darker hue, and the colour closely assimilate with the surrounding tints. In this way the tree fades from notice during the summer and autumn, to reappear in its freshness as the spring comes round.

The branches of the Crack Willow are of comparatively little use for the purposes to which the young wood of this genus is generally applied, but when allowed to grow to full timber size—in, of course, its maiden form, as any attempt at pollarding would at once destroy its beauty—its wood becomes useful, and, as a landscape tree, the early summer effects are pleasing. *D. J. Y.*

MAGNOLIA CONSPICUA.

This is one of the most desirable of all the *Magnolias*, as not only is it exceedingly free-flowering, but it is the first to open, and as the blooms are pure white, of moderate size, and deliciously fragrant, they are very valuable for cutting for decorative purposes, or working up in bouquets. The most suitable situations for planting and growing the *Magnolia conspicua* are either against a wall facing

the sun, or in the foreground of other shrubs where it can have a southern aspect and be well sheltered, as otherwise it is apt to get its flowers injured in spring by frost or cold winds, which soon spoil their beauty. In habit the plant is free-growing and deciduous, the blossoms coming out before the leaves, the way to increase the stock being either by layers or cuttings, the first named of which may be buried with sharp sandy soil at any time, with just the ends of the shoots left out of the ground, but the cuttings must be taken off and put in under handlights during the autumn. *J. S.*

SHANTUNG CABBAGE.

(BRASSICA CHINENSIS, L.)

In a letter dated April 21, 1887, Mr. George Hughes, late Commissioner of Customs at Chefoo, China, offered the Royal Gardens seeds of a Cabbage which has long been in high repute in China, but which appears to be little, if at all, known in this country. Mr. Hughes stated:—"I have just received from Chefoo, North China, a small packet of Shantung Cabbage seed, and I should like, if possible, to introduce this delicious Cabbage into England. It grows in the North of China, is Lettuce-shaped, and weighs from 5 to 8 lb. When boiled it is nearly as good, if not quite, as Seakale; eaten raw, in a salad, it is of so delicate a flavour that I know of no vegetable in England to approach it. It is an autumn Cabbage, should be planted about 18 inches apart, thrives best with moisture, and in Shantung is well watered every day; there the seed is sown in June. When nearly full grown it should be tied round, so as to give it a good white heart. If it can be acclimatised in this country it will be a great addition to our vegetables."

The seeds received at Kew, being few in number, were carefully cultivated. They were sown in a heated pit on May 3, and in about a fortnight all had germinated. They were pricked off into boxes, and when large enough transferred to pots. They were kept in a cold frame until the beginning of June, when they were planted out in beds of rich soil about 18 inches apart in the rows, and the same distance from row to row. About the middle of July the plants were tied up in the same way as Cos Lettuce, and when well filled and blanched were cut for use. They were pronounced to be excellent. The seed ripened only sparingly, probably owing to the dry weather of last summer.

It is possible that this Chinese Cabbage may prove a useful addition to English gardens. The kinds most highly esteemed at Peking are those from the neighbourhood of the little town of Ngan-sun. These are said to be reserved for the table of the Emperor. They are eaten either raw, in a salad, or cooked and seasoned with salt.

Under suitable circumstances, the cultivation of this Cabbage would doubtless prove as simple and as successful as with the ordinary Cabbage. Botanical specimens of Chinese Cabbage were received at Kew in 1886 from Mr. F. S. A. Bourne, H.M. Consular Agent at Chungking. Under the native name of *Pai-tsai* he describes it "when young it is eaten as a Cabbage. It is also cultivated for its seeds, from which oil is pressed and used for light and cooking." In the *Index Floræ Sinensis*, part i., p. 46, by Forbes and Hemsley, *Brassica chinensis*, Linn. *Amoen. Acad.* iv., p. 280, is reduced under *Brassica campestris*, L. A list of Brassicaceous plants from China, with notes supplied by Mr. Bourne, is published by Mr. Hemsley in the *Gardeners' Chronicle*, vol. xxvi., n.s., 1886, p. 40.

A very complete account of the Shantung Cabbage is given in *Le Potager d'un curieux, histoire, culture et usages de 100 plantes comestibles peu connues ou inconnues*, par A. Paillieux et de Bois, Paris, 1885. It is here described as *Pé-tsai*, or *Chou de Chine* (*Brassica chinensis*, L.). Further information may be obtained from the *Bulletin de la Société Centrale d'Horticulture de France: Note sur la culture du Pé-tsai aux îles Maurice et de Bourbon*, par M. Breon, vol. xxiii., p. 142.

Mention is also made of the *Chou de Schangton*, or *Pé-tsai*, in the *Bulletin de la Société d'Acclimatation: Productions de la Chine*, par M. l'Abbé David, 2 série, t. ii., p. 237. Ce mémoire contient, au sujet du *Pé-tsai*, ce que suit: "Comme plantes alimentaires, on trouve dans nos jardins . . . le *Pé-tsai*, dont les Chinois consomment une énorme quantité, et qui vaut plus que tous les autres légumes réunis; les Européens le trouvent aussi fort bon et de meilleure digestion que le divers Choux d'Occident."

A figure with cultural hints on Chinese Cabbage, or *Pé-tsai*, is given in the *Vegetable Garden* by MM. Vilmorin-Andrieux. London: John Murray, 1885, p. 146. *Kew Bulletin*.

ORCHID NOTES AND GLEANINGS.

CATTLEYA LAWRENCEANA.

This *Cattleya*, coming from a country hitherto little explored, was perhaps as eagerly sought after as any introduction of recent years, and it was thought that there was very little probability of further consignments coming to this country for some considerable period of time. However, what had once been done could be done again, and more importations of the plant have arrived, which quickly found purchasers, and which are now becoming well established. When it flowered for the first time, about two years ago, a feeling of disappointment was felt by some persons, not so much with the colour or number of the flowers as with their size when compared with many other choice species already in cultivation. The blooms certainly were small thus compared, and the several parts of the flower were rather narrow; the lip, too, appeared a little pinched in, and if placed side by side with many others with which it was expected it would come into rivalry, the palm for beauty could not be given to the new-comer. The second year of blooming came, and knowing what to expect its blooming was hailed with pleasure, and additions to the stock were made as soon as they could be obtained. The third year has come, and from the stout home-made growths and plenty of healthy roots, which will bear any extra strain upon their vitality, we are enabled to see that this species is in reality a most beautiful flower, occupying a place almost by itself (in some degree resembling *C. Skinneri*), still sufficiently distinct to be valuable as a decorative subject. At first it was anticipated that only one form was likely to appear amongst those imported, and even now the dark one is commoner than any other, and amongst these are some which stand out from their fellows in regard to colour, and the breadth of petals, the more open, expanded lip. I have this spring seen several such, that gave me a better idea of its value than some of the dark ones I had hitherto observed. Again, I have seen this season one or two plants of a form that is novel; these were of a very light rose colour with a lip of the same pale hue, and a white throat; this is a very pretty and distinct form, and those who possess it will doubtless take every care of it. There is another variety intermediate between these two, the flowers of which are light mauve, open lip, the blooms beautifully veined and striped, as are many varieties of *Cattleya maxima*. The blooms of this *Cattleya* are larger than the dark ones, in fact, each of the pale forms, so far as I have observed them, are larger than those of deeper colours. There are inquiries being made of pure white varieties, and remembering the white forms of *C. Skioneri*, *C. Mossiae*, *C. Mendelii*, *C. maxima*, *C. Trianae*, and one or two others which have appeared, it is probable that one such may one day appear. When this happens there will be an eager contest for its possession. The treatment of this species is not difficult, for, like the majority of *Cattleyas*, it enjoys plenty of light, but not continuous sunshine. Morning sunshine is most helpful, and the earlier rolling up of the blinds than is sometimes practised may safely be adopted; but to stand plants where the mid-day sun falls directly on them after its rays

have passed through the glass of our houses—which latter is sometimes not of the best—is very hazardous. If the imported plants are small, they may be grown in baskets, using potsherds and charcoal plentifully, and filling up only the crevices with the best fibrous peat. By so doing water may be freely afforded, and souring of the materials prevented. A free-growing temperature should be maintained, such as suits *C. Mossiae*, during the summer months, and a period of rest given, extending from November to February, at which time the flowers appear at the base of the sheaths. When it becomes better established I feel certain this *Cattleya* will prove a most useful plant for home decoration, and when large masses are grown, most acceptable in an exhibition group. *Vanda*.

ONCIDIUM MORINUM, Rehb. f.

I am indebted to Mr. B. S. Williams, of the Victoria and Paradise Nurseries, for a splendid panicle of the above-named species (described in *Linnaea*, vol. xli., p. 20, in 1877). It is a decidedly pretty species, belonging to Lindley's section *Microchila*, in which the lip is small and leathery. The flowers are golden-yellow, except the column, which is dull crimson-purple, and making quite a striking contrast with the rest of the flower. The lip is triangular, sessile, coriaceous, and with a pair of roundish prominent calli in the centre. Although the flowers are rather small, they are thickly set on the panicle, and present quite a mass of colour. The whole inflorescence appears to have been from 2 to 3 feet in length, and the flowering portion a foot long by about 5 inches wide. The three lower branches had been removed, but the seven remaining ones bear no less than 150 flowers. The side branches of the panicle are again branched, and the ultimate branchlets present a zig-zag appearance. It exists in several collections, for twice recently small branches have been sent me to name, and the first time I failed to identify it. Mr. Williams, however, has the plant named, and simply sent the specimen to be preserved in the Herbarium; but it was not until seeing this piece that I became aware what a pretty species it is. *R. A. Rolfe*.

INSECTS INJURIOUS TO FOOD PLANTS AND TIMBER TREES.

A YEAR or two since Mr. Mosley, of Huddersfield, prepared for the Kew museums a series of twenty mounted sets, showing the destruction caused by certain insects to garden plants and timber trees. These have recently been increased by the addition of twenty more mounts, prepared as before by Mr. Mosley. These sets are so compact and instructive that they deserve to be better known than they apparently are. Each insect is treated separately, and its life history illustrated by actual specimens, as well as by descriptive text. Each is contained in a uniform glazed mount 12 inches by 8. Amongst those recently added to the Kew collection may be mentioned the following:—Gooseberry sawfly (*Nematus rhesii*). This shows three of the real caterpillars on a bared twig, the cocoons and perfect flies, a single leaf showing the borings made by young larvae, and some twigs with the leaves destroyed, together with a good drawing of the fly very much magnified.

This destructive creature causes immense injury, not only to the Gooseberry, but also to the red and white Currant. The flies appear during the first warm days of April, and at the end of the month and in May the eggs are laid along the ribs of the leaf on the under side, as many as sixty eggs on one leaf. In about a week the caterpillars hatch and proceed to eat small holes through the leaf. They become fully grown in June and July, when they bury in the earth and change to chrysalids in silky cocoons, the flies coming out in August. These produce another generation of caterpillars in the autumn, which remain as caterpillars in their cocoons all the winter, changing to chrysalids in spring, and producing the April brood of flies.

As prevention and remedies, it is stated that if the bushes are looked over in the early part of May, the perforated leaves may be detected, which should, with their colonies of young caterpillars, be picked off and destroyed. Lime, soot, ashes, or flower of sulphur, thrown over the infested bushes while they are wet, will destroy the grubs. Advantage may thus be taken of dew, or, if the bushes have to be specially wetted, a little paraffin, quassia, or soft soap added to the water will make the work more certain. Powdered hellebore is also used in the same way, but is liable to poison the fruit. After a bad attack the surface soil should be scraped away in winter, when the caterpillars are in, to the depth of 2 or 3 inches, and buried; the fresh soil being mixed with a dressing of lime, gas-lime, or paraffined ashes, and spread under the bushes.

Another pest to the Currant is the Currant clearwing (*Sesia tipuliformis*). This is illustrated by mounted longitudinal sections of the stem showing the long channels made by the larvæ; also a drawing showing the larvæ in the stem, and a twig with pupa case protruding after the exit of the insect, and good specimens of the perfect moth. The insect is described as being generally common in gardens where Currant bushes are grown, though not often noticed from its quick flight and great resemblance to a fly. The moths appear during hot weather at the end of June or beginning of July. The eggs are laid upon the stems, and as soon as the young caterpillars hatch they bore through the pith and feed upon it during winter. The flagging of the leaves during hot weather indicates the damage caused by this insect. As a cure it is recommended cutting away infested branches or capturing the moths as they come out.

Amongst other insects illustrated are the Ash beetle (*Ilytesinus fraxini*), Carrot fly (*Ptila rosea*), Nut weevil (*Balaninus nucum*), Codlin moth (*Carpocapsa pomonana*), Pine-bark beetle (*Ilyurgus piniperda*), and others.

For teaching purposes these handy mounts are excellent, and might be usefully introduced into schools. *John R. Jackson.*

FLORISTS' FLOWERS.

YELLOW CARNATIONS.

A visit recently paid to Mr. E. S. Dodwell's garden at Oxford, was the means of discovering that he has a number of seedling yellow Carnations, obtained from carefully made crosses, which can scarcely fail to produce some varieties of much merit. In 1886 Mr. Dodwell received from Mr. Gyles, of Kilmurry House, Waterford, a fine batch of yellow, buff, and apricot seedlings, with markings of various hues and breadths, all very promising, and such as he expected would make a noise in the floricultural world when they came to be known. Mr. Dodwell had already utilized the pollen of a few of the best of the yellow Carnations in Florence, making this fine variety the seed parent; and he has among the progeny several worthy to be grown with those obtained from Mr. Gyles.

An important and most interesting feature of these seedlings is their distinct advance towards the longitudinal markings of the Carnation. *R. D.*

ALPINE AURICULAS.

Mr. H. Turner said at the meeting of the Royal Horticultural Society on Tuesday, May 8, that he thought the public were beginning to admire the newer alpine Auriculas more than they do the refined show varieties. It is not to be wondered at, for they are very showy, very fine and pleasing, and so much of stoniness has been got into the flowers of late years that they are lasting also. In the case of my own select collection I find that the alpinists outlast in the duration of their beauty and floral service the show types, and this will have its effect in raising them in the public estimation. The work of im-

provement begun at Slough nearly twenty years ago, has gone on very rapidly in recent years, and till something like perfection has been reached in the variety named in memory of the late Mr. Charles Turner. This was seen in its best form at the National Auricula Society's show on April 24, when it overtopped anything else claiming to be new. Indeed, so great has been the advance that though some dozen seedlings were staged for Certificates at the last meeting of the Society, only two gained this honour; one was named Harry Turner, a fine, bold, stout, well-formed gold-centred flower with shaded maroon and claret-purple margin, and Mrs. Harry Turner, a white-centred variety, with a shaded salmon and violet margin, distinct and very pleasing; a large, flat, and finely formed pip. At the Auricula shows prizes are offered for gold-centred and white-centred flowers. What is badly wanted is some really fine white-centred varieties—white centres that will not change to cream and pale yellow with age. One of the seedlings staged by Mr. Turner had the defect of displaying on the same flowers in a young state with golden centres; when half developed, with sulphur, and when fully expanded with a dead cold ivory-white centre, which tended to impart to the variety a very confused appearance. We want white centres, that will keep of a living white until the flower commences to fade. We want also a race of white-centred alpinists, with shaded margins of blue, violet, and mauve—delicate in tone, yet gaily tinted, to give some relief to the varieties of maroon and shaded crimson colours, of which there are so many. The mauve and blue-edged varieties possess one fault that needs eradicating, namely, that the marginal shades open of a very pleasing and attractive character, and then they deepen into dull and expressionless tints. There is ample room here for the specialist. It is always observed at Auricula competitions that the white-centred alpinists are decidedly the weakest. It is because of this that efforts should be put forth to increase their number and improve their quality at the same time. *R. D.*

KEW NOTES.

RHODODENDRONS AT KEW.—The display of flowers on the large Himalayan Rhododendrons in the temperate-house at Kew has this year been exceptionally good. *R. Aucklandiæ*, which is certainly the queen of all Rhododendrons, is now magnificent, the heads of large beautiful white flowers being both abundant and full. Certainly this plant alone is worth a long journey to see. *R. Nuttallii*, which is equally gigantic in its proportions, has been almost as grand as *R. Aucklandiæ*, its deep bells, creamy-yellow at first, becoming pure white with age, being greatly admired. The red-flowered variety of *R. argenteum*, and of which there is a gigantic specimen at Kew, has lately borne numerous large trusses of bloom. When the flowers first expand they are crimson, then they change to deep rose, and finally become almost tawny before falling. *R. Veitchii*, *R. cinnamomeum*, *R. Windsori*, *R. nivenum*, as well as several hybrids, are also in flower at the present time. The following three kinds deserve special notice:—

RHODODENDRON CHAMPIONI.

This interesting species was introduced to Kew from Hong Kong about ten years ago, and it was supposed to be especially adapted for pot culture, and useful as a greenhouse plant. Experience so far, however, is not favourable to this opinion, for, in spite of liberal and careful treatment, the plants at Kew have not borne flowers till this year, an example with flowers being in the large temperate-house now. It is about 2 feet high, branched, the leaves 5 inches by 2 inches, leathery, covered with glandular hairs on both sides. The flower is Azalea-like, 4 inches across, the petals spreading and pure white, with a few yellow spots on the upper ones. The calyx is peculiar, having narrow lobes nearly 1 inch long, and being covered with long silky white

hairs. The species evidently belongs to the ciliatum group.

R. COLLETTIANUM

is another interesting Rhododendron which we owe to Dr. Aitchison's visit to Afghanistan, who sent seeds to Kew from which a plant now flowering in the rockery was raised. The plant grows on the mountains at an elevation of 10,000—13,000 feet, and forms a small, compact-growing species with small ovate, glaucous-green leaves, like those of *R. ferrugineum*, and compact heads of small white flowers. It may improve under cultivation, or possibly may be turned to good account by hybridists as it is quite hardy.

RHODODENDRON KEWENSE X

This is the result of crossing *R. Aucklandiæ* with *R. Hookeri* at Kew in 1874, and plants of it have just flowered in the temperate-house for the first time. A flower-head was exhibited along with other Rhododendrons among the collection of plants and cut flowers sent from Kew to a recent meeting of the Royal Horticultural Society. The plant is a sturdy grower, the branches green, covered with very short glandular hairs; leaves 6 to 10 inches long by 2 inches broad, narrowed at both ends, shining green above, paler on the underside, petiole 1 inch long; flowers in a loose raceme on the ends of the strongest branches; pedicels nearly 1 inch long, calyx small, green, corolla broadly campanulate, 3 inches across, and 2 inches deep; segments 1½ inch across, undulated, emarginate; colour very pale flesh, the unexpanded buds being deep rose. There are about twelve flowers in each head. It will be seen that the hybrid is intermediate between the two parents, and that it is a handsome addition to the greenhouse Rhododendrons. *W. W.*

GARDENER ASSOCIATES OF THE ROYAL HORTICULTURAL SOCIETY.

Sudden and severe illness have prevented me from replying sooner to the courteous and considerate criticism of Mr. G. F. Wilson, p. 468. With your permission I will now write a few last notes on the impolicy and injustice of establishing emasculated Fellowships for practical gardeners. It seems essential that its constitution and basis of membership should be promptly, wisely, and finally settled on such easy and honourable terms as to include the majority of practical gardeners. Not a few maintain that the difficulties—decline and fall of the parent society—were chiefly owing to the fact that most of the heads and hands that have done so much to evolve, mould, and control the science and practice of horticulture were left outside its pale.

True, honorary Fellowships were occasionally given for distinguished ability or service, but these were exceedingly rare, and never carried with them any of the special privileges of horticultural citizenship, though I have never been able to find a single clause in the charter depriving honorary Fellows of the full rights of the Fellows by purchase. And now the Council, aided by the Fellows' committee, have made another and a bolder attempt to bring in practical gardeners. The idea, the wish, is excellent, but, like many another capital idea, it is in danger of being marred or spoiled in the execution. Few things could have given such a grand impulse to the reconstituted old Society as the admission of 5000 practical gardeners as Fellows at an annual subscription of half a guinea each. But this generous proposal came forth half-strangled with the traditional swaddling-bands of restriction and suspicion. True, the door was opened to practical gardeners, but the entrance was of such humble dimensions, and all who entered had their status cut down so much and their privileges so severely whittled away, that no gardener is likely to enter the Society that way.

Singularly enough neither of your accomplished correspondents, Messrs. G. F. Wilson and A. R. Smee, seem to see any limitation to gardeners in the

THE BULB GARDEN.

THE BULB GARDENS OF HAARLEM.

ticketing and disqualifying clauses of these proposals. But Mr. Wilson, in whose great and deserved success in obtaining guinea Fellows I heartily rejoice, fairly meets me on other grounds. In brief, his defence of the Society—that it cannot afford half-guinea Fellowships. It was the traditional faith of the Royal Horticultural Society that nothing less than two guineas would pay; now Mr. Wilson takes his stand on one. He says “he thinks a guinea is the lowest subscription that will support the Society.” If so, my answer is, stick to the guinea, and refuse to go below it.

Will Mr. Wilson, or, perhaps, better still, Mr. Snee—who estimates the value of these Associateships, that cost the Society so little, at £5 a-year to gardeners—be good enough to tell us how the extension of gardeners' privileges to the name of Fellow with a voice and vote in the management of the Society, would add a single farthing to the expenses of the latter? I wish to say emphatically that I cannot see how these Associateships are to benefit any practical gardener five brass farthings. Nay, more, and worse, so far as their influence extends, they will inflict a positive injury upon him; thus, the name Associate proclaiming to all the world that he is either unfit or unable to become a proper Fellow of the Society to which he belongs. Associateships are also to be paid for twice over, once with knowledge duly certificated, and again with half-a-guinea. Once obtained, they are to open the door to the best situations in the country, seats at floral and flower committees, and qualify for judgeships throughout the rural districts. Before thus attempting to ruin our gardeners wholesale by compulsion, I would respectfully entreat him to give my plan a fair trial. It is simply this: make gardeners Fellows for half-a-guinea a year, and give them voice and vote in the affairs of the Society.

As to the testing and certifying of knowledge as a further condition of Fellowship and a qualification for Council, committee, judgeships, &c., there is no objection to it, provided always that it is impartially applied to all sorts and conditions of Fellows alike, and that some duly qualified gentlemen undertake and certify to the necessary knowledge. But that a money qualification alone should be held sufficient for three grades of Fellows, and be thought to qualify them for every office, from President downwards, and that a knowledge test should be imposed on gardeners alone before they are considered safe to be admitted to see their own shows, or enter their own premises, is such a glaring example of class inequality and injustice as is not to be found in the practice of any other society in England.

Beyond the merest elementary rights of fully qualified Fellows, practical gardeners are by no means grasping as to privileges, nor likely to use them very frequently. Distance, difficulties of leaving home duties, cost of transit, fullness of occupation, keep most of them closely tied at home. As to whether half-guinea subscriptions would pay or not, more would depend on their number than ought else. Neither could there be any difficulty of fairly apportioning privileges to the ratio of pay. And as in the three cases of four, two, and one guinea subscribers the status, honour, and power of the Fellows are left intact and equal, why, in the name of common sense and generous comprehensive and popular administration, should not the last order of Fellows be served in proportion with the same sauce as has agreed so well with the other three orders?

Lest my objections to Mr. Snee's scheme of adding a knowledge test to the money purchase of emasculated Fellowships of gardeners should be misunderstood, I may add that nearly twenty years ago, through your pages, I strongly urged the Royal Horticultural Society to become the centre of light and the fount of honour for horticulturists. That plea you have recently allowed me to urge afresh in your pages. *D. T. Fish.* [We believe that this is a question of money, and those who have gone into the matter carefully decide that at present it cannot be done. *Ed.*]

A GREAT admirer of what may be termed Dutch bulbs myself, I had often longed to see the fields of Hyacinths, Tulips, &c., growing in their native home, and this year I had the gratification of inspecting many of the principal gardens of Haarlem and the vicinity. If we refer to old records we find that the cultivation of the Hyacinth and Tulip may be traced back to the end of the sixteenth century, but it did not become an object of commerce until the beginning of the seventeenth; and by the middle of that century the love or rather passion for choice varieties of Tulips and Hyacinths was most intense. Altogether, apart from the extravagant prices paid for these flowers in the early years of their culture, it is certain that an almost uninterrupted course of commercial prosperity has marked the progress of their culture from these early ages until now, except during longer or shorter periods when an industrious people have been driven to exchange the implements of their profession for the appliances of ancient and modern warfare. The earliest notice of a public sale of Tulips known to me is given in the register of the city of Alkmaar, where it is stated that in 1637 they sold publicly, for the benefit of the Orphan Hospital, 120 Tulips with their offsets, for 9000 florins; and that one of these flowers, named *The Viceroy*, was sold for 4203 florins. Considering the value of money at that time, these sums seem to be enormous.

Later even higher prices were paid for Tulips; but they were mere gambling transactions, in which the bulbs never appeared at all. Beckmann, the author of a *Tour in South Holland*, says:—“The real truth of the story is, that these Tulip roots were never bought or sold, but they became the medium of a systematic species of gambling. The bulbs and their divisions into *perits* became like the stocks in our public funds, the objects of the ‘bulls’ and ‘bears’; and were bought and sold at different prices from day to day, the parties settling their accounts at fixed periods, the innocent Tulips all the while never once appearing in the transactions, nor being even thought of.” Beckmann further says that when the celebrated variety, “*Semper Augustus*” was not to be had anywhere—which happened twice—no species, perhaps, was oftener purchased and sold. This kind of sheer gambling reached at length to such a height that the Government found it necessary to put a stop to it.”

In this enlightened but perhaps more prosaic age the bulb business is carried on with an earnest and patient determination to satisfy the requirements of every class, from the prince to the peasant; while the great and ever increasing facilities of transit enable the growers to send their produce into every country where the refined art of gardening prevails. The prices, too, are surprisingly low, considering the large amount of capital required to cultivate and manure the ground as it ought to be done; indeed, all the large growers are at the greatest pains to grow their stock well, and also to keep the varieties quite true to name. The system of culture pursued now is that which has been in practice for many generations. There is no secret in it, and any intelligent gardener might go and do likewise. The climate is not different from our own, at least as regards temperature, for climatic influences may be at work which we cannot quite understand; but the real difference is in the soil. This is of considerable depth, and is composed of a very large proportion of sand: the remaining portion seems to be decayed vegetable matter. It is of such a nature that high drying winds would blow it into heaps, in fact it is necessary to throw something over the surface to keep it down. At the present time they are throwing the cut spikes of the Hyacinths over the newly dug ground, or liquid cow-manure, which cakes over the surface and keeps it stationary. Where Potatoes are planted it is necessary to insert tufts of straw about 18 inches apart in the ground these hold it in its place until the Potatoes are up.

The ground for the Hyacinths lies fallow for one year; it is now being dug up and well enriched with solid cow-manure; this is very dear, costing about 10d. for a barrowload. The ground, being so light, is easily dug over, and the manure is placed 6 inches or so below the surface; when dug it has to be covered with the cut Hyacinth spikes, or a thin layer of liquid cow-manure; this last soon hardens, forming a thin cake which effectually prevents the sandy soil blowing up into heaps.

October is the month for planting out the bulbs, and I noticed that they were planted deeper than I expected, quite 4 inches, and in some cases they were deeper; this may account for the spikes standing more erect in windy weather without supports than they do in this country. The beds are about 4 feet wide, and seven bulbs of the largest size are planted in a row, eight, nine, and as many as twelve of the smaller sizes go to a row. The beds are covered in winter to protect them from frost and wind, with dried grass or reeds. In March the covering is taken off, and the liquid cow-manure is spread over the surface to prevent the wind disturbing the beds again. In April the flowers are produced—it was quite the last week of the month this year before there was anything like a display of bloom, and in most cases the growers were busy cutting off the spikes before the flowers were fully open; this is done to throw more vigour into the leaves. I was fairly surprised to see such large and handsome spikes. The first sized plants generally produced spikes as large and handsome as we see at the metropolitan exhibitions, but it did not follow that these varieties with the largest spikes would produce them of such large size the next season. At the time of planting a few bulbs of other varieties may get mixed up in a bed of a particular sort; these “rogues” are all marked by some of the members of the firm; they do not trust it to the ordinary workmen. There are really few insect pests which attack the bulbs or the flowers. Rats are troublesome, so also are mice; but the first named do most mischief; they work under the covering of reeds during the winter, burrowing in the beds, to scratch out and destroy the bulbs. I noticed, also, in many of the gardens that round holes, about 5 inches in diameter, had been scooped out in the beds, and where a hole had been made a plant had been taken away. These are bulbs affected with a fungoid disease, which causes the bulb to decay; but if the bulb with the adjoining soil is removed, the disease goes with it, whereas if it is allowed to remain the disease is left in the soil, and it would spread over a circular space about 5 feet in diameter next year, destroying the bulbs all over the space. The diseased soil is thrown over the grass fields.

The process of propagating Hyacinths is very interesting, and is performed in two ways. The largest number of bulblets is produced from those bulbs that have the base scooped out. One large bulb that had undergone the process of scooping out was shown to me, and it had about sixty bulblets, all crowded together, and bulging out from the base of the parent bulb. The other process is merely to notch the base of the bulbs by cutting three times deeply into the rootstock. This process does not produce so many small bulbs—from twelve to twenty-four only—but they are larger, and do not take so many years to grow into large flowering bulbs. The largest bulbs are used for propagating purposes. The small bulblets from scooped out rootstocks take six or seven years to grow into full-sized bulbs; the notched bulbs four years. The small bulblets are planted very thickly in the beds, and merely produce one or two narrow leaves the first season.

Several growers are also seedling raisers, but there are so many good varieties now in all the colours that it is very difficult indeed to produce a superior new variety. In one garden I counted about 1500 seedlings in flower, and the grower had marked three to grow again, but I am very doubtful whether any of them will be introduced to cultivation. This large bed of seedlings represented a considerable outlay. There are new or little known varieties in all the large bulb gardens, and some exceedingly choice

things have been obtained from sports. One of the most sportive varieties is Charles Dickens, single blue; it has sported to single pink, single purple, double blue, and double red. The single pink and double blue forms are plentiful and very good; the double blue Van Speyk is an excellent variety in itself, and has the largest bells of any Hyacinth. I found a rose-coloured form of it, Lord Wellington, a handsome double red, has sported to blue, and of this some growers have large quantities. The single blue Lord Byron has sported to white; it is not quite white, but has a slightly blue tinge, and is very lovely. Baron van Tuyl is also well known as an excellent dark blue Hyacinth; there is a white form of it now grown in large quantities—thousands in one garden; it has also given a pink variety.

Amongst new varieties raised from seed I saw a very large quantity of a distinct orange-buff variety named Orange Above. It was in the hands of one grower, but has since been sold by auction in the green state, and will be distributed during the season at a reasonable price. It forms a handsome spike of well-formed flowers. It would perhaps be invidious to particularise any of the growers, large or small, for I found each grower would excel in some one particular variety or varieties; perhaps one garden would grow *La Grandesse* remarkably well, but be not quite so strong in *Mont Blanc*; another might reverse this. Probably the real cause is, that one grower has a larger stock of a particular variety, and makes an effort to excel in its culture. One firm I would like to mention, because they are well known in Holland, it not in England, as raisers of new varieties from seeds—Messrs. J. H. Kersten & Co., of Haarlem. I have noted nearly all the new Hyacinths grown and exhibited in England for the last twenty-five years, and in that time very great progress has been made, during the last decade some very fine varieties have been produced, and it was both interesting and instructive to see most of them growing in Messrs. Kersten's garden and other fine things yet unknown in England. *Queen of the Blues* (Kersten)—for there are two varieties: this form gives compact spikes, and well formed bells of greater substance than the other form. *Challenger* is very distinct, and forms a medium spike of deep blood-purple coloured flowers. *Mrs. Veitch*, bluish, has large well formed bells, and a handsome spike. *Criterion*, yellow, forms a more handsome spike than any other yellow yet in commerce. I noted this as the best yellow exhibited in London this season; it was exhibited before the committee at South Kensington and passed by them: why, I would like to know.

Souvenir de J. H. Veen was very beautiful, its handsome spikes of rich purplish flowers being very conspicuous. *Praaltonbe*, single, light blue, handsome spikes; *Pygmalion*, light rosy-lilac; *Roi des Belges*, compact spikes of rosy-scarlet flowers; *Sir Charles Napier*, long spikes of deep blue-purple bells; *Galatea*, very distinct, pale lilacy-rose—large bells and good spike.

Amongst double and semi-double varieties *Disraeli* is distinct and handsome, and will displace *Bouquet Tendre*, which has held the highest position as a double red for fifty years at least. *Venus de Medicis*, double rose, long spike, *Annetje*, semi-double, red—a really grand variety, which may yet displace *Kohinoor*, forms a handsome spike. *Blush Perfection*, as grown in Messrs. Kersten's garden at Overveen, was surpassingly beautiful, producing semi-double handsome spikes of well formed pale rosy-blush flowers.

La Victoire, double, lilac-purple, is so distinct in character, and the quite double bells form such a handsome spike, that one wonders why it could be passed by the Floral Committee. They should be seen in the clear light in their native Holland. It would lengthen this article too much to write about the Tulips and other fine things seen in some of the gardens, so that I must reserve my notes of them for another article, *J. Douglas*.

TULIPA SYLVESTRIS.

This extremely rare British Talip is now flowering in its wild state in South Wilts, and deserves passing notice in your columns. As compared with *T. Gesneriana* and our garden varieties, it would be regarded by florists as insignificant, and anything but a grand flower; but irrespective of this it is a real botanical treasure, by reason of its being the only native species belonging to the genus *Tulipa* that we have, and also on account of its being so seldom met with in a wild state. The flowers are of a beautiful golden-yellow, slightly fragrant, drooping in the bud, but almost erect when fully out, and are borne on stems about a foot high, with from one to three linear-lanceolate leaves of a silvery-green colour. In its wild state it appears to be very shy in flowering, as is fully evidenced by the fact of there being only about a dozen flowers out of some thousands of bulbs growing in a piece of woodland, and along a hedge-row, near to where this note is written. Its mode of reproduction is rather noteworthy, and until recently it has always been a puzzle to me to account for its prolific character, seeing that it is so shy in flowering; but in taking up a few bulbs, the other day, all mystery on the point was dispelled. From the base of one of the largest bulbs was growing a thick, white, fleshy root, 3–4 inches long, and at its point a young bulb was already formed. It would be difficult to say how long a time would elapse before it became a flowering bulb, but, judging by appearances, one might say three or four years, under favourable conditions; there can be no doubt, however, that thousands of bulbs come and go out of existence without ever flowering at all. *J. Horsfield, Heytesbury*. [Can our correspondent oblige us with a specimen? Ed.]

QUEEN ANNE'S DAFFODIL.

It is interesting to know that this scarce Daffodil is naturalised in the New Forest. Two years ago a lady, who lives there, sent me flowers of a double Daffodil, which arrived somewhat withered, so I asked for two or three bulbs. These have flowered this year, and are undoubtedly *Narcissus capax*, or *eystettensis*, commonly known as *Queen Anne's Daffodil*. My informant tells me that the Daffodil is wild in her neighbourhood; but there are reasons why the exact spot had better not be indicated. *C. Wolley Dod, Edge Hall, Malpas*.

CULTURAL MEMORANDA.

SCHIZOSTYLIS COCCINEA.

LARGE plants of this late autumn and winter flowering half-hardy perennial may be divided and planted out, in prepared soil, in an open situation, in rows sufficiently wide apart to allow of good growth being made, and watering them to settle the soil. It is a very useful plant, either grown in 48's or 32's, and the flowers are of service in the cut state. The habit of growth of the *Schizostylis*, the formation, colour, and profusion of its flowers, render it an acquisition amongst greenhouse plants, more especially as it comes into flower at a time of year (from October to January) when scarlet and crimson flowers are not plentiful, and it may be grown in the winter by any one possessing a pit or greenhouse. The plants should be potted up in September, in rich mould, watered, and stood on coal-ashes in a cold pit or frame near the glass, and shaded from sunshine for a few days, until the roots have pushed into the soil, afterwards removing a portion of the plants into heat as required, and giving water at the roots when necessary.

PENTAS CARNEA.

This plant deserves to be more extensively cultivated than it now is. It is of a spreading and free-flowering habit, and produces an abundance of moderate-sized corymbs of delicate rose-coloured flowers. It is of easy culture, cuttings strike freely, and it may be grown successfully under ordinary stove treatment, and it is a very useful plant to cut

from. The flowers wire well, and are very suitable for bouquets. The plants may be had in flower nearly all the year by striking in spring and autumn a few cuttings, which, as soon as they are rooted, should be potted singly in 3-inch pots, and thence, when necessary, into larger pots, using a mixture of three parts light loam, one of leaf-mould, and a little sand, placing them on a shelf near the glass, to ensure sturdy growth. They should be stopped three or four times as the shoots continue to grow.

RICHARDIA (CALLA) ÆTHIOPICA.

Now is the time for dividing, and, if necessary, pulling to pieces the plants which have been flowering during the last four or five months. The plants, while moist at the roots, should be divided and planted in rows at from 16 inches to 18 inches apart every way in a mixture of three parts loam and one of well-decomposed short dung. In planting, the plants should be given a gentle shake upwards, to settle the soil among the roots, treading according to the condition of the soil, which, when each plant is being finished, should be drawn back from the stem so as to form a sort of basin for the reception of water. This done, each plant should be staked. The leaves will gradually die down, but not before the roots have pushed into the soil and fresh crowns are being formed. The only summer attention required is to give them copious supplies of water. A note will appear in due time in these columns as to when and how the plants should be potted.

THE ABUTILON.

A stock of this greenhouse shrub is easily raised both from seed sown in light sandy mould and placed in heat, and from cuttings of the young growths inserted in pots filled with the same sort of soil and placed in heat, shading from sunshine until they become rooted, when they, and also seedlings when about 2 inches high, should be potted singly into small 60's, put back in heat near to the glass to prevent them from making a weakly growth, watered, and kept close until the roots have taken to the soil. Pinch the shoots a few times during the first few months of their growth and shift into larger pots as occasion may require. *A. Bonle de Neige*, pure white; *A. Darwini grandiflora*, orange and crimson; and *A. vexillarium*, of climbing habit, are some of the best varieties to grow.

CORONILLA GLAUCA.

This free winter and spring flowering greenhouse shrub should be grown by everyone having even a small greenhouse to furnish with a variety of flowering plants which will succeed in a night temperature ranging between 35° and 50°. Cuttings of the young wood taken now and inserted round the edge of small pots filled with sandy soil, watered, and placed in a Melon or Cucumber bed, will soon root, and as soon as they commence to grow they should be potted singly into small 60-sized pots, in a mixture of three parts sandy loam and one of leaf-mould, put into a close frame, watered, and shaded from sunshine until the roots have taken to the soil, when the plants should be aired freely during favourable weather, the shoots pinched a few times, and kept supplied with moisture. Shift the plants into larger pots before the roots become matted in the small ones.

GENISTA RACEMOSA.

This well known yellow winter and spring flowering plant will flourish under the same treatment as that recommended for the *Coronilla*. It is a very useful furnishing plant, as well as being a plant from which you can "cut and come again."

PASSIFLORA CÆRULEA.

Young plants of this showy and very free-growing and profuse-flowering greenhouse climber are readily raised from seed. Sow at once in a pot filled with any kind of light potting mould, and then place in heat and water, afterwards potting the young plants singly into 3-inch pots, putting them back in

heat, giving water at the roots, and shading from sunshine for a few days until the roots have pushed into the mould, and when about 2 or 3 feet high, plant in their permanent position, putting a little rich mould about the roots. *H. W. W.*

PLANTS AND THEIR CULTURE.

ACALYPHAS.—The bright-coloured foliage of these plants renders them very effective as decorative subjects, and for which purposes medium-sized plants well furnished with leaves to the base are the best. They are of quick growth, and to keep up a constant supply of nice plants frequent propagation must be had recourse to. All the species strike readily from cuttings, and large cuttings should be employed such as the tops of plants which have got leggy, or the points of full sized shoots. These, if potted singly in small pots and stood in a moderately warm propagating pit or frame, will soon root, when they should be potted at once, for if they are left long in the small pots they are apt to make a small set of leaves, which rather spoils their future appearance. Any good light rich soil and intermediate temperature suits them well; but to bring out fully the vivid colourings of the foliage little shading must be employed, nor should they be grown in too close an atmosphere, or they will be deficient in colour, even if they may acquire size. If the plants are carefully hardened off before being used for dwelling-house decoration they will last for a considerable time in good condition. The best sorts are:—*Macafeana*, reddish-bronze and crimson, and some of the leaves are usually somewhat fringed; *musica*—or as it is sometimes called *Makoyana*—is a neat and distinct species. The leaves are many-coloured and slightly recurved. *Macrophylla* produces handsome heart-shaped leaves a foot in diameter, and makes a showy subject for the warm greenhouse, but it is too large for general use; *marginata* is, when well done one of the prettiest of the genus, but from some reason or other it is not so easily grown as most of the others; still, with care, it may also be obtained in good condition. Too much heat, with insufficiency of light and air, seems to be the cause of its not doing satisfactorily in some places. A temperature of 60° without shading and the plants set well up to the glass, are the best conditions for growth. Its brownish leaves, with a distinct rosy-carmine margin and drooping habit, make it a distinct and useful plant. It is one of the best and hardiest. *A. tricolor*—sometimes called *Wilkesiana*—is much in the way of a *marginata*, but sufficiently distinct to be included in a collection with that species.

Acacia and Cytisus.—Few plants require less attention or are better adapted for early winter and spring decorative purposes than these, while many of them are useful in a cut state. Both genera like fairly liberal treatment during the growing period, as their beauty is much enhanced by a free luxuriant growth. Plants which were cut back as they went out of flower, and have now made a fresh start, should, if they are in small pots, or much pot-bound, be turned out, slightly reducing the ball of roots, and repotted in well-drained pots two sizes larger, using fibrous loam with a sprinkling of bone-dust and soot, and as much sharp sand as will keep the soil porous, potting firmly and providing plenty of space for water. Before turning the plants out of the old pots see that the ball of roots is moist throughout. After being potted the plants are much benefited by being kept in a moister and closer atmosphere for a short time, but little or no shading should be used. When fairly well re-established in their pots, give more air, and towards the end of the growing season stand them out-of-doors in a sheltered and sunny position. It is also advisable to partly plunge the pots in coal-ashes or similar material; this prevents them from getting dried up rapidly, and protects the roots from extremes of temperature, moreover it economises labour in watering. The handsomest *Acacia* perhaps, for a cut flower, is *dealbata*—the Silver Wattle—which has slender shoots along which hang racemes of yellow flowers, the silvery pinnate leaflets setting off the flowers to great advantage. This is a capital subject to plant out in a conservatory where space can be afforded it. *A. verticillata* is a tall and handsome species, having

dense prickly foliage and spikes of light yellow flowers. A very similar looking plant is *A. Riceana*, but it is more shy of opening its flowers, and is better suited for a rafter or pillar. Of more moderate growth are *armata*, *Drummondii*, *diffusa*, *affinis*, *lineata*, *cultriformis*, and *pulchella*. The curiously branched *A. platyptera* is a neat dwarf-growing plant, and, flowering as it does in the autumn, it is a desirable plant. Of stove species—*sphærocephala* is noteworthy, it having elegant foliage and immense dark-coloured spines. Of *Cytisus*, *racemosus* and *canariensis* are the best known, but *C. filipes* is slender branched and has white flowers. It is worthy of being more cultivated. *Cytisus* are, generally speaking, hardier than *Acacias*, and good results are sometimes obtained by planting them outdoors in summer, and lifting them in the autumn. This method saves labour in watering, and I prefer it to pot culture. *F. Ross, Pendell Court.*

FRUITS UNDER GLASS.

PEACHES.—In some instances the crop from the earliest house will now be nearly gathered. Where this is the case syringe well night and morning to keep the foliage healthy, giving the borders a thorough soaking of water, and avoid the arid atmosphere which some gardeners falsely consider is conducive to the ripening of the shoots. Let the ventilators stand wide open day and night, and by the end of the month, where the roof is removable, as in some instances the sashes may be removed, and any repairs necessary may be done. Trees on which the fruits are approaching ripeness should, if dry at the root, receive a thorough watering with clean water, giving no more until the fruit is gathered. Wherever the foliage is found to shade the fruit from direct sunlight—and without which there will be no high finish—it must be put aside so as to expose the fruits. Discontinue the use of the syringe on ripening fruit, also lessen the atmospheric moisture gradually, increasing the quantity of air given by leaving the top and bottom ventilators partially open at night, and should the weather be chilly use a little artificial heat. A good circulation of warm air is conducive to high flavour, and a moist stagnant atmosphere will ensure badly coloured and insipid fruit.

Succession-houses.—The trees in these houses must receive regular attention in disbudding, tying the shoots, and thinning the fruit, gross shoots being pinched back. Remove every shoot which is not required for fruit bearing or furnishing, and aim at getting the wood which is left well ripened. Give abundance of water to trees swelling their fruits, and in the case of old trees let a little manure be given with the water. Where the drainage is good there is little danger of the watering being overdone. If greenfly should appear, fumigate at once, and give the trees a good washing with the syringe or garden engine the first thing in the morning afterwards.

Packing Peaches.—A word on this subject may not be out of place here. I have tried boxes with divisions, rolling the fruit in tissue paper, and packing between them with cotton wool. This is an expensive and not at all times a safe method; I have therefore discarded it, and substituted bran instead, and confectioners' boxes, which can be bought for a penny apiece. Begin by placing about 1½ inch of bran in the bottom of the box, roll each fruit in tissue paper, and allow them to stand 1 inch apart; fill up with bran, allowing a depth of 1½ inch at the top; fill in between the fruit and the lid. Packed in this fashion they will travel to any distance within the three kingdoms.

Figs.—Where the fruits are colouring discontinue the use of manure-water, and also cease to syringe the trees overhead; promote a free circulation of dry warm air until the crop is gathered, when the trees, whether in pots or borders, should receive a thorough watering with clear water, syringing freely. Trees carrying a heavy crop of fruit, with their roots in a limited space, must have abundance of weak diluted nutriment, the trees being syringed early in the morning and in the afternoon. Allow a temperature of 55° for a short time after the house is closed, letting it fall to 70° by 10 p.m.

Succession-houses.—The trees should have the shoots pinched and the fruit thinned, if large size is to be attained. Do not crowd the wood, or the tendency to fruit shedding in spring will be increased. The same method of packing as for Peaches will be found suitable for Figs. *W. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

WALL TREES.—The bloom on Peach and Nectarine trees being now set, the trees will be benefited by a thorough soaking of water, taking the precaution beforehand to prick up the soil in the alleys, if it be hard. When the trees are watered, mulch them with long litter, and they will require no further watering for some few weeks to come. Continue to protect the trees for the present, or "blister" will appear on the foliage. On warm mornings give the trees on the south wall—especially the Apricots—thorough washings with the engine or a powerful syringe. If the dry weather continue, all spring-planted fruit trees will stand in need of water at the roots, followed by a mulching.

Raspberries.—Hoe the soil lightly throughout plantations, and cut off any suckers which are far removed from the stools, thinning out the young canes to the number of six or seven. Autumn-fruiting varieties should have their shoots thinned out, leaving them so that when tied up to the wires they are not crowded, and retain chiefly those shoots which stand close to the wires.

Plum trees are blooming very profusely here, and should the weather continue fine for a few days longer we shall obtain a fine crop of fruit. The birds have disbudded the trees less this spring than usual, which I think is owing to our having syringed the trees with a mixture of soot, lime, and water. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

VEGETABLE MARROWS.—These may now be planted in handlights or frames. The neatest way to grow Marrows is to take out a trench 4 feet wide, 1 foot deep, and of any required length; fill this with long stable dung, leaves, &c. (that have been previously well mixed together for a few days), so as to form a ridge 2 feet above the ground level and 2 feet wide at the top. Holes should be made in this, 8 feet apart, large enough to hold 3 bushels of soil, and as soon as this is warm enough and there is no danger of the heat increasing, the plants may be put in under handlights, two in each place, the remaining portion of the ridge should then be covered all over with soil. If enough plants are not at hand seeds may be put in under the handlights instead. It is a good plan to insert a few pieces of Mushroom spawn in the beds when completed, from which a supply may often be obtained during the autumn after the beds are well shaded with the Vegetable Marrow leaves.

Gravel Walks.—These should now have a dressing during dry weather of one of the weed-killing solutions, which will save labour, and ensure the walks remaining clean for some long time to come. Some persons use salt, sulphuric acid, arsenic, gas-lime, &c.; we find Smith's Weed Killer cheap and effectual. After one dressing, according to instructions, the walks keep clean for twelve months without further attention. Whatever is applied should be carefully kept from the Box edgings, grass verges, &c.; this is best done by sloping a board 6 inches away from the roots, and the liquid should not be allowed to go underneath this. Gloves and galvanised water-cans are also necessary.

Seeds.—Sow more Marrowfat Peas, Spinach, Turnips, Late Broccoli, and White Cos Lettuce, and take advantage of any showery weather for planting out Early Celery, Beetroots, Brussels Sprouts, Lettuce, &c. Broccoli, Turnips, &c., should be syringed in dry weather, and dusted with wood-ashes, to keep off attacks of flea, &c. *W. H. Divers, Kettle Hall, Stamford.*

TRADE NOTICE.

DICKSONS, OF CHESTER.

WE are not the only people who will be glad that in future it will not be necessary to ask, which Dickson? In fact, the two large Chester establishments—those of James Dickson and of Francis & Arthur Dickson & Sons—will, on and after July 1 next, be amalgamated into one firm. When two first-class establishments thus become blended into one—the nurseries are already continuous—it will be hard indeed if the consumer does not meet with everything he can require, and that of the best.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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

GARDENERS' CHRONICLE OFFICE TELEGRAMS.
NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is
"GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, MAY 22 Royal Horticultural Society; Scientific, Fruit, and Floral Committees.
THURSDAY, MAY 24 Linnean Society; Anniversary and Centenary.

SHOWS.

FRIDAY, MAY 25 Société Nationale d'Horticulture de France: Grand Exhibition (six days).

SALES.

WEDNESDAY, MAY 23 Lilies and Greenhouse Plants, at Protheroe & Morris' Rooms.
THURSDAY, MAY 24 Greenhouse and Bedding Plants, at the Barnes Nursery, High Street, Barnes, by Protheroe & Morris.
FRIDAY, MAY 25 Valuable Importation of Orchids from Mr. F. Sander, at Stevens' Rooms.
FRIDAY, MAY 25 Established and Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, MAY 26 Greenhouse and Bedding Plants, at the American Nurseries, Leytonstone, by Protheroe & Morris.

The Temple Show.

THE bold venture of the Royal Horticultural Society in holding a large Exhibition in the City deserved more success than the weather at first seemed likely to permit. Ultimately, however, the tents became filled with visitors and a grand success seemed likely to be scored, particularly as the show remained open till Friday. The show was held in the Temple Gardens, under two spacious tents, and was, all things considered, truly magnificent. The weather unfortunately was just the reverse, but we can hardly doubt that the public spirit of the exhibitors and the enterprise of the old Society will, indirectly, if not directly be of great service to it. That a Society supposed to be under a cloud should yet be able, time after time, to command such splendid service from the exhibitors is a proof of vitality from which the best auguries may fitly be drawn. As the show is being held while these pages are passing through the press, we cannot attempt to do full justice to what is really one of the most remarkable exhibitions it has been our privilege to witness. On entering the long tent with its fine display of herbaceous plants and "market-stuff," the visitor could scarcely refrain from an exclamation of delight and surprise. The Peonies, the cut Tulips from Mr. WALKER, the Narcissus from Mr. BANN, the Lilies and other herbaceous plants from Mr. WARE, Messrs. PAUL & SON, and others, the Lilies of the Valley from Messrs. HAWKINS and BENNETT, the Calceolarias from Mr. JAMES, all these, and many more, have been marked for note, but neither space nor time permit us to enlarge upon them. The Australian Apples, and those from Nova Scotia, however, compel incidental notice, as does the exhibition of market produce from the Channel Islands shown by Mr. MONRO, and Australian Mangoes, Oranges, Grapes, shown by Mr. J. B. THOMAS.

The large central tent is filled with Palms, *Dracena Lindenii*, and other decorative plants from Mr. ICETON, Cinerarias and Mimulus from Messrs. CARTER, Caladiums from Mr. LAING and Mr. MELLES. Mr. TURNER gains a first prize for Azaleas.

Messrs. PAUL & SON show a group of magnificent pot Roses in splendid style, and Messrs. W. PAUL & SON exhibit a large number of smaller size but excellent quality. Messrs. VETCH show a magnificent miscellaneous group, including well flowered

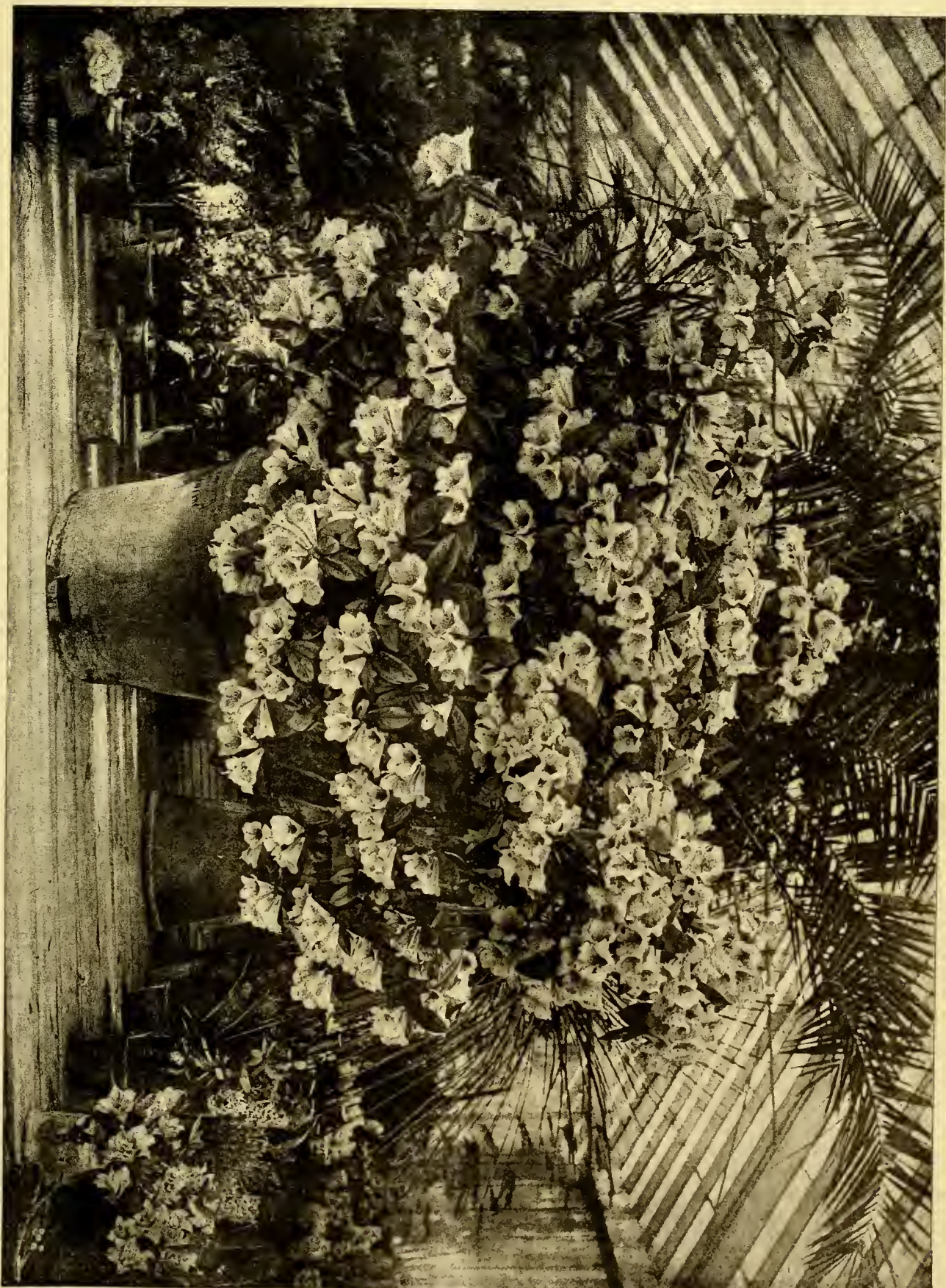
Bermuda Lilies, *Hydrangea paniculata*, and Tree Peonies, with Japanese Maples and *Cornus sibirica* var. *Späthii*, a shrub with deep coral-red branches and golden variegated leaves. Mr. TURNER and others show *Pelargoniums* very fine, but perhaps not quite equal to what has been seen in former days. Mr. WILLIAMS has a good miscellaneous group, including the singular *Ataccia cristata*. Sir TREVON LAWRENCE, in addition to Orchids, chiefly *Cattleyas*, *Masdevallias*, and other varieties of great beauty, to be presently mentioned, shows a fine specimen of WARD's variety of *Anthurium Scherzerianum*, *Anthurium mortefontaineense*, *Cordylina australis*, the lovely blue *Myosotidium nobile*, and many others. But the greatest triumph is secured in the exhibition of Orchids, the best since the famous exhibition at the first Orchid Conference. Messrs. LOW have a fine collection of *Cattleyas*. Messrs. SANDER & Co. show the curious *Scuticaria Keyseriana*, a new species from the Roraima country, with long pendulous, quill-like leaves, and flowers 3 inches across, the segments with a yellowish ground marked with purple spots and lines. From the same exhibitor comes a fine plant of *Cattleya Mossie* and a noble form of *C. Mendelii*, named *Rothschildiana*, a fine shaped flower with broad rosy-lilac segments, the bold lip with an orange throat, with a clear magenta blotch in front, and an edging of the same colour—a truly splendid variety. The collection of *Odontoglossums* is remarkable for the selection of the choicest varieties. *Cypripediums* are well shown, and include the *St. Albans* variety of *C. ciliolare*, particularly delicate in colouring; *C. Crossi* superbum, and many others. Mr. CYPRIEN had magnificent *Lælia purpurata* and *Cattleya Skinneri*, and Mr. POLLETT make fine displays, and Baron SCHNODEN's collection is wonderfully beautiful and choice, and was rich in *Cattleya Skinneri*, *Miltonia vexillarium*, *Cattleya Mendelii*, and *Lælia purpurata* varieties. The President, Sir TREVON LAWRENCE, shows a superb collection, including the very remarkable *Lissochilus giganteus*, figured in another column. *Spathoglottis Kimballiana*, with its large yellow flowers and singular lip is shown in a fine example with some remarkable *Masdevallias*, and a host of other things which we must needs pass over.

We are aware that we have not been so sparing of adjectives as it is our duty to be on ordinary occasions, but this new departure of the Royal Horticultural Society is so remarkable, and the circumstances are so peculiar, that a few superlatives are more than admissible. Altogether the display is one which shows convincingly that the Society is amply worthy of that extended support which we heartily hope it will get in the shape of new subscribers. It was pleasant to hear that the Treasurer is hopeful, and provided the earnest co-operation of all horticulturists be maintained, the old Society will once more enter on a career as prosperous as it has been—useful it still is. We may mention that although the bulk of our subscribers cannot see these notes till after the close of the show there are many who may be able to visit the show before it closes on Friday, and we strongly recommend them to do so.

THE GARDENERS' ORPHAN FUND.—A special meeting of the committee of the Fund took place at the Caledonian Hotel on the 11th inst., to assist in carrying out the proposed floral promenade and file in the wholesale flower market, Covent Garden, in aid of the above, as mentioned in our columns of Saturday last. Mr. Geo. Deal presided, and Mr.

A VERY few weeks have elapsed since it became our duty to announce the death of the veteran ex-Curator of the Royal Gardens, Kew. JOHN SMITH *primus*, as we must name him to distinguish him from his successor, was a botanist as well as a gardener, and neither the weight of ninety years nor the sad infirmity of blindness sufficed to quench his zeal nor stay his work as an author. JOHN SMITH *secundus*, whose death we now have to chronicle, was appointed as Curator in 1864 under the then Director, the late, Sir WILLIAM HOOKER at a period when the failure of eyesight necessitated the retirement of his predecessor. The second JOHN SMITH came to Kew from Syon, where he had made a name for himself by his success in the cultivation of rare exotic fruits and other economic plants.

SMITH was the first to succeed in flowering the dwarf Coco-nut Palm in this country (see *Gardeners' Chronicle*, February 1, 1862, and figured at p. 189). Previous to going to Syon SMITH was at Alnwick, and before that at Floors, so that his training was throughout in excellent schools, and this was of great assistance to him, when he removed to Kew—where he carried out many improvements, and managed to secure the esteem of both Sir WILLIAM and of Sir JOSEPH HOOKER. A man of good presence and courteous manners, ever willing to oblige, botanists and gardeners alike were under great obligations to him. What was written of him in 1873 was applicable to him to the last:—"On few, if on any gardeners of the kingdom, do greater cares or responsibilities fall than on the Curator of the Royal Gardens, Kew. The duties of the office



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RHODODENDRON, COUNTESS OF HADDINGTON.

6x6 FEET. GROWN BY MR. J. CYPHER.

Assbee, the Superintendent of the market, kindly attended. Mr. Deal stated that he had waited upon Sir Julian Goldsmid, M.P., the President of the Fund, who cordially approved of the proposed promenade. It was resolved that a circular should be issued inviting the growers for the market to a meeting at the Hummums Hotel, Covent Garden, on Monday, the 14th inst., with a view of securing their co-operation; and a sub-committee, consisting of Messrs. Deal, Barron, Dean, Herbst, Wright, Wynne, and Richards, were appointed—Mr. W. Richards being the Hon. Secretary to the same—to co-operate with the growers in carrying the proposal into effect. The meeting of the growers took place at the Hummums Hotel, Covent Garden, on Monday evening, the 14th inst., and brought a remarkably good attendance, among those present being Messrs. Hayes, Edmonton; Walker, Whitton; Ouvrard, Child's Hill; Cuthbert, Southgate; Turtle, Welling; Geo. May, Hampton; Pearce, Hayes; Hawkins, Twickenham; Drost, Kew; Byatt, Hampton; Lindsay, Edmonton; Bannister, Honnslow; Rochford, Cheshunt; Seabrook, Edmonton; Lemington, Child's Hill; Messer, Edmonton; Gregory, Sidcup; Hart, Leyton; Call & Cattaneo, salesmen; F. A. Dickson, Covent Garden, &c. The committee of the Fund was well represented. Mr. W. R. Bourne, agent to His Grace the Duke of Bedford, was called to the chair, Mr. Assbee being also present. The circular convening the meeting having been read, the proceedings were briefly opened by the Chairman, who then called upon Mr. G. Deal, the Chairman of the Fund, to explain its scope and objects, and also the particular matter which had caused the meeting to be called together, concluding by moving the following resolution:—"That in the opinion of this meeting the Gardeners' Orphan Fund is an institution worthy the sympathy and support of all horticulturists, and those present hereby pledge themselves to render every assistance in their power in successfully carrying out an evening floral promenade and *fête* suggested to be held in the wholesale flower market, Covent Garden, kindly offered for the occasion by His Grace the Duke of Bedford." This was seconded by Mr. E. Rochford, and carried unanimously. The Chairman suggested the appointment of a committee of growers and others to co-operate with the sub-committee of the Gardeners' Orphan Fund in carrying out the details of the promenade, and it was moved by Mr. Hawkins, seconded by Mr. H. Herbst, supported by Mr. Assbee, and carried unanimously, "That the following constitute a sub-committee, with power to add to their number:—Messrs. Bourne, Assbee, Hayes, Walker, Sweet, Poupart, Monro, and F. A. Dickson, with power to add to their number." Several suggestions were thrown out by the growers and others, and referred to the committee. On the motion of Mr. R. Dean, seconded by Mr. F. A. Dickson, a cordial vote of thanks was passed to the Chairman for presiding, and also to Mr. Assbee for his sympathy and support. The committee met at the Hummums Hotel on Friday evening, the 18th inst., at 8 p.m.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversations* took place on Tuesday last, at the Hotel Windsor, Victoria Street, Westminster, where the future home of the Club will be. The meeting was largely attended. Amongst those present were the Revs. E. Handley, W. Wilks, Secretary, Royal Horticultural Society; and F. H. Gale; Mr. John Lee, Chairman; Dr. Masters, Messrs. Cousens, Moss, H. Turner, Girdlestone, Walker, &c. The Secretary stated that Mr. F. Rivers, owing to illness, was unable to undertake the subject he had intended to have spoken upon—"Penches," but that Dr. Masters had consented to take his place and speak on the subject of "Sports," which he did, explaining their nature, and alluding to several causes which might account, in different cases, for their production. Dr. Masters also exhibited a fine series of specimens of Conifers received that day from M. Naudin's garden at Antibes. An interesting discussion followed, and was joined in by the Rev. W. Wilks, Messrs. Cousens, Walker, Lee, and others.

NEW FRUIT AND VEGETABLE MARKET.—Plans for the proposed new market for the City of London are given in the *City Press* for last Saturday (May 12). The site is the corner of Farringdon Road and Charterhouse Street—vacant land owned by the Corporation of London. The main building, as shown in the plans, has an elevation of 30 feet and a central avenue 50 feet, the whole frontage being 150 feet, with a depth of 180 feet, giving about 50,000 square feet area. Mr. PERKINS, Chairman of the Markets Committee, has prepared the plans, which are, we understand, now under the consideration of the Central Markets Sub-committee.

GLASGOW EXHIBITION.—Messrs. LITTLE & BALLANTYNE, of Carlisle, exhibit in Court No. 18, a case in which are placed samples of the seeds required in laying down land to permanent pasture and in rotation cropping. Dried specimens of the grasses are an instructive adjunct to this collection. In another part of the case are displayed a large assortment of Coniferous and other tree seeds, as well as sections of the different woods used in arts and manufactures. A prominent feature of this exhibit is a collection of models of vegetables and roots illustrative of some of the different varieties with which the name of the firm is connected. The planting of the broad border which flanks the Exhibition buildings on the left of the principal entrance has been entrusted to Messrs. LITTLE & BALLANTYNE. The space has been filled with specimens Rhododendrons, large Aucubas, Hollies and Conifers, ranging from 10 to 14 feet in height.

SPRING FLOWERS AT KEW.—The Royal Gardens are very gay just now with Tulips and other spring flowers. The large circular bed at the end of the main walk is planted with a groundwork of white and purple Arabis, yellow Wallflower, white and blue Myosotis, from amid which rise rows of mixed Tulips, the whole edged with white and red Daisies. On the rockery Tulipa Greigi, with its bold orange-red flowers and dark spotted leaves, are very attractive. The young foliage of Rodgersia podophylla, with its singularly shaped palmate leaves of a rich bronzy hue, is very striking.

HIGH-PRICED ORCHIDS.—Some good prices were obtained at the two days' sale of the Selborne Collection of these plants:—*Aërides Fieldingi*, £28 7s.; *A. Williamsi*, £63; *Cattleya Mendelii* (Selborne variety), £27 6s.; *C. Mossii* Southgatei, £35 15s.; *C. exoniensis*, £31 10s.; *Cypripedium Morganii*, 19 guineas; *Oncidium macranthum*, 17 guineas; *Dendrobium nobile nobilius*, 16 guineas; *Cypripedium acaule superbum*, 20 guineas; *C. callosum*, 21 guineas. Several others fetched high prices.

PARLIAMENTARY BILLS AND THE ROYAL HORTICULTURAL SOCIETY.—The Local Government Bill, and the proposed new Department for Agriculture are matters in which all gardeners are concerned, and in which their interests should be carefully discussed and safeguarded. The numerous complaints about rating and the incidence of taxation, which occupy our columns from time to time, point to the necessity of gardeners of all kinds formulating their wishes; and to enable them to do this, we would urge upon the Royal Horticultural Society at once to take up the question, and prove its utility. Perhaps the drafting of a carefully-worded circular, explaining matters, and calling a public meeting of market-gardeners and others, for their discussion, would afford the best means of ventilating the matter, and offer an excellent chance for the Society to do useful work, and make its influence felt in quarters where hitherto it has been a name and nothing else.

THE IRISH EXHIBITION IN LONDON.—The design and plan of the Irish village to be erected in the garden of the forthcoming exhibition at Olympia are now complete. The village, which will no doubt

prove of remarkable interest to Londoners, is being organised by the Earl of LEITHAM and Mrs. ERNEST HART, and will consist of a dozen cottages built and thatched by native workmen in the true Donegal fashion. They will be arranged so as to form a picturesque village street, irregular in plan. In the centre of the street will be seen the "holy well" and a veritable cross brought over from Ireland. At the western part of the village, facing the visitor on entering, will be the ruins of a low Irish tower. The cottages themselves will be occupied by native Irish workers—men, women, and children—who will pass in them their ordinary daily routine of life.

THE BOTANIC GARDEN OF THE UNIVERSITY OF HALLÉ.—Professor KRAUS has published a pamphlet containing a history of the garden with copious appendices, a sketch of the progress of botanical teaching during the last century and biographical notices of the various Professors and Directors. It is illustrated with portraits and plans. The "medical garden" of the Hallé University was founded under the Elector FREDERICK III., in 1698. For the first fifty years and even longer, the garden suffered from want of funds, from poor soil, little and impure water, and other evils, under STAHL, founder of the Phlogiston theory of chemistry, ALBERTI, and others, and was more than once on the verge of ruin. At length it was re-organised under PHILIP CASPAR JUNGHIUS as lecturer on botany, and ELIAS BERNER as Director. In 1787 was published the *Icones Plantarum Officialium et rariorum ad vitam impressæ*, and in the appendix Professor KRAUS gives a list of the plates contained in this work, for the reason that they are not included in PRITZEL'S *Index Iconum*. The garden improved in circumstances under JOHANN PETER EDERHARD, who levied a small tax or subscription on each student which was devoted to the maintenance of the garden. REINHOLD FORSTER succeeded EDERHARD as Director, and with the help of Chancellor HOFFMAN and the generosity of FREDERICK WILLIAM III., who on his accession increased the revenues of the University, a larger and more convenient plot of land known as the Prince's Garden, was acquired. It is to celebrate the centenary of the re-establishment of the garden upon a wider and firmer basis that Professor KRAUS has written its history. Under SPRENGEL as Director, the garden may be said to have reached the height of its fame, and its utility from that time steadily increased.

CAN IT BE TRUE?—A popular American novelist writes: "At Kew Jenny revelled in the rare flowers and her interest and delight so touched the heart of the crusty keeper that he gave her a nosegay of Orchids." And this is how history, [fiction], is written. Our experience is that the keepers are not crusty, but that it would certainly be a contravention of the rules of the institution to give away a nosegay of Orchids, and the men are too trustworthily to be guilty of such an offence.

EXHIBITION OF DUTCH BULBS.—A very fine display of these—the second which they have held—is now to be viewed at Messrs. OAKSHOTT & MILLARD'S nursery, Reading, and will remain in good condition during the ensuing week.

FLOWERS AND BUDS OF CONIFERS.—The hot, dry autumn of last year has apparently been favourable to the production of flowers on many of our trees and shrubs. Amongst others, the Conifers appear to be showing bloom abundantly. Canon ELLACOMBE sends us sprays of the elegant *Picea orientalis*, bearing a profusion of its small male catkins. These are formed at, and near the points of the young shoots. Each is of about half an inch in length, of ovoid-conic form, and of a lovely carmine colour, which give the tree a most beautiful appearance. At Kew also, the female cones of *Picea ajanensis* are being produced; these also are of a brilliant crimson colour, contrasting exquisitely with the silvery surface of the leaves. *Picea nigra* is also covered with catkins of similar colour. *Capressus Lawsoniana* and many of the *Retinosporas*

are also laden with pinkish-lilac flowers, while *Thuja gigantea* is thickly beset with young cones. The leaf-shoots of many of these plants are very striking in their appearance, and as these, with the flowers furnish good characters for the discrimination of the species, and are, moreover, in the case of many species, not figured or described in botanical books, we trust that lovers of these plants may be induced to observe them, and to communicate specimens.

VIOLA PEDATA BICOLOR is in bloom in the alpine-house at Kew. The two upper petals are of a deep purple colour, like a Pansy, while the lower three are of pale lilac.

CLEARANCE SALE OF THE LAWSON SEED AND NURSERY COMPANY (LIMITED).—There are few nurserymen, gardeners, and foresters throughout the country who will not learn with some regret that Lawson & Son, Bangholm Nurseries, Edinburgh, are names which will occupy no place in the annals of British horticulture and forestry in the future. The sale of the entire stock was brought to a termination on Saturday, the 12th inst. Perhaps so extensive a sale of nursery stock never took place in this country before. About 50 acres of valuable and varied stock were put up in 12,000 lots, and the sale extended to fifteen days in all. Buyers were numerous, and prices, if not high, were, under the circumstances, fair. Such a large stock could not be unreservedly distributed without considerable sacrifice. Mr. DAVID MITCHELL, Edinburgh, acted as auctioneer, and successfully kept up the interest of the numerous buyers during the prolonged period of the sale. The nursery was well known in the trade to be a perfect repository of valuable stock, much of which was also rare. The old firm of PETER LAWSON & SON was founded about a hundred years ago, and long enjoyed a pre-eminent position. About fifteen years ago a limited liability company was formed to take over the business, with a capital of £40,000, which was afterwards increased to £56,000. Success has not attended the company, however; and the closing scene in the history of a great business concern was enacted on Saturday last when the last lot was sold. The stock realised on the average between £70 and £80 per acre.

RHODODENDRON COUNTESS OF HADDINGTON.

[SEE SUPPLEMENTARY SHEET.]

Our supplementary sheet represents one of a pair of the above-mentioned beautiful hybrid Rhododendron in the possession of Mr. James Cypher, of Queen's Road Nurseries, Cheltenham, and which doubtless many of our readers will have seen exhibited in his prize collection at Bath, Taunton, and other flower shows. The plant here illustrated, and its fellow, are 6 feet high and 6 feet across, and at Easter last year they bore over 1000 flowers each, which, as in former years, Mr. Cypher found invaluable to assist in meeting the heavy demand for white or blush flowers for church decoration at that season.

Other fine specimens of greenhouse Rhododendrons at Mr. Cypher's are Duchess of Edinburgh, 3 feet 6 inches high; Duchess of Connaught, the same; fragrantissimum, 4 feet by 4 feet; and Gibsoni, 5 feet by 4 feet. All are well furnished plants, which never fail to flower profusely.

The plants are potted in good peat and sand, and are never allowed to get dry at the root, although, of course, a less liberal supply of water is given after the wood is ripened. As soon as the blooming is over the plants are placed in a close, warm house to make growth, and whilst doing so they are well syringed. After the growth is completed the plants are placed outdoors in a shady position, and then gradually inured to bear the full sun, so as to thoroughly mature their growths and set their flower-buds. Before there is any danger from frost the plants are removed to a cool-house.

Properly grown, these Rhododendrons are among the finest of flowering plants; for what can be more

beautiful than the plant here illustrated, or the specimens of *R. Veitchii* and *R. Veitchii levigata* we often meet with? The Jasmine-flowered section of hybrids which Messrs. James Veitch & Son have done so much for, are equally good and manageable. *R. Countess of Haddington*, which was certificated at the Royal Horticultural Society in March, 1862, is of doubtful parentage, but it is generally supposed to be the result of a cross between *R. Dalhousiae* and *R. Gibsonii*.

THE FLOWER GARDEN.

FLOWER BEDS.—Taking up Hyacinths, Crocus, Tulips, and other spring flowering plants that are past their best and prepare the beds without further delay for summer flowering subjects. Cut off old flower-stems from Arabis and Myosotis, divide and replant the same in previously prepared beds in the reserve garden. Polyanthus which cannot be left in the beds should be lifted and divided into single crowns and transplanted as soon as they have done flowering. The same remarks are applicable to double-flowered Daisies and several other plants used in spring bedding; replant in rows 6 to 9 inches asunder, well water afterwards, and keep them free from weeds throughout the summer months. A beginning may now be made with the planting out of the more hardy kinds of summer flowering plants, as *Calceolarias*, *Verbenas*, and towards the end of the week it will be quite safe to begin with *Pelargoniums*, but in northern counties it will be advisable to wait a little longer unless in maritime districts.

Bedding Plants.—The tenderer subjects and more forward plants of tuberous-rooted *Pegonias* should now be hardened off in cold frames, to be planted out in June.

Lawns.—Any newly laid turf which is not growing well should be watered thoroughly and then rolled. Plantains and Dandelions on lawns should be destroyed, the first named being lifted with a two-tined hand-fork, and the latter by applying a drop of vitriol to the crown of each plant with a notched stick.

Hardy Perennials.—Prick out into pans, &c., the seedlings as soon as they are large enough to handle, using a similar compost to that in which they were sown. Water with a fine-rose can, and shade from bright sunshine till they have taken hold of the new soil, after which take off the frame lights in the daytime, leaving a little air on the back of the frame all night. *J. Horsfield, Heytesbury.*

FOREIGN CORRESPONDENCE.

VEGETATION IN THE EAST OF FRANCE.

It may interest some of your readers to compare notes as to the relative condition of vegetation in France and Britain, after the very late and cold spring experienced in both countries. In this department, until about a fortnight ago, the weather continued very cold and unseasonable, and in consequence vegetation in general was in a very backward and unsatisfactory condition. Since then, and particularly during the past week, there has been a sudden and welcome change, the weather now being warm with bright sunshine. During this latter period the aspect of the country has undergone a complete transformation. Previously bleak and bare in appearance, it is now clothed in all the beauty and freshness of early spring. Limes, Poplars, Chestnuts, and various sorts of *Platanus*, are in full leaf, and the Elms, &c., are rapidly following suit. The fresh green foliage of these trees, undimmed as yet by the heat and dust of summer, interspersed with numerous Plum, Cherry, Pear, and Peach trees in full bloom, dotted singly, and in clumps by the roadsides, in the fields and cottage gardens, and over the Vine-clad hill slopes, combine to make a picture of indescribable loveliness. The hedges also, which, in this part of France, form the almost universal divisions between the fields, are full of *Prunus spinosa*, which is a mass of snowy blossoms. In the meadows the golden Cowslip is springing in countless myriads, and in marshy parts large patches of

Caltha palustris add their quota of colour to the picture.

While walking through the public park of this fine old town (Nancy), on Sunday amongst the gay crowd which the bright sunshine and warm air had tempted forth, I noted the following shrubs in flower:—*Pyrus japonica*, in clumps in the open, covered with bloom; large clumps of *Mahonia*, edged with broad bands of blue *Myosotis*, made an effective display; and in the shrubberies double flowering Cherries and Prunes of sorts showed charmingly, as likewise *Forsythia viridissima*. In the centre of a gently sloping lawn was a magnificent clump of *Magnolia speciosa*, a sheet of bloom. The Lilacs are just about to burst into flower, and they will be fully expanded in a few days should the warm weather continue.

The flower-beds were bright with *Myosotis*, Wall-flower, Pansy and *Polyanthus*. Tulips were also making a good display, but the Hyacinths were past their best.

Preparations for the summer display have already commenced: beds of Fuchsias have been planted out, also *Aralia Sieboldi* and large specimen Palms and *Cordylines*. *Jas. Wilson, Nancy, May 9.*

FRUIT GROWERS OF HAMPSHIRE.

A MEETING of market-growers was held at the New Inn, Salisbury, on Saturday, May 5, Captain Turner-Ireton in the chair. The meeting was a large and enthusiastic one. Among the many present were Messrs. Southam, Edy, Davis, Lyane, Hoare, Taylor, and Mr. J. B. Thomas, from London.

The Chairman, in opening, drew attention to the desire felt among the growers to know how to procure better returns, and said he thought Mr. Thomas could tell them something of interest, from which they might derive some benefit.

Mr. Thomas said:—The objects you have to consider are embraced in the one great object of realising better nett returns, and the question is, how to secure that result. One of our friends proposed a company with an appointed agent. Many of you know and have tasted the benefit that often is the fortune of original shareholders in companies, and no doubt have anticipated my recommendation not to invest a single penny in any company for such a purpose. I can quite understand the feeling of many who desire some change from the insecurity that has so long existed; and in order to make yourselves comparatively safe, unity is wanted. For that purpose you might form yourselves into "A Fruit Growers' Protection Association," with a small annual subscription.

The selection of markets, and salesmen at those markets, will require the consideration of a committee, who should advise for the best, from time to time as occasion may arise. This done to your satisfaction very little remains beyond the question of railway rates, and this is a very heavy matter to take up, more especially as the railway company thinks the growers' deputation lately before them accepted their concession as final for a very long time to come. It is a point requiring care, attention and perseverance, to obtain from the railway company that which you are entitled to. You are (to my mind) entitled to rates equal, if not less than those for longer distances. On the passenger rate you have gained I may say nothing, unless you consider it a gain for packages from 18 lb. to 23 lb. Excepting, during the first weeks of the year, are any of these under 23 lb.? And even during the first week will the number of such packages from 18 to 23 lbs. exceed 200 or 300? If not, you will see that the concession means 200 or 300 threepences. You have certainly gained a concession on small packages sent as luggage, but if you will accept my advice, not a single consignment under 84 lb. should be sent by luggage trains.

As for the reduction in the tonnage rates, that should have been secured five or six years ago; but as we have waited so long the reduction should be

in keeping with rates for longer distances that have been in existence for years. Another omission—Strawberries were the only fruit taken into consideration by the company or asked for by the deputation who lately waited on the company, whereas some of the larger growers are already largely interested in other kinds of fruit, and ere long many more of you will of necessity follow suit. As Strawberries will not grow on the same ground continuously, your future rather than the present requirements should have your consideration.

On this question I lately wrote to Mr. Scotter. A few extracts will set before you more clearly my views:—"Your aim should be to incite an extension of fruit-growing on a large scale by substantially lowering the rates, and your concession must be in a reduction of tonnage rates, that will compare favourably with those for longer distances. 'Passenger,' for all fruits not to exceed 40s.; and 'luggage,' 20s., to include delivery; and a further 3s. 4d. on 4 ton lots."

Nuw this I feel almost safe in saying the company will grant, for the reason that the rate from Portsmouth is only 40s. at passenger, and at luggage rate it is less than 20s.

Another point. Strawberries from St. Malo pay at the rate of 55s. per fast mail boat, and by passenger train or special fast; and I submit that the proportion for sea freight from St. Malo to Southampton, loading and unloading from steamers, dock dues, &c., should be taken at not less than 15s., leaving 40s. as the transit cost from Southampton to London. This is a question that should not be lost sight of by your members of Parliament, especially when we observe that at frequent meetings of our railway companies they continually declare their intention of retaining their right to make special low rates for the foreigner which now do so much injury to our home producers. I should be sorry to say anything against free trade, but I certainly do protest against a subsidy for the foreigner.

In quoting from your local paper this week respecting the Railway Rates Bill:—"Lord Jersey's addition to the measure carried by the House of Lords lays it down imperatively and irrevocably that the traffic rates shall be the same for England as for foreign. A deputation from Southampton waited on Sir Michael Hicks Beach, to point out the effect of this amendment. Michael Hicks Beach, however, does not believe the amendment will preclude railway companies from offering special rates for the carriage of sea-borne produce, which cannot be produced in this country." On this point we as English producers should be in perfect accord, but then he (Sir Michael) advised the deputation to influence M.P.'s to vote against Lord Jersey's proposal when before the Grand Committee, thereby entirely ignoring the English producer's interests.

Railway companies compel you to sell to them your land, and then give to the foreigner preferential rates for that kind of produce which you grow, and thereby assisting to glut your markets, damn your trade, and spoil your prices.

I saw Mr. Scotter for a few minutes on my way here to-day. He at first met me with a decided refusal to open up again the Strawberry rates, and was full against encouraging the passenger traffic, because it entailed so much work, and was not so profitable as if the goods were sent by luggage train. I certainly thought this showed a lack of interest in the growers. The St. Malo rate he declined to discuss, as that was a question that touched the "Rates Bill" now before the House. But when the Portsmouth passenger rate of 40s. was pointed out, Mr. Scotter certainly expressed a desire to have time for further inquiry. The question of an uniform rate, applicable to all fruit, I also placed before him, and I am pleased to say he showed a readiness to do what he could to meet it, with the understanding that I should hear from him in the course of a few days, so the proposition, intended to lay before you I consider will be best held over for the present.

There are two other matters referred to by a

brother salesman, upon which you may expect me to make some remarks, viz., size of punnets used, and new boxes. As regards boxes, I do not agree with the proposition, because it means a large additional expense, without obtaining adequate returns; besides our country buyers would avoid purchasing goods in a box that was returnable. The present method adopted is, to my mind, the one most suitable for the trade, it being of small cost, and very easily adjusted by growers, salesmen, and buyers; but the matter of undersized punnets has done and is doing a very great amount of harm. The remedy rests with yourselves. Another matter which often acts against a grower's goods is that of dividing his consignments between two or more salesmen, as by so doing you create a rival for the sale of your own produce.

I certainly do not advise one salesman for all growers, but I do advise one grower's goods to be sent and sold by one salesman in any one market.

As to the rates charged for small packages "per luggage" it is misleading as to each charge as tabulated must be added 4d., for delivery, which for 56 lb. would be 1s. 4d., being a penny dearer than the fixed rate "per passenger."

Votes of thanks to Mr. Thomas and the Chairman closed the meeting.

PINUS HALEPENSIS.

In order to complete the illustration of *Pinus Halepensis* we now add a figure (fig. 84, p. 629) of the male catkins of this singular species, of which the cones were figured in the *Gardeners' Chronicle*, November 1, 1884. The colour of the catkins is dusky orange, while the anther crest is suborbicular, and somewhat truncate at the edge. For further details relating to this Mediterranean Pine we refer to the former article.

HOME CORRESPONDENCE.

A NEW VEGETABLE.—Fortified by the elementary knowledge that the Cruciferae are harmless to the eater, I was bold enough to try a salad of the Hoary Cress (*Lepidium Draba*), or Chalkweed, which agriculturists in Thanet and further afield are, to their cost, well acquainted with, it being one of the greatest weed-pests in these parts. The salad was, I admit, scarcely satisfactory; the Cress was too "Cabbagey" and strong. I now have tried the weed boiled and served as a vegetable, and am astounded at its excellence. It suggests Spinach, and Asparagus, too, is present to the palate, but the general flavour, substance, and succulence are altogether unimpeachable. The history of this Chalkweed is not without interest. It is not indigenous, having, it is believed, been brought hither from the Low Countries, unconsciously doubtless, by our soldiers returning from the unfortunate Walcheren Expedition in 1809. The troops landed at Ramsgate, and from that point the weed has spread all over Thanet, and has now even reached the suburbs of London, following principally the main lines of traffic from this south-eastern corner of England. I am not sure that it might not be developed by cultivation into something even better than it now is for edible purposes, but in its present wild condition it is certainly excellent as a vegetable. Could you inform me why the plant has taken so kindly to the chalk soil of south-eastern England? If I am right, there is no chalk land in the region whence it came to Britain. Probably this is an instance, common as to both flora and fauna, where the deportation has resulted in the placing of the plant or animal in a habitat vastly more favourable to its multiplication than the one it occupied originally. If there should be a run on this new vegetable in Covent Garden, I can guarantee a supply from this region, where the farmers would welcome its transfer to orderly cultivation. *Charles R. Haig, Birchington Bay, Thanet, May 5.* [*Lepidium Draba* is a native of the greater part of Europe, and consequently is not particular as to soil. Like many other aliens it has gained a footing here, and evidently finds a calcareous soil suitable to its requirements, and, like the Watercress in New Zealand, the Artichoke in the Pampas, gets the upper hand of the native vegetation. With regard

to its use as a salad, we suggest to our correspondent to cultivate it and bleach it, after the fashion of Sea-kale, also a maritime weed, and then let us know the result. Ed.]

LAPAGERIA ALBA FROM SEED.—Referring to "R. D.'s" remarks (p. 180), wherein he states that he has never heard of the above being raised from seed from the white variety, I may state that a few weeks ago I saw a very fine plant with several well-ripened seed-pods, and also some seedlings raised from some of the seed at Richard Shackleton's, Esq., Withwell Hall, near Chorley. I should think there were several hundreds of seeds upon the plant. *F. C. E.* [Pure white flowers have, we believe, as yet not been raised from seed. Ed.]

RAILWAY RATES OF TRANSIT.—In your paper of May 12 I find these words, "The home growers desire an increase in the railway rates for carriage of foreign articles." Allow me, as one who has, in and out of Parliament, for years taken a great interest in this question, to give this statement a most unqualified denial. We ask that the rates for home and foreign produce should be equal. Whether this is done by raising the rates on foreign, or lowering them on home produce, we leave directors to decide; of the two, we should prefer the latter. All we ask is that the Acts of Parliament which prohibit in words the granting of preference rates should not be evaded. As to the "shipping interest being ruined," I fail to see how a longer voyage, and consequently greater freight, can injure the shipping interest. Perhaps the writer can explain this. *A Member of Lord Henniker's Committee.*

TROPEOLUM TUBEROSUM.—The Potato Nasturtium (*Tropeolum tuberosum*) is one of the most beautiful species of the genus, and as a late autumn flower for house decoration it is invaluable. In September and October it blooms profusely, and the cut flowers, deep orange-red on long red peduncles, make lovely bouquets, and last in water for many days. I have grown it for very many years continuously, saving my tubers every autumn. The plant has now suddenly failed, not only here, but in the gardens of all my friends, and of several nurserymen, to whom I have applied for a fresh stock. In the autumn of 1886 my gardener dug up and stored nearly, or quite, half a bushel of tubers. Large numbers were planted in the spring of last year, and came up as usual. The plants suffered much from the drought, and flowered but poorly. On digging for the tubers in December not one was to be found. I then applied to some six or eight friends to whom I had given stock and they were all in the same plight as myself: and so with nurserymen. I assume the drought is the cause of the failure. As far as my experience goes neither the growing plant nor the tuber is liable to any disease, or insect enemy. I should be thankful to know where I could obtain tubers. *S. James A. Salter, Basingfold, near Basingstoke.*

LIQUID MANURE WATER (WOOD'S).—Those in search of a really good artificial manure for feeding pot Strawberries and such-like, cannot do better than give the above a trial. It has been used here this year with great advantage for pot plants, and although these were far less strong, owing to the dry season of last year being unfavourable for layering and establishing good runners, the fruit has been quite up to the usual standard of quality, and I attribute this fact to the use of the liquid manure powder. It was applied once a day after, and in some instances before, the fruit was set. It is preferable to use it at every watering at the rate of 1 oz. to 3 gallons of water, than to use it in a stronger solution and less frequently. The powder dissolves readily in hot water. A strong solution should be prepared and kept in an air-tight vessel, and from this the necessary quantity can be added to the water when watering. I have also used it on other plants bearing fruits, which soon showed good results from its use. It is almost free from smell, and has the advantage of leaving scarcely any sediment on the surface of the pots. *G. H. Richards, Ringwood, Somerset.*

CUT FLOWERS AND TABLE DECORATIONS AT THE CRYSTAL PALACE.—Visitors to the great summer show on May 12 must have felt disappointed, whilst amongst exhibitors it must have been disheartening to see their exhibits melting away as it were before their eyes even before the judges could get round. Where was the awning we usually see

stretched over the tables and which no one can deny, in addition to warding off the sun's rays, helps so much to bring out the colouring of both plants and flowers and so add to the beauty of the exhibition. As it was on Saturday last the sun pouring down on the exhibits as early as 8.30 A.M., exhibitors were almost at their wit's end in trying to seek shelter, some even leaving the tables and getting away amongst the foliage plants; and even then, before the time arrived for the finishing touch, many of the earlier placed flowers and tender foliage had gone off. Splendid boxes of *Maréchal Niel* and other Roses, bridal bouquets, so chaste and lovely when put on the tables in the morning, all told the same tale; and one could hear complaints on all sides, from the late coming visitors that this and that was not worth looking at as they were nearly all dead. One expects to see things of this description go off a bit on one of our hottest days in July, and even then the writer has seen them fare much better with judicious management. It is to be hoped for all concerned that in future some better provision may be made. *An Eye-witness.*

EUCALYPTUS AT WHITTINGHAME.—For the information of Dr. Landsborough, and others who may feel interested in the matter, I have pleasure in forwarding you notes of measurements of the above tree, taken this morning. The height is 63 feet, girth of trunk, 10 feet; and of the four main stems, 5 feet 6 inches, 4 feet 5 inches, 4 feet 2 inches, and 3 feet respectively. I may mention that Dr. Landsborough is not quite correct in stating that it was cut down to the ground in 1860; as a matter of fact it was sawn over at a height of 9 feet, and so remained to all appearance dead for more than a year. In the belief that it was quite dead; they had begun to root it out, and in doing so fortunately observed a young shoot making its appearance, which was followed by others, one of them from just below where it had been cut over. Whatever may be the true name of the tree, I think Dr. Landsborough right in saying that it is not *umiera*—at least, a young plant of that variety which we have here bears no resemblance to a plant of the same age, raised from our own tree, the leaves of the former being quite green, and of the latter glaucous, as well as being both shorter and rounder. *John Garrett, May 14.* [We have no doubt from the fruit figured on p. 460 that our determination is correct. *Ed.*]

IVY ON TREES.—Your correspondent, "R. E. I.," evidently does not understand much about the nature of trees, nor of the Ivy which encircles them, for trees are not rendered tender in consequence, neither does Ivy when it is killed relax its hold, as "R. E. I." can easily determine if he will only take the trouble to try it on one or more trees. *W. H. R.*

—As several of your correspondents are asking for information on this question I willingly give my experience and observation, and first I would say that Ivy does no harm to any building provided the walls are in good repair and the spouting round the eaves perfect; and here often lies the cause of all the mischief, the rain running down behind the Ivy and causing the wall to become damp, whereas Ivy itself has quite an opposite tendency and makes buildings much drier and positively thatches the wall against rain and sucks up the moisture from the base of the buildings. The walls of the Castle here are covered with Ivy of eighty years' growth, so that I speak with considerable experience. Ivy ought never to be allowed to grow on any tree unless it shows signs of decay, when, it will for years form a picturesque object, but on healthy trees it is injurious because it binds around the stem and branches—hinders the flow of sap and the proper development of stem and branch. But then is it wise to cut it on trees now? Yes, at once, at the base, and leave it on the stem to die; and before long it will wither and decay, and the tree will get used to the loss of the greatcoat before winter arrives. *J. Rust, Eridge Castle.*

GOLDEN HODGENS' HOLLY.—Allow me to correct a mistake Mr. W. E. Gumbleton has made, where he writes (p. 595) that "the reproduced Golden Hodgens' Holly never originated at Bangholm Nursery, but at Mr. Hodgens' nursery, Co. Tipperary." The statement Mr. G. refers to describes a bright golden-edged sport of *Ilex Hodgensii*, found by me four years ago in Bangholm Nursery, Edinburgh. It has a well defined broad margin of the brightest golden colour, and carries the vigour and constitution of the green Holly with it. There are two other irregularly variegated forms of the Hodgens Holly, one blotched in the centre of the

leaf, which is very liable to return to the original when it succeeds best; this is known as *Ilex Lawsonii*. The other, has a faint and ill-defined dull silver edging, occasionally running out in streaks towards the centre of the leaf, and has not yet, as far as I know, been named, but has been distributed many years. Is not this the Holly Mr. Gumbleton is thinking of? and has he seen the latest or any other variegated Hodgens' Holly? *J. Munro, Upton Nurseries, Chester.*

—We have observed Mr. W. E. Gumbleton's remarks on this new Holly in your last issue. Evidently he has never seen this plant, nor does he appear to know anything whatever about it. *Ilex Lawsonii* has no resemblance to the Golden Hodgens. *Ilex Lawsonii* was distributed by Messrs. Lawson many years ago, and is now plentiful in this country; but the name has never been "dropped." The Golden Hodgens not only originated in the Bangholm Nurseries, but we secured the original plant—which is now in our possession—upon which the sport appeared, along with the "entire stock," at the great dispersion sale of the Lawson Nurseries, and not a single plant has yet been sent out. It is very distinct, and cannot be mistaken for any other variety, and is, moreover, the finest Golden Holly in existence at the present moment. *Little & Ballantyne, Carlisle.*

—Your correspondent, Mr. W. E. Gumbleton, has evidently found a mare's nest. In your last issue (p. 595) he says, "I am sorry to see reproduced the statement about the Golden Hodgens' Holly," &c. The statement he refers to is one concerning a new form of Hodgens' Holly with a golden margin, which was sold to Messrs. Little & Ballantyne, of Carlisle, and is in no way connected with an older form of this Holly which will be found in the Lawson Nursery Company's catalogues from 1869 to 1885 under the name of *Ilex Lawsoniana*, and which also was raised in the Bangholm Nurseries. The variegation of this latter is in the centre of the leaf, and is not so bright or regular as the one in question. Would it not have been better if your correspondent had made himself acquainted with the new Holly before rushing into print with his most erroneous statement regarding a plant of which he knows nothing, the new Holly being entirely different, and superior to any other form of Hodgens' Holly hitherto known? And as the original plant was sold with the stock, the buyers, who are well known business men, do not require any aid, valuable though it may be, from your correspondent as to the distinction between it and the well known *Ilex Lawsoniana*, of which a large quantity has recently been disposed of in this nursery. *Wm. E. Dixon, Bangholm Nursery.* [We have several other communications to the same effect, which want of space precludes our publishing. *Ed.*]

DESTROYING WEEDS UPON WALKS.—The recommendation of Mr. Horsfield to use arsenic for this purpose is in many ways too dangerous, even though effectual, ever to become generally used. Gentlemen who preserve pheasants would, I feel sure, object to the distribution of such a dangerous poison upon the walks. Having used muriatic acid with most satisfactory results, I can recommend its use as a most effectual and economical plan of removing weeds from walks, and consider there is no more danger and less inconvenience in its application than there would be with boiling water. I used it in the proportion of one to five of water, and found that of this strength it was certain destruction to all vegetation. To sprinkle it upon the walks, an earthenware watering-can is best; but if an ordinary metal watering-can be used every part of it must first receive two coats of best white paint, because on the paint the acid seems to take no effect, whereas without the paint the watering-can is destroyed after being once used. Zinc causes the acid and water to appear as if boiling, and so much heat is generated that the zinc will be found to have disappeared, so that if any vessels but earthenware are used they must first be well painted. *T. R.*

—In your last issue there appear two enquiries as to the best method of dealing with weeds on gravel walks, drives, &c., which at this season of the year are particularly troublesome. As I have had some experience with very weedy and neglected paths, I venture to offer the following suggestions. For a very small garden path, a few kettlesful of boiling water poured over the weeds will immediately and effectually destroy them. This remedy has the merit of being inexpensive, and for a little path always available. In a large way I should prefer to use

commercial hydrochloric acid, or muriatic acid as it is sometimes called—I gallon of acid to 50 gallons of water. This is very destructive and complete in its action; it is also very cheap, being obtained as a bye-product in the manufacture of sodium carbonate (common soda). I have also used with unqualified success crude carbolic acid or phenol—I gallon of phenol to 70 gallons of water. This also is very efficient and lasting in its results, and, diluted to the extent which I have mentioned, it is exceedingly cheap; and I may say there is nothing with which I am acquainted that is so utterly destructive of plant life as either of the above. In applying these solutions it is best to walk backward. The diluted H. Cl. will act but very slightly on the zinc of galvanised watering-pot; it will rust iron quickly, and make clothes and boots rotten. Great care should be taken to thoroughly clean all water-cans, &c., after being used, to prevent injury to other plants. The employment of the above is far preferable to the use of arsenic, which, after destroying the weeds, remains unchanged to be blown about and inhaled by all who frequent the paths, producing the unpleasant symptoms of cold in the head. Its use, therefore, cannot be too strongly condemned. I trust the above suggestions will meet the case of your correspondents and other readers of your journal who may be similarly situated. *W. Chas. Benedict.*

DAFFODIL NOBILIS AND VARIIFORMIS.—Before the season for issuing Daffodil growers' catalogues would it not be well to settle what is true nobilis, as figured by Redouté? The plate given by him does not by any means accord with the plant introduced into commerce by Mr. H. Collins (Collins Brothers & Gabriel) in 1885, and recognised by the Narcissus Committee as nobilis. True nobilis is more the colour of cambricus, but in outline resembling princeps in its best type, with a broadly expanded fringed and lobed rim. I have some bulbs which came from the Pyrenees in a lot of wild pseudos. By wild pseudos I mean those which run so closely with pallidus præcox and the bicolor above-mentioned, which are so variable as to exactly fit what Parkinson, at p. 99 of his book, termed "the mountain bastard Daffodil of divers kinds." If Redouté's nobilis be reintroduced, I would not be surprised to find it in the variiformis section. It is almost impossible to draw the line as to where pallidus præcox ends or where this and pseudos meet, so closely do they run together. Again, when the bicolor above-mentioned and N. muticus grow in company we get flowers with all the character of the latter, but with fringed and lobed brims, instead of plain. N. muticus is a very beautiful Daffodil, in good soil becoming most vigorous, and is very late flowering, appearing in June. Have we true nobilis in Mr. Collins' plant, which is, I believe, the same as that which Mr. George Maw introduced? *W. B. H., Temple Hill, Cork.*

SALESMEN'S COMMISSION.—My remarks respecting salesmen's commission charges, rates of transit for fruit, &c., criticised at p. 531 by Mr. J. B. Thomas, were a summary of what was said by the South Hants fruit growers at their recent meeting at Winchester, and for the statements made, which, no doubt, they have good ground for making, and for which they are responsible, I can hardly imagine that these persons are exhibiting so much indignation without good reason, although it is but fair that the salesman should not be condemned unheard. But there is presented in Mr. Thomas' own criticisms, and what is presented on the preceding page (530), in a paragraph concerning this very subject, what seems to me to be such a contradiction of statement that some explanation is needed. Mr. Thomas says over his own signature that the rate of a salesman's commission is 5 per cent., whilst in the paragraph on the preceding page, which quotes that salesman's own circular, it is shown that Thomas charges commission at the rate of 10 per cent., and although some extraneous matter is added about empties, boxes, &c., it is there plainly stated that 10 per cent. is the commission hitherto charged. The new proposal to reduce that commission to 5 per cent., exclusive of market tolls, shows that the proposal of the South Hants fruit growers to form themselves into an association for the protection of their own interests, and to provide their own salesman, is creating alarm and provoking apology. I do not know what may be the financial status of fruit and vegetable salesmen generally, but those of other articles of food in the public markets seem to find in their vocation that which Dr. Johnson

described at the sale of Thrale's Brewery as "the potentiality of growing rich;" and if the growers of fruit and vegetables throughout the kingdom could have but grown rich too as rapidly as salesmen generally have, they would have no cause for complaint. A market grower's vocation is so hard, so laborious, and so full of anxious care, that it is not possible to withhold from him and his class full sympathy when opportunity offers to give expression to it. I do not think Mr. Thomas has fully grasped the nature of the statements made at the Winchester meeting with respect to the burthen of rail charges. The statements as I read them were to the effect that each box as sent by diverse consignors was charged at 2s. per box, and that a large number of them were packed into the same waggon, each grower's fruit forming a separate consignment. On the other hand, were a truckload of boxes sent from one consignor they would go at tonnage rates, and thus effect a great saving. That could be done, of course, by making the agent of the Growers' Association the consignor. Very likely a stranger setting up as the Association's salesman would find some difficulty in the market in disposing of his commodities, especially if the boycott prevailed, but high-class fruit would no doubt soon find its level in price come from whence it may. If Mr. Thomas' statement on that head be correct, it rather shows that a radical reform in our present system of marketing produce is needed. Possibly the better arrangement would be for public markets to be set up close to the goods depôts of our great London railways, having both wholesale and retail sections. That is a reform which may be brought about when the proposed London County Council is created. Certainly that body will, in the interests of the vast population under its control, be greatly concerned as to the vested and other interests of certain select markets. Whilst upon this subject I should like to refer to just one point mentioned in your fruit supply leader at p. 520, although it presents a tempting theme upon which to dilate. The writer, referring to the superior and much earlier cultivation of vegetables by the Parisian growers chiefly aided by glass, states that the climate of Paris is about the same as that of London, but adds that preference rates and superior train facilities of transit favour the foreigner and handicap our home grower. But this latter objection cannot apply to that army of vegetable producers who work within twenty miles round London, as these do not use the train service appreciably, but send their produce to market in their own waggons. Now there can be no handicapping as suggested. The real competition is found in diverse methods of culture, which may not be referred to here now. *Spade.* [What Mr. Thomas really did say is told by himself in another column. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 17 AND 18.—The heavy rain which began falling on Wednesday, continued on Thursday, the opening day of the City show of the Royal Horticultural Society, which was held in the grounds of the Inner Temple, a spacious bit of ground on which there were erected two marquees, one being about 200 feet in length and 30 feet wide, and the other 160 by 60 feet, both of which were filled completely, so that it may be judged that a capital display resulted, and considering the unpropitious weather there was a large attendance of visitors, including the Lord Mayor and some of the Belgian burgomasters, Mr. Gladstone, Mr. Chamberlain, and many other notables. For once we have the satisfaction of chronicling a well-earned triumph for the old Society, the precursor, let us hope, of many more, and a proof of the good judgment evinced in visiting the City.

As to the exhibition itself it was all that could be desired, the market growers coming forward in a praiseworthy manner, and they alone made a most creditable display, and moreover introduced a novel feature into the exhibition. The grand collections of Orchids formed a show of themselves, and the exhibitors deserve special thanks for allowing their gems to be exhibited, as they had to remain in the tent all Thursday night.

On entering the long tent from the west end the attention was at once attracted by the group of Lilies of the Valley from Messrs. Hawkins & Bennett, Twickenham; there was a group of about seventy bunches of twelve sprays each, arranged as a half circle

in a bank of Maidenhair Fern, and also two bouquets of Lilies, the whole of the flowers being fully expanded, large and pure white; at the back was a row of a cherry-coloured Ivy-leaved Pelargoniums.

Collections of cut blooms of hardy plants were shown by Mr. Poupart, Twickenham, who received the 1st prize for his collection, which contained well grown flowers of Lily of the Valley, Tulips, Anemones, Narcissi, Spireas, Myosotis, and Dornicum, with the sweet-scented Woodruff.

Messrs. Paul & Son, Old Nurseries, Cheshunt, showed in this class a very interesting collection of good quality, including *Arnebia echinoides*, *Epimedium niveum*, *Gentiana acaulis*, *Acer Reitenbachii*, *Kerria japonica*, *Geum minimum*, *Ribes hybridum*, and many other plants of equal interest.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was also an exhibitor, showing a group mainly of Narcissi, variety being given by various Tulips and Anemones, *Polemonium reptans*, and *Ranunculus amplexicaulis*.

Mr. Jas. Walker, Whitton, Middlesex, had a large collection of Tulips, embracing a great range of

Messrs. Paul & Son, Old Nurseries, Cheshunt, were placed 3rd for an extensive and neat lot of plants, in which were various *Auriculas*, *Arnebia echinoides*, *Epimedium niveum*, *Caltha palustris plena*, *Gentiana verna*, *Doronicum plantaginifolium excelsum*, *Trillium grandiflorum*, *Violas*, *Primulas*, *Saxifraga Wallacei*, *Euphorbia pilosa nana*, and various other plants of interest.

Mr. J. James, Farnham Royal, Slough, took the 1st place for Calceolarias, showing a most satisfactory group of twenty-five, all strong plants and well flowered. A very close 2nd were Messrs. H. Cannell & Sons, Swanley, Kent.

Messrs. J. & J. Hayes, Nurseryman, &c., Lower Edmonton, N., and Mr. H. B. May, Edmonton, N., both contributed good collections of these plants, remarkably vigorous and bright in colour.

Roses were very extensively shown by several exhibitors, and the whole of one side of the large tent, and a portion of the other, was occupied by groups of finely-developed plants.

In the competing exhibits, the best twelve plants in pots came from Messrs. Paul & Son, Cheshunt, whose lot was a very handsome one, the plants large, and laden with flowers of great size; and especially fine were the examples of Cheshunt hybrid, *Celine Forestier*, *Centifolia rosea*, and *Charles Lawson*.

Messrs. G. Jackman & Sons, Woking Nursery, Woking, were a good 2nd, and showed a fine plant of *Celine Forestier*, and also one of *Cheshunt Hybrid*; C. Turner took 3rd, with a very pretty lot of smallish plants of good quality, bearing full, bright flowers.

Mr. Rumsey, Waltham Cross, also showed in this class, and his group of well-flowered small plants was highly Commended—a recognition which was fully merited. Mr. Rumsey led for a lot of twenty-four cut blooms, showing a collection of great merit, in which *Souvenir d'Elise Vardon*, *Camille Bernardin*, *Madame H. Jamain*, *Marquise de Castellane*, and *Baroness Rothschild*, were equally good blooms. He was followed by Mr. C. Turner, with very even and bright blooms of *Madame G. Luizet*, *Madame Lacharme*, *Ulrich Brunner*, and *Her Majesty*, the 3rd place being accorded to Mr. J. Walker, Thame, Oxon, who had a row of fine *Maréchal Niel*, as the back row of his box.

Roses were very extensively shown in the miscellaneous section. Messrs. Paul & Son, Waltham Cross, had 17 boxes of cut blooms, about 60 pot-plants which, as may be imagined, made a grand display. *Sappho*, a new Tea Rose described in the Royal Botanic Society's report, was shown, and also many popular sorts, all of which were of excellent character. Mr. Rumsey again contributed, showing a group of twenty-six pot Roses, which were very well flowered; *Magna Charta*, *Victor Verdier*, and *Baroness Rothschild* especially so. Messrs. G. Jackman & Son were showing a collection of twenty pot Roses of fine quality, well-flowered, and very bright in colour.

Orchids.—Of all the sections of the show probably these plants formed the most attractive feature, at all events to many people, completely occupying one side of the centre table of the wide tent. Rarely, indeed, does such a feast of Orchids present itself to the public gaze. Sir Trevor Lawrence, Burford Lodge, Dorking, showed a collection of remarkable interest. The plants were in perfect health, and many of them were extremely rare and valuable, as for instance *Spathoglottis Kimballiana*, which may be compared to a large yellow *Phalenopsis*, and *Lissocylus Giganteus*, the cut spike of which was shown, and of which an illustration is given at p. 617, and full accounts at another page, to which the reader is referred for a full description of this remarkable plant. *Cattleya Lawrenceana*, *Odontoglossum Cervantesi*, rose-coloured variety. Many *Masdevallia* species were shown, especially fine being *M. Harryana majus*, brilliant scarlet; and *M. H. corulescens*.

We are not able to enumerate all the rarities—only a few can be named. There were plants of *Ansella congoensis*, *Acrides Houlettiana*, *Anguloa Ruckeri sanguinea*, *Acanthophippium bicolor*, the chaste *Dendrobium Triadenium*, a good plant of the brilliant *Oncidium Marshallianum*, *Masdevallia Harryana*, and its varieties, *Sobralia Macrantha nana*, a great improvement on the type, which is too leggy. *Coleogyne tormentosa*, *Cypripedium Dayanum*, and several others. The group had plenty of *Anthurium Scherzerianum* interspersed, which gave a great brilliancy. Baron Schroeder, The Dell, Egham, contributed a magnificent collection of remarkably well-grown pieces, laden with flowers, and he took the first place in the competing groups—and justly so. The centre of the group was formed by a large plant

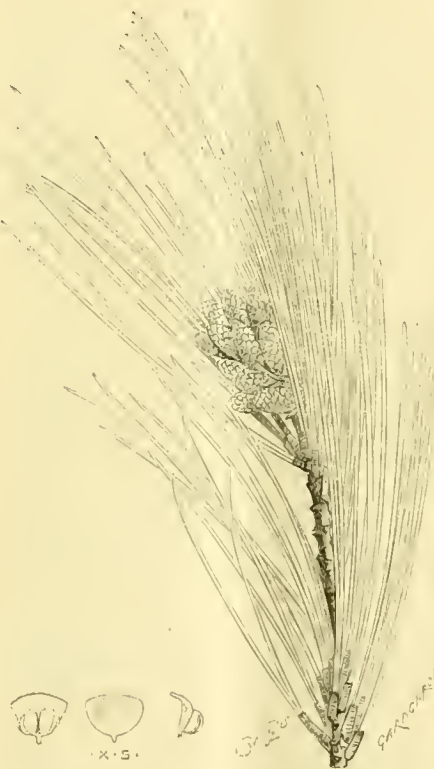


FIG. 84.—CATKINS OF PINUS HALEPENSIS, AND STAMENS.
(See p. 637.)

variety, and also a few Narcissus blooms. The Parrot Tulips, which were the chief portion of the exhibit, were very pretty, with their peculiar green markings.

Daffodils were numerous shown by Messrs. Barr & Son, King Street, Covent Garden, who had a fine bank of cut blooms, embracing most of the popular varieties, and interspersed with Saxifrages, Anemones, *Iris pumila corulea*, *Adonis vernalis*, *Tulipa cornuta*, and other hardy plants.

For a collection of hardy plants in pots, there was a good competition, which resulted in the 1st place being accorded to Messrs. Collins Brothers & Gabriel, Waterloo Bridge Road, S.E., who showed a good group of large sized plants, among which were *Lychnis vespertina alba*, *Spiraea palmata*, *Geum coccineum flore-pleno*, *Ranunculus aconitifolius*, *Lychnis Haageana*, *Cypripedium spectabile*, *Doronicum austriacum*, and *Spireas*, *Lupinus*, &c. 2nd, Mr. T. S. Ware, who had greater variety but smaller plants, a group of great merit, including *Primula Sieboldii* (in varieties), *Gentiana verna*, *Saxifrages*, *Spireas*, *Irises*, *Doronicums*, *Dielytra spectabilis*, *Silene virginica*, *Geum montanum*, *Cypripedium calceolus*, *Aquilegia glandulosa*, and *Dodecatheon splendidum*, altogether a very interesting group.

of *Cymbidium Lowii*, with six spikes of flower, and other conspicuous objects were *Miltonia Vexillaria*, represented by large splendidly-flowered and good coloured varieties, *Cattleya Skinneri*, *C. S. alba*, *Odontoglossum cirrosum*, *O. crispum* in variety, and several good *Masdevallias*.

Major Lendy took 1st, for twelve cut spikes of bloom, having a very pretty lot, including *Epidendrum Wallisii*, *Laelia purpurata*, *Cattleya Skinneri*, *C. Mossiae*, *C. Mendelli*, and *Calanthe veratrifolia*, among others.

H. M. Pollett, Esq., Fernside, Bickley, was awarded 1st, for a good group of *Odontoglossums*. *O. Edvardii*, *O. Pollettianum*, *O. Halli*, *O. Wilckianum*; a good *O. Pescatorei*, with vars. of *O. crispum*, were very noticeable, being strong plants, and bearing good spikes of bloom. Mr. Pollett also showed a grand lot in the miscellaneous section: the most conspicuous plants to be noticed were a nice piece of *Cattleya Skinneri*, *Trichopilia lepidota*, *Dendrobium suavisimum*, *Masdevallia Schlimii*, *Cypripedium Swianum*, and *Oncidium metallicum*.

An extensive group was sent by Mr. F. Sander, St. Albans, in which were a great variety of forms of *Odontoglossum crispum*; we also noticed the new *Scuticari Keyseriana*, with a ground colour of yellow, spotted brown on the sepals and petals, barred with the same colour on the lip; and also *Cattleya Mendelli Rothschildiana*, and very pretty form of *C. Mossiae*.

Messrs. H. Low & Co., Clapton, showed a group in which *Cypripedium hirsutissimum*, *C. Lawrenceanum*, *C. javigatum*, *Dendrobium aggregatum majus*, and numerous varieties of *Cattleya Mendelli*, were prominent.

Mr. Cypher, Cheltenham, sent a good group, which was the same as was seen at the Royal Botanic Show on Wednesday.

A few Orchids, chiefly *Cattleyas* arranged with *Adiantum*, were shown by Messrs. H. Page & Sons, Grove Nursery, Teddington.

Pelargoniums were well shown by Mr. C. Turner, who took the leading position for a group of nine show, fancy, or decorative having excellently flowered plants throughout. For the varieties shown reference may be made to the accounts of other shows in this number. Messrs. J. & J. Hayes were placed 2nd, having smaller plants and not so perfectly trained. This last exhibitor also staged a group of fifty plants, receiving the 1st prize.

Zonal Pelargoniums were very good from Messrs. H. Cannell & Sons, who had cut trusses of richly coloured varieties; and Messrs. J. R. Pearson & Sons, Chilwell, Notts, showed a similar lot of about thirty varieties. Show Pelargoniums, not for competition, were sent by Mr. Hibbert, gr. to W. Clay, Esq., Kingston-on-Thames, who had well flowered specimens.

Azaleas were excellently shown by Mr. C. Turner, who took the first place with handsome, well-flowered dwarf pyramids; Mons. Thibaut, Madame Van Moutte, Madeline, and Etendard de Flandres, Cordon Bleu, and Chelsoni, were conspicuous examples; and he also showed several new sorts, the best of which were certificated at the Royal Botanic Society's show.

Various.—For a group of plants from Nurserymen, Messrs. J. Laing & Son, Forest Hill, were 1st with a very well-arranged group of choice, well-grown plants, in which were *Odontoglossum crispum*, *Miltonia vexillaria*, various *Caladiums*, *Begonias*, *Cattleya Skinneri*, *Cliveas*, *Azaleas*, *Dracenas*, *Crotons*, &c., the edging being of *Adiantum*. The same firm also sent a handsome group of *Caladiums*, in which was included some of the finest varieties represented by fine specimens; there were *Triomphe de l'Exposition*, *L'Automne*, *Candidum*, *Bosphore*, *Mithridata*, and several others.

Mr. Nicholson, gr. to W. Melles, Esq., Chingford, Essex, also showed a group of these plants but little inferior to those of Messrs. Laing. *Clio*, *Prince Albert Edouard*, and *Lymington* were the best plants.

Messrs. James Veitch & Son, Chelsea, S.W., showed a very interesting collection of plants, consisting of *Lilium longifolium*, numerous varieties of Japanese Maples and tree *Prionies*, which were very attractive, and made a very good appearance, owing to the fine cultivation exhibited by all the plants.

Messrs. B. S. Williams showed a very fine group of miscellaneous plants, in excellent health; *Dracena Lindenii*, *Anthurium Scherzerianum*, *Azaleas*, *Sarracenias*, and a few *Odontoglossums*, with *Attacia cristata* (in flower), were among the chief constituents.

Begonias (tuberous), were shown by Messrs. H. Cannell & Sons, and from Messrs. J. Carter & Co., 11th Holborn, there was sent a collection of *Cinerarias* and *Mimulus*, both with large flowers, and the plants vigorous.

Mr. Icton, Putney Park Lane, S.W., was awarded a 1st prize for a collection, consisting of fine decorative Palms of large size, in splendid health, and *Dracena Lindenii*, and a similar group was shown by Mr. Drost, Kew Nurseries, Richmond.

Market Plants shown in groups of not more than 150 square feet were a strong feature. The first prize was accorded to Mr. J. Sweet, Newbridge, Whetstone, for a varied lot of plants, including *Mignonette*, show Pelargoniums, *Erica Cavendishii*, *Chrysanthemum coronarium* (a yellow variety), and other greenhouse plants in flower, and a few small plants of *Cocos Weddelliana*. Mr. H. B. May, Edmonton, was second for a handsome group of market Ferns, *Crotons*, &c., with *Asparagus tenuissimus*, an ornamental leaved *Begonia* and a variegated *Ananassa sativa*; *Adiantums* and *Pterises* were the most plentiful Ferns here. There was also another group of miscellaneous greenhouse plants, Mr. Rochford, Mill Lane Nursery, Cheshunt, and which also took 2nd. *Hydrangeas* with large heads, *Rhodanthe Manglesi*, *Mignonette* with *Ficus elastica*, *Dracenas*, small *Arecas*, *Spiraeas* and *Calceolarias*, were the chief constituents. The 3rd was awarded to Messrs. J. & J. Hayes for a group of excellent Pelargoniums of the show and zonal types, with *Hydrangeas* and *Fuchsias*. A group of show Pelargoniums was also very good in this class from Mr. Braid, Winchmore Hill, N., and also by Messrs. J. & J. Hayes, both having excellent plants, and the latter firm also had a bright scarlet zonal sort, with a few *Calceolarias*, *Fairy Roses*, and good *Hydrangea hortensis* in 48-inch pots, with heads 2 feet in diameter.

Mr. Poulton, Angel Road, Edmonton, had a pretty lot of *Coleus*, *Lilium Harrisii*, *L. Candidum*, and *Tuberoseas*, all well grown plants.

Cut Flowers, &c.—These were not numerous. Mr. P. H. Garcia, Central Avenue, Covent Garden, showed a very good bridal bouquet of *Lilium longiflorum*, *Gardenias*, and *Lily of the Valley*, and another with *Cattleyas*, *Tuberoseas*, and *Lilies*; also a posy of *Roses*, a wreath of *Arum*, white *Glaudiolus*, *Gardenias*, a cross of *Roses*, *Lilies*, and *Eucharis*, and an anchor in the same style, with a band of scarlet Pelargonium entwining it.

Messrs. G. Smith & Co., Commercial Road, Pimlico, S.W., had stands of flowers arranged in their patent flower-stand, which consists of a mould in the shape of a dome with holes in it to receive the flowers.

Fruit and Vegetables.—Of these a very fair display was made. Messrs. J. Cheal & Sons, Crawley, Sussex, had a fine collection of thirty dishes of Apples, very well kept, especially Northern Greening, *Gloria Mundi*, *Hanwell Soaring*, and *Wellington*.

Mr. Cummins, gr. to A. H. Smee, Esq., The Grange, Warrington, sent about thirty-five dishes of Apples and Pears, also of fine quality—*Wadhurst Pippin*, *Wellington*, *London Pippin* were the best apples, and *Catillac*, and *Duc d'Orleans* were good samples of Pears.

Forty dishes of well kept Apples came from Messrs. G. Bunyard & Co., Old Nurseries, Maidstone, having Dutch *Mignonette*, *Scarlet Nonpareil*, *Gascoigne's Scarlet Seedling*, *Sturmer Pippin*, and *Laue's Prince Albert* among the most prominent samples.

Mr. J. B. Thomas, Covent Garden, exhibited samples of fruit as received for sale at the market. There were cases of *Lee-chees* from China packed much in the same fashion as we see Tea in chests; also *Jaffa Oranges*, and *Australian Mangoes*. Of Apples Cox's Orange Pippin, finely coloured; *Blenheim Orange* and *King Pippin*, *Ribston Pippin*, all from Australia, in excellent condition and richly coloured. From Italy there were also Apples; *Nonpareil* and *Golden Russets* were shown in barrels, from America; *Cape Cod* sent large *Cranberries*, like small *Cherries*; *Belgian Grapes* were in small boxes of about 3½ by 7 inches; *Malta Potatoes*, kidney and round, and kidneys from the Canaries, with *Bananas* from Madeira—a very interesting feature.

Mr. G. Munro, Covent Garden, sent samples of Peas and Grapes as packed in market baskets; and also four baskets of Melons from the Channel Islands.

Mr. Vert, gr. to the Right Hon. Lord Braybrook, Audley End, Saffron Walden, sent very finely-

grown fruits of *Strawberries*, President and Sir Joseph Paxton,

Mr. W. Lobjoit, Woodlands Farm, Putney, was an exhibitor of excellent *Asparagus* in three bundles of about 100 heads each; Mr. Poupert, of Twickenham had very fine heads of *Seakale*.

AWARDS IN CUPS AND MEDALS.

For Groups of Plants: Silver-Gilt Banksian Medal to Messrs. Laing & Sons; to Mr. J. Sweet; to Mr. W. Icton; to Mr. H. B. May; to Mr. E. Rochford; to Mr. G. Brand; and a Silver Flora Medal to Messrs. J. & J. Hayes.

In Class 4: For group of Orchids, Baron Schröder a Silver Cup.

Class 5: For group of Orchids, Mr. J. Cypher a Silver-Gilt Banksian Medal.

Class 7: For twelve varieties of Orchids cut spikes, Major Lendy a Silver Flora Medal.

8. Group of *Masdevallias* and *Odontoglossums*—not more than twenty-five plants (open). Mr. H. M. Pollett, Silver-gilt Banksian Medal.

9. Group of *Cattleyas* and *Laelias*, combined or separate group of fifteen distinct (open). Mr. J. Cypher, Silver Cup.

10. Group of twelve *Roses*, in pots (open). Messrs. Paul & Son, Old Nurseries, Cheshunt, Silver Cup; Mr. C. Turner, Slough, Silver Flora Medal; and Messrs. Jackson & Son, Silver-gilt Banksian Medal.

11. *Roses*—twenty-four cut blooms, not less than twelve varieties (open). Mr. W. Rumsey, Waltham Cross, Silver Banksian Medal; Mr. C. Turner, Slough, Silver Flora Medal; and Mr. J. Walker, Silver Banksian Medal.

12. Group of nine greenhouse *Azaleas*, in pots (open). Mr. C. Turner, Silver-gilt Banksian Medal.

14. Group of nine Pelargoniums—show, decorative, and fancy (open). Mr. C. Turner, Silver-gilt Banksian Medal, and Messrs. J. & J. Hayes, Silver Banksian Medal.

15. Group of fifty Pelargoniums—show, decorative, and fancy (open). Messrs. J. & J. Hayes, Silver-gilt Banksian Medal.

21. Group of hardy herbaceous plants in pots (open). Silver-gilt Banksian to Messrs. Collins Bros. & Gabriel; Silver Flora to Mr. T. S. Ware; and Silver Banksian to Messrs. Paul & Son.

22. Hardy plants—Cut blooms (open). Silver-gilt Banksian to Mr. T. S. Ware; Silver Flora to Messrs. Paul & Son.

23. Group of twenty-five *Calceolarias* in pots (open). Silver-gilt Banksian to Messrs. J. James & Son; Silver Flora to Messrs. H. H. Cannell & Sons; Silver Banksian to Messrs. J. & J. Hayes.

25a. Silver Banksian to Messrs. Poupert.

24. Miscellaneous objects not specially mentioned or provided for in the foregoing classes, Silver Banksian to Messrs. Barr & Son; to W. Paul & Son, Silver Cup for cut *Roses*; to Sir Trevor Lawrence, Silver Cup for group of Orchids; to Messrs. F. Sander & Co., Silver Cup for same; to Messrs. H. Low & Co., Silver Cup for same; to Messrs. J. Vitch & Sons, Silver Cup for same; Silver-gilt Banksian Medal to Messrs. J. Laing, for a group of plants; to Mr. P. H. Garcia, for bouquets and wreaths; to Mr. J. Walker, for cut flowers; to Mr. W. Rumsey, for *Roses*; to Mr. B. S. Williams, for a group of plants; to F. Wigan, Esq., for Orchids; to W. Mellis, Esq., for *Caladiums*; to Messrs. J. Carter & Co., for *Cinerarias* and *Mimulus*. Silver Flora Medals to Mr. H. B. May, for a group; to Mr. G. Munro, for a collection of fruit; to Mr. J. B. Thomas, for same; and to Messrs. Jackman & Son, for *Roses*.

ROYAL BOTANIC.

MAY 16.—The first summer show was held in the gardens at Regent's Park last Wednesday, when, unfortunately, rain fell continually. The show itself was a very pretty one, *Roses*, Pelargoniums, and Orchids being excellent, but fine-foliaged plants, &c., were not so grand as usual, owing, no doubt, to the cutting down of the schedule this year.

Orchids.—Mr. J. Cypher, Cheltenham, showed very fine Orchids, and took 1st for twelve and for a collection of *Laelias* and *Cattleyas* in the nurseryman's section. He had very good examples of *Chysis bracteosa*, *Miltonia vexillaria*, *Cattleya citrina*, *Dendrobium nobile*, *Odontoglossum Pescatorei*, *Cattleya Skinneri*, *C. intermedia superba*, *Laelia purpurata nobilis* and *L. p. Archduchesse*, and various other forms. Mr. H. James, Lower Norwood, was 2nd in both instances, and had fine plants of *Cypripedium Lawrenceanum*, *Dendrobium nobile*, *Saccolabium retusum magnificum*, *Masdevallia*

Veitchii, and numerous forms of *Lælia purpurata* and *Cattleya Mendelli*.

Mr. F. J. Hill, gr. to H. Little, Esq., Twickenham, was the best exhibitor in the amateurs' section, with good well-flowered plants, of which the best were *Dendrobium thyrsiflorum* var. *Walkeriana*, *Lycaste Skinneri rosea*, *Miltonia flavescens*, *Cattleya Mendelli fimbriata*, &c.

Messrs. H. Low & Co., Clapton, sent a group to which a Small Silver Medal was awarded; some of the best plants were *Cypripedium hirsutissimum*, *C. Sanderianum*, *Dendrobium devonianum*, and several very good forms of *Cattleya Mendelli*, and *Trichopilia suavis*.

Roses.—These flowers formed one of the leading features of the show, and Mr. C. Turner, Slough, carried off the chief prize for nurserymen (for twenty plants), having grand bushes in 9-inch pots: *Marquise de Castellane*, *Madame Gabriel Luizet*, *Céline Forestier*, *Juno*, and *Ed. Morren*, were specially well done.

For nine plants, the 1st prize was taken by Messrs. Paul & Son, Cheshunt, who had the finest *Roses* in the show; *Centifolia rosea*, *Magna Charta*, and *Ch. Lawson*, were good. Messrs. G. Jackson & Son were good 2nds in both cases, and had fine plants of *Céline Forestier*, *Dr. Andry*, and *Souvenir d'un Ami*. Mr. Turner led again for twelve in 12-inch pots (open), and for the six (nurserymen), with very evenly-flowered specimens of *Mons. Thibaut*, *Madeline*, *Etendard de Flandres*, and *Stella*.

The best amateur group was that of Mr. G. Wheeler, gr. to Sir J. Goldsmid, Regent's Park, who had a very nice lot of low pyramids, *Criterion*, *Stella*, and *Model*, being the finest forms shown.

Pelargoniums were very well represented by Mr. C. Turner, who once again took the leading prizes, being 1st in the open class for fancies, and in the nurserymen's for show sorts, having excellently flowered plants in both cases. The *Shah* and *Jenny Howlett* were good fancies, and *Martial*, *Emperor*, and *Prince Leopold* were good shows.

Mr. Phillips, gr. to R. W. Mann, Esq., Langley Broom, Slough, was a good exhibitor, taking 1st in the amateurs' class for six shows; and he was also awarded a Bronze Medal for a group of *Pelargoniums* not for competition.

Some of the stove and greenhouse plants shown were of excellent quality, Mr. H. James showing the best of the nurserymen, and so carried off the chief prizes. *Chorozema cordatum splendens*, *Ixora Prince of Orange*, *Erica coccinea minor*, *Boronia pinata*, and *Dracophyllum gracile* were well shown in this exhibitor's groups.

Among amateurs Mr. Chapman, gr. to J. Spode, Esq., Rugby, was 1st for the larger lot of ten, showing very creditably *Aphelexis grandifolia*, *Dracophyllum gracile*, *Ixoras*, and *Statice profusa* (good).

The leading exhibit of six ditto came from Mr. A. Offer, gr. to J. Warren, Esq., Handcross Park, Crawley, who had one of the best groups of the show. *Darwioia fuchsoides*, *Pimelea decussata*, *Boronia elatior*, *Chorozema ilicifolium*, and *Tremandra ericaefolia*, were very well grown and flowered.

The best lot of fine-foliaged plants were (nurserymen) those of Mr. H. James, who took another 1st, with good plants of *Macrozamia Dennisoniana*, *Latania borbonica*, *Asparagus tenuissimus*, &c.; and in the corresponding competition for amateurs the place of honour was taken by Mr. R. Butler, gr. to H. H. Gibbs, Esq., Regent's Park, with a fine specimen of *Pandanus Veitchii*, *Chamaecrops excelsa*, and *Arca Baueri*. This exhibitor deserved credit for the legibility of his labels, which many exhibitors would do well to copy.

Ferns and Miscellaneous Plants.—Mr. Offer and Mr. Butler took prizes for exotic Ferns in the order named, both showing excellent plants. Mr. Offer had fine examples of *Davallia Mooreana*, *Alsophila excelsa*, and *Marattia elegans*; and he also took a large Bronze Medal for foliage plants, not for competition having good plants of *Anthurium crystallinum*, and of *Bonaparteia stricta*.

Hardy plants were good from both Messrs. Collins Bros. & Gabriel, Waterloo Bridge Road, S.E., and Mr. T. S. Ware, Tottenham, who took respectively 1st and 2nd; each had a good lot of well grown and well flowered plants, and ran close.

From Messrs. W. Cutbush & Son, Highgate, a group of various plants was sent, and a Silver Medal awarded; *Liliums*, *Acacia*, *Maples*, &c., were included.

Mr. B. S. Williams received a Large Silver Medal

for a similar group, in which there was a plant of *Attacia cristata* in flower, also *Orchids*, *Sarracenas*, *Cliveas*, *Azaleas*, *Dracenas*, &c.

Messrs. Laing & Sons, Forest Hill, sent a handsome group of miscellaneous plants to which a Large Silver Medal was awarded; *Caladiums*, *Orchids*, *Geonomas*, *Dracenas*, *Cliveas*, &c., tastefully harmonised.

A large exhibit of *Roses* was made by Messrs. W. Paul & Son (Silver Medal), who had both cut blooms and plants in pots; *Sappho*, a new *Rose* (T.), yellow and flushed pink, was very fine; it has a good form, and is likely to prove a useful addition to our lists. *La France*, *Violette Bowyer*, and other popular sorts were also shown. A Bronze Medal was awarded to Mr. J. Walker, Thame, for *Maréchal Niel* *Roses* of large size and good colour.

Messrs. J. Carter & Co., High Holborn, W.C., showed *Cinerarias* and *Minulus*, both large and of bright colours.

To Messrs. Barr & Son, Covent Garden, W.C., a Bronze Medal was given for a group of *Narcissi*, including many popular varieties, and a new one called *N. poeticus grandiflorus*, a large-flowered form.

FLORAL CERTIFICATES.

Azalea Theodore Reimers, rosy-purple, double (C. Turner).

Azalea Louise Vervaeke, white, green centre, semi-double (C. Turner).

Azalea Vervaekeana (C. Turner).

Azalea Ami du Cœur, soft rosy-red, double (C. Turner).

Rose (Tea) *Princess Beatrice*, yellow, flushed with pale pink (Bennett).

Rose (Tea) *Sappho*, yellow, slightly suffused with pink (W. Paul & Son).

Narcissus poeticus grandiflorus, a large form, cup yellow, with prominent full-coloured margin (Barr & Son).

Geum minimum, 1 foot high, flowers rich orange-scarlet, 1½ inch in diameter (Paul & Son).

Minulus Jubilee, large flower, ground cold yellow, red-brown lobes, with a yellow margin, throat spotted brown. (J. Carter & Co.)

Begonia Mrs. F. W. Bennett, double, yellow, round (H. Cannell & Sons).

Begonia Enchantress, double, flesh. prominent guards (H. Cannell & Sons).

Begonia Lady Mary Fitzwilliam, double, bright rose centre, guards paler (H. Cannell & Sons).

Gloxioia Madame Bleu, lobes red-purple, white edge, spotted throat (Laing & Sons).

Olive Orange Perfection, rich red-orange, yellow centre, large truss (Laing & Sons).

Clivea sulphurea, pale salmon-pink, pale yellow centre (Laing & Sons).

Caladium Comte de Germiny, light red, dark nerves, very pale spots (Laing & Sons).

Caladium Charlemagne, light red, dark nerves (Laing & Sons).

Myosotis undulata grandiflora, a large flowered form of *M. dissitiflora* (H. J. Virgo).

BOTANICAL CERTIFICATES.

Anthurium Scherzerianum sanguineum, a broad leaved and spathe form (H. James).

Lælia purpurata *Archduchessa*, sepals and petals slightly tinged rose; lip dark, lighter in the centre lobe (J. Cypher).

Lælia purpurata nobilior, sepals and petals white lip as above (J. Cypher).

CRYSTAL PALACE.

MAY 11.—The show held last Saturday was rather disappointing, exhibitors not coming forward freely, and in many classes there was only one entry, which is a great falling off from last year. The various exhibits were placed at wide intervals, so that about three parts of the entire length of the building was occupied by the groups, &c., and the full effect of the plants and flowers was consequently diminished, but crowding by the visitors was thus avoided, which was desirable, as the attendance was good.

Roses were shown best, and Messrs. Paul & Son, Old Nurseries, Cheshunt, showed a group of excellently flowered bushes in pots, securing the leading position in the open class. *La France*, *Innocente Pirola*, *François Levet*, *Jean Ducher*, *Alba rosea*, *Violette Bowyer*, and *George Morraen* were specially fine plants; Messrs. G. Jackson & Son, Woking Nursery, Woking, were a capital 2nd, with *Mdme. Lacharme*, *La France*, *Marquise de Castellane*, and *Ferdinand de Lesseps* as his best examples. Fol-

lowing very closely was Mr. C. Turner, Royal Nurseries, Slough. This last named exhibitor came up well in the class for nine show *Pelargoniums*, and also for nine fancy varieties, taking 1st without any competition. Mrs. Langtry (white, with rose spots), Miss E. Little (rose, with darker markings all over, very dark spot, and white margin), were good in the latter section; and in the former were *Emperor of Russia* (dark black-purple with a white margin), very fine; *Maid of Honour* (rose-pink and white, with red spots), *Triomphe de St. Maude* (rich carmine, black spot), were the best of the fancies. The same exhibitor also took 1st in the class for eighteen show and decorative.

In the amateurs' division the leading prize for both sections was awarded to Mr. D. Phillips, gr. to R. W. Mann, Esq., Langley Broom, Slough, who showed well—of fancies, *Irene*, *Vivandière*, and *The Shah*; of show sorts, *Mauve Queen*, *Kingston Beauty*, and *Prince Leopold*.

The best *Azaleas* in the show were those of Mr. Turner, who therefore secured more successes, showing some finely grown and well flowered large pyramids, and also capital plants in 9-inch pots: *Jean Vervaeke*, *Stella*, *Duc de Nassau*, and *Comte de Flandres* were all fine examples; and this exhibitor also showed *Azalea Stella* as the best specimen greenhouse plant.

Messrs. J. Laing & Sons, Forest Hill, sent a magnificent group of specimen *Caladiums*, candidum being a fine plant, and so also were *Triomphe de l'Exposition*, *Clio*, *Luddemannii*, *Ferdinand de Lesseps* and *Sanchoniathum*. This firm also contributed a tastefully arranged group of plants, arranged for effect in 200 square feet, in which were included *Dracena Lindenii*, *Azaleas*, *Cliveas*, *Caladium argyrites*, *C. minus rubescens*, and numerous *Orchids*, as *Cattleya Skinneri*, *Odontoglossum crispum*, &c.

Several prizes were taken by Mr. H. James, Castle Nursery, Lower Norwood. He was 1st for nine *Orchids* in flower, showing a capital piece of *Cypripedium Lawrenceanum*, with forty flowers; *Dendrobium thyrsiflorum*, with twenty racemes; *Cattleya Skinneri*, *Dendrobium nobile*, &c. He also showed this last plant as the best specimen *Orchid*, taking 1st, and also for the best fine-foliaged plant, and he came 2nd for a stove plant, where Mr. W. Chapman, gr. to J. Spode, Esq., Sydenham, was 1st, with a large well-flowered plant of *Ixora regia*. Mr. Chapman was also 1st in the open class for nine stove and greenhouse plants, and again in the amateurs' section for six, showing capital specimens in each case. His finest plants were *Ixora Dixieana*, *Tremandra ericaefolia*, *Statice profusa*, and *Hedera Darwioia*.

Mr. Cooper, Sydenham, had the best *Orchids* of the amateurs, showing *Lælia purpurata*, *Cattleya Skinneri*, and *Miltonia vexillaria*, in good form; Mr. F. Hill, gr. to H. Little, Esq., Twickenham, was 2nd, having a plant of *Miltonia flavosa*.

Mr. Offer, Handcross Park Gardens, Crawley, took numerous prizes, being 1st for nine fine-foliaged plants (open), with good specimens, and also for six in the amateur section, and again for Ferns. Mr. Penfold, gr. to Rev. Canon Bridges, Beddington, also was a successful exhibitor of *Crotons*, *Dracenas*, and Ferns, in which latter class he had good plants of *Dicksonia antarctica*, *Asplenium nidus avis*, and *Microlepia hirta cristata*.

Table plants were excellent from Mr. Hudson, Gunnersbury House Gardens, Acton, who had remarkably sturdy, healthy plants of *Pandanus Veitchii*, *Dracenas* in variety, and *Aralias*, &c.

Special prizes were offered by Messrs. Carter for *Cucumber Model*, for which there was only one entry, Mr. G. Collins, gr. to J. A. Rose, Esq., Wandsworth, taking the 1st prize, for well grown samples.

Messrs. Sutton offered prizes for *Gloxinias* and for *Cucumbers*, which brought a fair show, Mr. J. Hopkins, gr. to M. Jacoby, Esq., Gipsy Hill, leading for *Gloxinias*, and Mr. Monk, Dulwich, for the *Cucumbers*, showing good fruits of *Improved Telegraph*.

Mr. W. Rumsey, Waltham Cross, staged a good collection of cut *Roses*, including many popular varieties, such as *Madame de Watteville*, *Charles Lefevre*, *Niphetos*, *Maréchal Niel*, *Souvenir d'un Ami*, and *Lady Mary Fitzwilliam*; and Mr. H. Bennett, Shepperton, sent a collection of his *Roses Lady Mary Fitzwilliam*, *Little Dot* (*Polyantha*), and *Princess Beatrice*.

Calceolarias and *Mignonette* were well shown by Messrs. Cannell & Sons, Swanley, Kent; and Messrs. Barr & Son, Covent Garden, and Mr. T. S. Ware, Tottenham, each showed a collection of *Daffodils*, &c. *Madame de Graaff*, large *Sir Watkin*, various forms of

Leeds, and J. B. M. Camm were good in Mr. Bari's lot. Mr. Ware had numerous forms of *Poeticus*, and also showed *Ranunculus amplexicanlis*, Tulips, *Primula Sieboldi*, &c.

LINNEAN.

May 3.—Dr. John Anderson, F.R.S., Vice-President, in the chair. The following were elected Foreign Members:—Dr. A. Engler, Prof. T. Fries, Prof. R. Hartig, Dr. E. Warming, and Dr. A. Dohrn.

The Chairman announced a resolution of the Council to found a Gold Medal to be called "The Linnean Medal," to be awarded at the forthcoming anniversary meeting to a botanist and zoologist, and in future years to a botanist and zoologist alternately, commencing with a botanist.

Dr. Francis Day exhibited some specimens of *Lochleven* and sea trout raised at Howietown, to illustrate his observation that the markings usually relied upon to distinguish the species are not constant, and therefore, if taken alone, of no value for the purpose of identification. He also exhibited specimens of trout from Otago, New Zealand, descendants of some which had been introduced there, presenting some curious modification of structure. A discussion followed, in which some interesting remarks were made by Professor Howes and Mr. Willis Band.

On behalf of Mr. Miller Christy, the Botanical Secretary, Mr. B. Daydon-Jackson, exhibited some specimens of the *Bardfield Oxlip*, *Primula elatior*, *Jacquin*, gathered near Dunmow, and occurring only in this part of England (cf. *Transactions Essex Field Club*, iii., p. 148).

Mr. A. D. Michæl read a paper on the life-histories of the *Acari Glyciphagus domesticus* and *G. spinipes*. After describing in detail observations and dissections extending over three years, the author concludes that there is a hypopial stage in the life-history of *Glyciphagus*, but far less developed than in *Tyroglyphus*, and not an active stage in the species observed; that it does not occur to all individuals of a species, and it has not been ascertained whether it occurs in all species; that the stage is not the result of desiccation or unfavourable conditions; and that it occupies the period between the penultimate ecdysis and that immediately previous. Dr. C. Stewart having criticised Mr. Michæl's researches in favourable terms, a communication was made by Mr. C. B. Clarke on "Root Pressure." He contested the view of Sachs and his followers, that root pressure is sufficient to sustain the weight of a column of water of the height of 100 (or even 300) feet, and to force out drops at particular points of the leaves. He maintained that it was a mathematical error to apply the equation, $p = \rho g p z$, to the case of water in plants, and that in a collection of cells and longitudinal tubes of varying size (all very small), the only mechanical ideas that could be applied were those of capillary attraction and motion. In the discussion which followed Professor Marshall Ward thought root pressure necessary to explain the admitted results of manometer experiments; Mr. A. W. Bennett, on the other hand, regarded the assumption of a high fluid tension in the cells of roots to drive moisture to the summits as nothing more than an expression of our ignorance as to what the water does move.

A paper "On the Ovicells of some Lichenospore" having been read by the Zoological Secretary, Mr. W. Percy Sladen, in the absence of the author, Mr. A. W. Waters, the meeting adjourned to May 24.

COLONIAL NOTES.

SEED GROWING AT RANGIORA, NEW ZEALAND.

MR. J. SHIEL, seed merchant, of Rangiora, has within the past two years successfully established an industry in the shape of seed-growing for home and Continental houses which bids fair to become of considerable importance. Coming to the colony between two and three years ago, and starting in business at Rangiora, Mr. Shiel was much impressed with the superiority of many of the locally-grown vegetables and farm seeds, over those imported, and being well acquainted with the requirements of the seed trade at home, the idea of growing seeds specially for exportation forced itself upon him as

likely to prove a profitable undertaking. In deciding to put the idea into practical shape he determined that his venture should not be altogether of a speculative character, and so communicated with some of the leading firms in England and on the Continent of Europe, submitting samples of what the soil in his neighbourhood would produce, to test whether support would be forthcoming. Old-established firms, with a reputation at stake, use the utmost care in obtaining and growing their stock, and naturally require the best of references before admitting into their warehouses seed grown in so distant a country as our own. Mr. Shiel managed, however, to obtain the good opinion of more than one firm, who forwarded him supplies of selected seeds, the growing of which last year proved highly satisfactory to all concerned. The result was, in fact, so encouraging that this year Mr. Shiel has no less than 50 acres of seeds growing to order. No small amount of his success is due to the adaptation of the soil to the seed, careful sowing, "roguing" and reaping. The "roguing," or culling bad and impure seed from the crop, is one of the most important points in seed-growing, and one that entails a considerable amount of tedious labour. Mr. Shiel's crops are this year situated at Rangiora, Woodend, and on the Maori Reserve, the land being all of the best class. A good proportion of the 50 acres is under Peas, which comprise sixteen varieties of the main crop leading sorts, including Veitch's Perfection, Hair's Mammoth Yorkshire Hero, Stratagem, Laxton's Omega, Fillbasket, and G. F. Wilson. The Stratagem and Laxton's Omega are of comparatively recent introduction, and from the high character they bear as heavy croppers, with quality and size of Pea, they must, when better known, find a first place with the market gardener. The early sorts, Little Gem, Bliss' Abundance, William Hurst, American Wonder, and Blue Peter take the lead for the very early market, and of these the William Hurst, a new Pea, should have premier position, being a wonderful cropper on a stem about 9 inches high. The Peas are now being harvested in first-class condition, and will give a heavy yield. Broad and Green Windsor Beans are also grown. The variety Shiel's Border Hero, introduced into New Zealand last year, is showing well to the front for size of pod and Beans, many of the pods measuring from 12 to 15 inches in length. All the principal varieties of French or Kidney Beans and Scarlet Runners have a place, and also the white Haricot Bean so extensively used in France and England in a dry state. Carrots of the Short-horn, Intermediate, Woodberry Perfection, and Giant White Belgian varieties, are largely grown; and from the appearance of the well-set heads a promising crop may be expected. Of Potatoes there is a good collection of the best early varieties, including Ayrshire Hero, a very prolific secondary of kidney shape, with dwarf-growing top. This is a Potato at present very little grown, but wherever it has been exhibited at shows in competition it has taken a first place. Lettuce, Onion, and other small garden seeds have also space allotted to them, and Mangels of the Long Red and Yellow Globe varieties. An area of the large Scotch Tare, uncommon in New Zealand, is looking perfection in size of stalk and seed-pod. As fodder for pigs, horses, &c., this Tare is much superior to the English variety, yielding 50 to 75 per cent. more, the stalks sometimes reaching over 5 feet in height. The seed was imported by Mr. Shiel last year to be grown for distribution in New Zealand, he believing that it will supersede the English variety when it becomes better known. *Canterbury Times*, February 3.

[Mr. Shiel, a ten years' subscriber to our journal, sent the following note with the above excerpt from the Colonial newspaper. Ed.]—

"Only within the last two years have I taken notice of the importance of seed-growing in North Canterbury for Colonial consumption, as well as for the home markets, and from experience gained during that short term I am perfectly satisfied that no other country in the world can compare more favourably for this industry than can New Zealand.

The free and fertile soil of this district particularly is admirably suited for seed growing, and as these crops, to a large extent, depend upon sunshine and dry autumn weather, nothing can be more conducive to perfection of ripening than can New Zealand from the month of November till well into May. The only drawback in this country against competing with European growers of small garden seeds is the excessive high rate of wages to be paid for farm labour. In many instances farm labourers have to be paid from 5s. to 7s. per day of eight hours, and as junior labour is almost impossible to be obtained at any rate of wage, owing to their ideas being far in advance of labouring, profitable small seed growing can only be undertaken for colonial trade. To give you an idea of the superior quality of Peas grown here I will send a small parcel of samples of a few varieties without any preparation whatever, with the s.s. *Ioala* sailing next week for London. These samples are as they left the winnowing machine, without being picked in any way, all of which I am sure can bear favourable criticism. My reason, and only one, for submitting this report is to bring the industry publicly before the growers in England; and should you view it favourably I shall be very pleased if you could find for it a place in the columns of the *Gardeners' Chronicle*.

Obituary.

JOHN GREENSHIELDS.—Three years ago we recorded in this paper the retirement from active duty of Mr. John Greenshields, Lord Ducie's gardener at Sarsden, Oxon, after a service of a little over fifty years. We have now to record his death, which took place at Sarsden Gardens, on Saturday, May 12. He was in the eighty-sixth year of his age. He was appointed head gardener at Sarsden in 1831, succeeding Mr. Pugh, who then retired on a pension. These two held, in immediate succession, this appointment for 109 years. Is there another such record? Mr. Greenshields enjoyed fairly good health till two months ago. He was fond of reading, and he gave the years of his retirement wholly to this, and he could read without spectacles. He was a man held greatly in honour by those whom he served, and by all who knew him. He was a Lanarkshire man, but left his native vale of Clyde so long ago as 1827.

WILLIAM THRELFALL.—The *Times* says:—"About the end of March, drowned while bathing in the River Diyala, Kurdistan, in which district he was travelling for botanical research, WILLIAM, second son of the late Richard Threlfall, of Hollowforth, Preston, Lancashire, aged twenty-five years. Interred in the English Cemetery, Bagdad, April 7." This is a very serious loss for botany and horticulture, as well-founded expectations were entertained as to the success of this gentleman. Mr. Threlfall was a correspondent of this journal, and furnished interesting notes on horticultural and botanical matters in Germany and Russia to this journal, and we were looking forward with eager interest to the results of his travels in Asia Minor, of which he had promised to send us an account as well as specimens of the vegetation.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending May 14, is furnished from the Meteorological Office:—

"The weather has been much finer than that experienced for many weeks past. The sky, excepting in the extreme north of Scotland, has been comparatively cloudless and rain almost entirely absent.

"The temperature, although sometimes high for the season during the day, fell quickly during the night-time, and on the whole has continued below the mean in all districts, the deficit ranging from 1° in 'Scotland, E.,' to 4° in 'Scotland, N.,' 'England, E.,' 'England, N.W.,' and 'Ireland, N.' The highest of

the maxima, which were recorded on the 8th at some stations and on the 13th at others, varied from 57° to 68° in Scotland, 61° to 66° in Ireland, and from 63° to 73° over England. The lowest of the minima, which were registered on the 9th in Ireland, the 10th in Scotland, and the 13th in most parts of England, ranged from 28° in 'Scotland, W.' and 'Ireland, N.' to 32° in 'England, S.' and to 43° in the 'Channel Islands.' Over all the more inland parts of the kingdom sharp ground frosts were experienced.

The rainfall has been less than the mean in all districts, the fall in most places being scarcely appreciable.

"Bright sunshine shows a very large and general increase. The percentage of the possible amount of duration, which varied from 24 in 'Scotland, N.' to 46 in 'Ireland, S.' and to 78 in the 'Channel Islands,' has not been so high over the kingdom generally since the week ending June 27, 1887, although that for the week ending August 8, 1887, was nearly as high."

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending May 14.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	
0. SCOTLAND, N. ...	4 below	27	14	— 67	+ 190
1. SCOTLAND, E. ...	1 above	47	13	— 96	+ 144
2. ENGLAND, N.E. ...	3 above	44	10	— 104	+ 75
3. ENGLAND, E. ...	4 below	62	15	— 157	+ 156
4. MIDLAND COS. ...	3 below	61	13	— 180	+ 150
5. ENGLAND, S. ...	2 below	59	5	— 227	+ 205
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 below	47	11	— 128	+ 109
7. ENGLAND, N.W. ...	4 below	40	5	— 165	+ 119
8. ENGLAND, S.W. ...	2 below	53	2	— 237	+ 254
9. IRELAND, N. ...	4 below	40	9	— 152	+ 69
10. IRELAND, S. ...	2 below	50	0	— 187	+ 114
— CHANNEL ISLANDS	2 below	63	0	— 213	+ 154

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	1 less	95	15.0	24	25
1. SCOTLAND, E. ...	4 less	80	9.3	58	28
2. ENGLAND, N.E. ...	4 less	70	7.7	63	26
3. ENGLAND, E. ...	4 less	70	6.9	63	26
4. MIDLAND COS. ...	4 less	63	6.6	54	24
5. ENGLAND, S. ...	4 less	64	7.6	59	24
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	4 less	65	13.1	63	30
7. ENGLAND, N.W. ...	4 less	71	7.1	64	26
8. ENGLAND, S.W. ...	5 less	69	9.7	69	31
9. IRELAND, N. ...	3 less	73	10.0	63	25
10. IRELAND, S. ...	2 less	63	11.0	46	31
— CHANNEL ISLANDS	4 less	81	9.6	78	34

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING MAY 28. (AVERAGE OF FORTY-FOUR YEARS.)

May 20 ...	55° 5	May 24 ...	56° 4
" 21 ...	55° 9	" 25 ...	56° 6
" 22 ...	56° 1	" 26 ...	56° 7
" 23 ...	56° 3	Mean for the week ...	56° 2

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

ACACIA TREES: A. Evans. Please send specimens of insects and bark for inspection.

A THOUSAND MARÉCHAL NIELS ON A TREE: Wm. Thomas, The Elms, Taunton. The flowers sent were very fine ones, denoting a plant in the highest vigour.

CORRECTION: SCOTTISH PRIMULA SHOW.—At p. 599, last week, instead of "Mr. Kilgour, Blair Adam," read "Mr. K., Blair Drummond." The mistake arose from an incorrect prize-ticket being put on the exhibit.

DANDELIONS AND PLANTAINS ON LAWN: C. H. E. Spudding out the roots in their entirety, putting fresh loam in the holes, and sowing Grass seeds on it, is the best remedy at this season. Cutting off the tops of the plants just below the leaves, and dropping a little vitriol on the root-stock, is effectual; and where the resulting patches of bare soil are large, seed sowing must also be done.

HARD WATER: Correspondent. If a certain proportion of lime in powder be added to the water, and well stirred in it, allowing the lime held in solution to unite with the added lime to settle, the water will be much improved for all purposes.

HOLLYHOCK DISEASE: F. W. F. Yes, a bad case. Burn every plant. In your case, if all the plants are as bad as the sample sent, it is of no use to try remedies.

LILY DISEASE: J. L. Next time send your letter to the Editor. Your plants are suffering from the attacks of a fungus like that which affects the Potato. Burn the plant.

NAMES OF PLANTS: J. G. Double Banksian Rose.—Mill & Tweedie. Drimys aromatica.—A. W. Cardiospermum halicacabum.—Sir C. W. Strickland. Barometra columellaris. We cannot name the Jasmine. Should like to see more, with lower leaves.—Ross, Castagnolo. Morca tricuspis, Ker.—E. Johnson. 1, Salvia gesneriflora; 2, Phlox snubulata; 3, Diplacis glutinosus; 4, Pimelia Hendersoni; 5, Diosma sparganophala.—C. E. Gentiana amarella Fuchsia; 1, Thuia dolobrata; 2, perhaps Wellingtonia; 3, Abies Pinsapo; 4, A. nobilis; 5, Cupressus; 7, Thuia aurea. It is next to impossible to name coniferous trees from such scraps.—W. W. Forms of Lælia purpurata, Lycaste Harrisonia, Odontoglossum Cervantesii.

ODONTOGLOSSUM CRISPUM: W. W. The peculiarity is due to the growing together of three flowers.

SEEDING CINERARIAS: W. A. R. These plants seed best when kept in a dry, warm, brisk atmosphere, with plenty of sunlight.

VINE INSECT: A. B. Sirex gigas (the Giant Sawfly), usually found in woods, where it does much mischief. See figure in *Gardeners' Chronicle*, August 13, 1887.

CATALOGUES RECEIVED.

T. S. WARE, Hale Farm Nurseries, Tottenham—Dahlias, Climbers, &c.
JAMES VEITCH & SON, Royal Exotic Nursery, 544, King's Road, Chelsea, S.W.—Plants, Novelties, &c.

JAMES DICKSON & SONS, Newton Nurseries, Chester—Bedding Plants, Dahlias, &c.
JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.—Chrysanthemums, Seeds, &c.
J. LAING & SONS, Forest Hill, London, S.E.—Begonias, Orchids, Ferns, &c.

COMMUNICATIONS RECEIVED.—W. B.—G. S. (we will do what you wish).—J. V. V. (to Kew).—G. D.—E. V.—J. T. S.—L. & B.—W. T. D.—A. H. S.—J. A.—R. D.—Z.—C. S.—C. F. E. J.—W. B. H., Cork.—W. G. D.—M.—C. H.—K. L. D.—D. D.—J. J. S.—T. F. R.—R. S. N.—S. F. L.—W. E. B.—J. H.—J. D.—R. D.—C. E.—A. Bleu.—W. E.—J. C.—Andrew Taylor (next week).—W. Roberts.—C. W.—A. W.—J. M. J.—W. B.—R. A. R.—E. J.—W.—W. B.—W. S.—D. B.—Constant Reader.—F. Russell.—L. H.—C. W. D.—J. G. W.—C. J. R.—W. Radley (next week).

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

DIED, at Bordighera, Italy, Mr. R. VALENTINE LEACH, of Devizes Castle, at the age of eighty-two years.

—May 12, at The Gardens, Sarsden, Mr. JOHN GREENSHIELDS, aged eighty-five years, for over fifty years Head Gardener at Sarsden House.

MARKETS.

COVENT GARDEN, May 17.

BUSINESS steady, with all classes of goods well supplied. Prices lower all round. *James Webber, Wholesale Apple Market.*

We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6-18 0	Ferns, in var., doz. 4-18 0
Azaleas, per dozen ... 18 0-30 0	Elasticus, each ... 1 6-7 0
Bouvardias, per dozen 9-12 0	Foliage plants, various, each ... 2 0-10 0
Calceolarias, dozen 6-12 0	Fuchsias, doz. ... 9 0-12 0
Cinerarias, dozen ... 6 0-12 0	Geraniums, dozen ... 4 0-6 0
Coleus, dozen ... 4 0-6 0	Heliotropes, dozen ... 6 0-9 0
Cyclamen, per dozen 9-18 0	Lily of the Valley, 12 pots ... 12 0-18 0
Cyperus, per dozen 4-12 0	Marguerites, doz. ... 9 0-12 0
Deutzias, per dozen ... 6 0-12 0	Mignonette, 12 pots 6-18 0
Dracena terminalis, per dozen ... 30 0-60 0	Musk, dozen ... 1 6-3 0
— viridia, per doz. 12 0-24 0	Myrtles, per dozen ... 6 0-12 0
Ericas, various, per dozen ... 9 0-18 0	Palms, in variety, each ... 2 6-31 0
— ventricosa, doz. 18 0-30 0	Pelargoniums, doz. ... 9 0-15 0
Eucalyptus, in var., per dozen ... 6 0-15 0	— scarlet, dozen ... 4 0-9 0
Evergreens, in var., per dozen ... 6 0-24 0	Roses, dozen ... 12 0-24 0
	Spiræas, dozen ... 6 0-12 0

OUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Anemones, 12 bun. ... 1 6-4 0	Narcissus, various, 12 bunches ... 3 0-4 0
— fulgens, 12 bun. ... 2 0-4 0	— double, 12 bun. ... 9 0-12 0
Arum Lilies, 12 blms. ... 2 0-4 0	Nigella, 12 spr. ... 0 6-1 0
Azaleas, 12 sprays ... 0 6-1 0	— scarlet, 12 spr. ... 0 2-0 6
Bouvardias, per bun. ... 0 6-1 0	Polyanthus, 12 bun. ... 1 6-3 0
Camellias, 12 blms. ... 1 0-3 0	Primroses, 12 bun. ... 0 6-1 0
Carnations, 12 blms. ... 1 0-2 0	Primulas, double, 12 bunches ... 0 9-1 0
Cinerarias, 12 bun. ... 6 0-12 0	Roses, Tea, per doz. 1 0-3 0
Cowslips, 12 bun. ... 1 0-2 0	— coloured, dozen ... 2 0-4 0
Cyclamens, 12 blms. ... 0 4-0 6	— red, per dozen ... 2 0-4 0
Deutzias, 12 bunches 4-0 9 0	Saffron, dozen ... 0 8-1 6
Eucharis, per dozen 3-0 6 0	Spiræa, 12 bun. ... 4 0-6 0
Forget-me-nots, 12 bunches ... 2 0-4 0	Stephanotis, 12 spr. ... 2 0-4 0
Gardenias, 12 blooms 1 6-4 0	Tuberose, 12 blms. ... 1 0-2 0
Heliotropes, 12 spr. ... 0 6-1 0	Tulips, 12 bunches ... 0 4-0 0
Lilium longiflorum, 12 blooms ... 3 0-6 0	Violets, Parme, bun. ... 2 0-4 0
Lily of Val., 12 bun. 4-0 6 0	Wallflowers, 12 bun. ... 2 0-4 0
Marguerites, 12 bun. 3-0 6 0	White Lilac, Freoch, per bunch ... 4 6-6 0
Mignonette, 12 bun. 3-0 6 0	

*. Orchid bloom in great variety, but the demand not very good.

BEDDING-OUT PLANTS.

By the box, 2s. to 6s.; or by the dozen, 1s. to 2s. Now coming good.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 1-sieve ... 3 0-6 0	Peaches, dozen ... 12 0-21 0
Grapes, per lb. ... 3 0-6 0	Pears, per dozen ... 3 0-6 0
Kent Cobs, 100 lb. ... 40 0-45 0	Pine-apples, Eng., lb. ... 1 0-2 0
Lemons, per case ... 10 0-21 0	— St. Michael, each 2 0-5 0
Melons, each ... 2 0-6 0	Strawberries, lb. ... 3 0-6 0

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichoke, p. doz. ... 6 0 ...	Mushrooms, punnet 1 0- 1 6
Asparagus, Fr., bund. 1 0- 5 0	Mustard and Cress, punnet ... 0 4- ...
— English, 100 ... 12 0- ...	Onions, per bushel ... 9 0- ...
Beans, Kidney, lb. ... 2 6- ...	Parsley, per bunch ... 0 6- ...
Beet, red, per dozen 1 0- 2 0	Potatoes, per cwt. ... 4 0- 5 0
Carrots, per bunch ... 0 6- ...	— kidney, per cwt. ... 4 0- 5 0
Cauliflowers, each ... 0 3- ...	Rhubarb, per bundle 0 4- ...
Celery, per bundle ... 1 6- 2 6	Seakale, punnet ... 2 0- 2 6
Cucumbers, each ... 0 6- 1 0	Shallots, per lb. ... 0 6- ...
Endive, per dozen ... 2 0- ...	Spinach, per bushel ... 4 0- ...
Green Mint, bunch ... 1 6- 3- ...	Spruce, per bundle ... 1 0- ...
Herbs, per bunch ... 0 4- ...	Tomatoes, per lb. ... 4 0- ...
Leeks, per bunch ... 0 6- ...	Turnips, per bunch ... 0 6- ...
Lettuce, per dozen ... 1 6- ...	

POTATOS.—All old Potatoes lower by 10s. to 20s. per ton. New stuff very plentiful. Kidneys, 15s.; Rounds, 9s. per cwt.

SEEDS.

LONDON: May 16.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market thinly attended, with but little business doing. For those seeds needed for immediate sowing occasional orders still come to hand; meantime prices all round are exceedingly low, and stocks quite moderate. Accounts from America speak badly of the growing Clover crops; no speculation of importance has, however, yet sprung up. Canary and Hemp seed sell on former terms. Blue Peas are steady. Rape seed commands more money. Mustard unchanged. Scarlet Runners are cheaper.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended May 12:—Wheat, 31s. 5d.; Barley, 32s. 4d.; Oats, 16s. 9d. For the corresponding week in 1887:—Wheat, 33s. 6d.; Barley, 22s. 9d.; Oats, 16s. 7d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: May 16.—Fair supplies of fresh vegetables; good demand. Large supplies of old Potatoes, best samples only being in request. Quotations:—Asparagus, 1s. to 2s. per bundle; Cauliflowers, 5s. to 8s. per tally; Cabbages, 4s. 6d. to 8s. do.; Broccoli, 3s. 6d. to 4s. per bushel; Spinach, 1s. 3d. to 2s. per sieve; Turnip-tops, 1s. 6d. to 3s. per sack; Greens, 7s. to 8s. 6d. per dozen bunches; Turnips, 2s. to 3s. do.; Carrots, 2s. 6d. to 4s. do.; Parsley, 1s. 6d. to 2s. do.; Mint, 2s. to 3s. do.; spring Onions, 2s. to 3s. do.; Radishes, 1s. 6d. to 2s. do.; Rhubarb, 1s. to 1s. 6d. per dozen bundles; Seakale, 1s. to 1s. 6d. per punnet; Horseradish, 10d. to 1s. per bundle; Endive, 9d. to 1s. 6d. per dozen; Beetroots, 8d. to 1s. do.; Cabbage Lettuces, 8d. to 1s. 6d. do.; Mustard and Cress, 2s. per dozen baskets; English Onions, 6s. 6d. to 8s. per cwt.; foreign, do., 4s. 6d. to 6s. per bag of 110 lb.; Carrots, 35s. to 90s. per ton; Swedes, 26s. to 32s. do.; English Apples, 5s. to 9s. per bushel; American, do., 17s. to 25s. per barrel.

STRAITFORD: May 15.—Supply has been good, and a brisk trade was done at the undermentioned prices:—Greens, 8s. to 10s. per dozen bunches; Turnips, 3s. to 3s. 6d. do.; Carrots, household, 60s. to 80s. per ton; do., cattle feeding, 24s. to 25s. do.; Mangels, 17s. to 21s. do.; Onions, Egyptian, 7s. to 8s. per cwt.; Watercress, 6d. to 8d. per dozen bunches; Radishes, 4d. to 9d. do.; Broccoli, 2s. 3d. to 2s. 6d. per bushel; Wallflowers, 2s. to 3s. per dozen bunches; Onions, 3s. to 4s. do.; Asparagus, 1s. to 3s. 6d. per bundle; mint, 3s. per dozen bunches; Rhubarb, 1s. 9d. to 3s. per dozen bundles; Cucumbers, 2s. to 2s. 6d. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: May 15.—Supplies are in excess of demand, prices are irregular and depressed, except for prime selected samples. Quotations:—Regents, 50s. to 110s.; Magnum Bonnums, 40s. to 70s.; Dunbar, 80s. to 100s.; Champions, 30s. to 60s.; Dutch Rocks, 55s. per ton. New: Malta round, 12s. to 14s. per cwt.

SPITALFIELDS AND COLUMBIA: May 16.—Quotations:—New: Malta kidneys, 13s. to 16s.; do., rounds, 8s. to 10s. per cwt.; Guernsey kidneys, 6d. per pound. Old: Magnums, 40s. to 55s.; Champions, 35s. to 45s.; Imperators, 60s. to 80s.; Presidents, 60s. to 80s.; Regents, 45s. to 60s. per ton.

STRAITFORD: May 15.—Quotations:—Scotch Magnums, 65s. to 85s.; English do., 50s. to 75s.; fenlands, 45s. to 55s. New: rounds, 9s. to 11s.; kidneys, 11s. to 13s. per cwt.

"ARCHIMEDEAN"

AMERICAN LAWN MOWERS.



AWARDED
HIGHEST PRIZE

AT THE
Paris Exhibition, 1878;
and the JURY, in their REPORT,
say:—

"The 'ARCHIMEDEAN' did the
BEST WORK of any Lawn
Mower exhibited."

ALSO AT
Sydney Exhibition, 1879-80
AND AT
Melbourne Exhibition, '80-1

Opinions of the Press:
"Far superior to any of ours."—
Vide *The Field*.

"Remarkably easy to work."—
Vide *Gardener's Magazine*.

"The quickest, most ample, and
most efficient mower ever used."—
Vide *Gardener's Chronicle*.

"We feel bound to recommend it to
our readers as one of the best mowers
we have as yet made acquaintance
with."—Vide *Floral World*.

PRICES FROM
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OLD SWAN WHARF, LONDON, E.C. MERCHANTS.

BEESON'S MANURE.—The Best and
Cheapest Fertiliser for all purposes. Write for Circular
containing the Leading Gardeners' and Market Growers'
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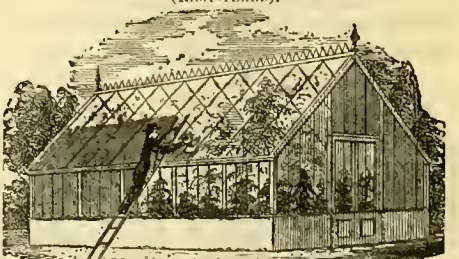
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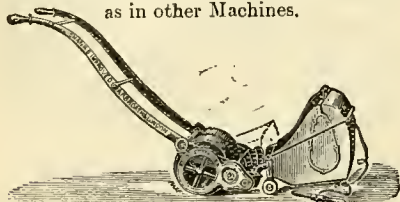
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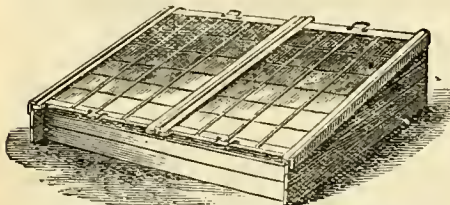
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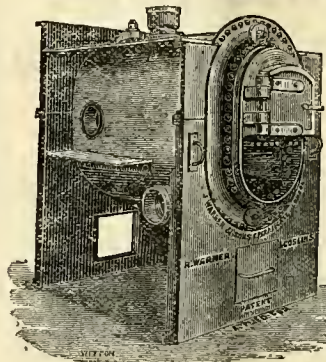
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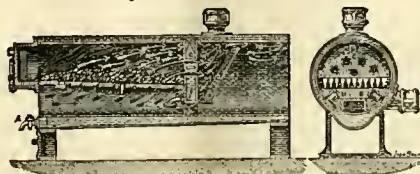
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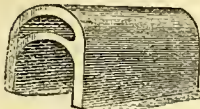
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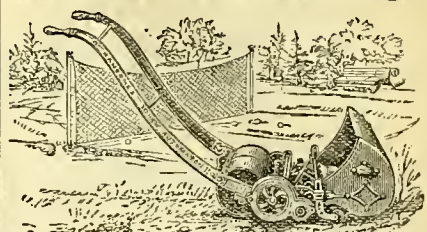
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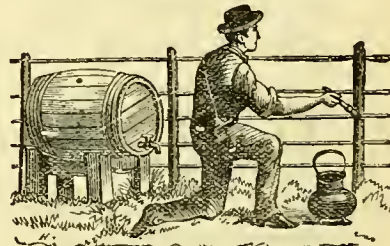
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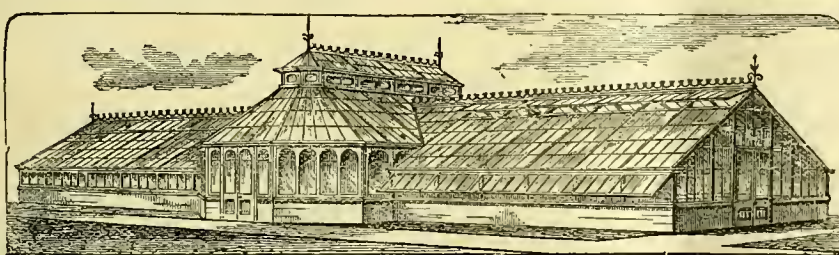
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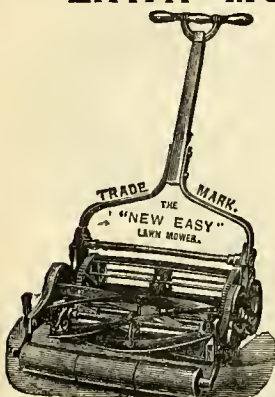
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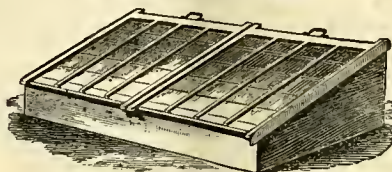
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THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
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Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "Journal of Horticulture," of June 9, says—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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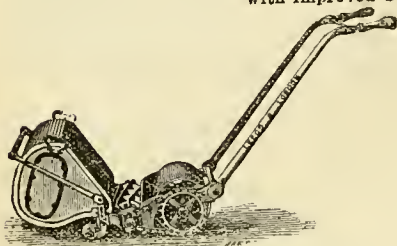
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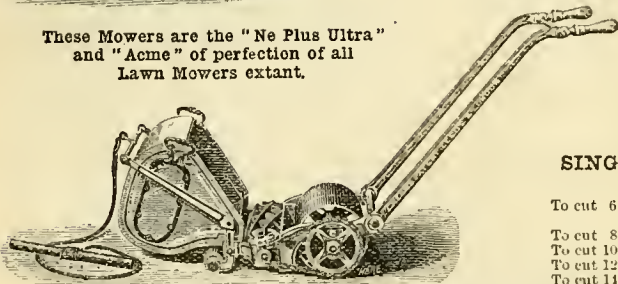
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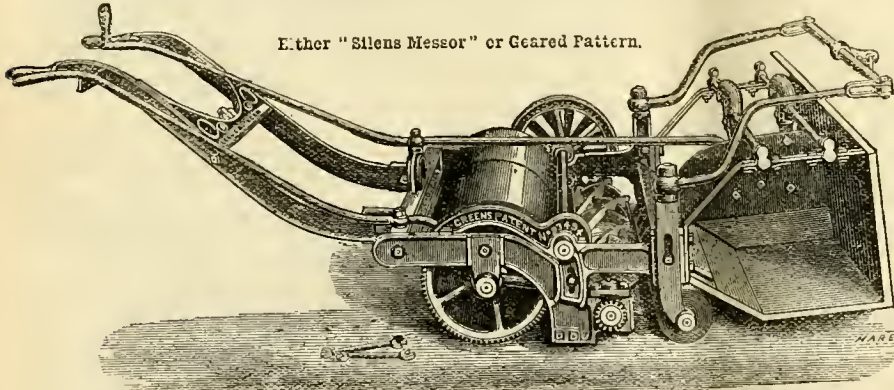
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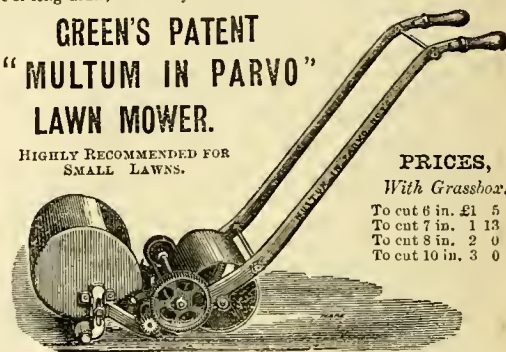
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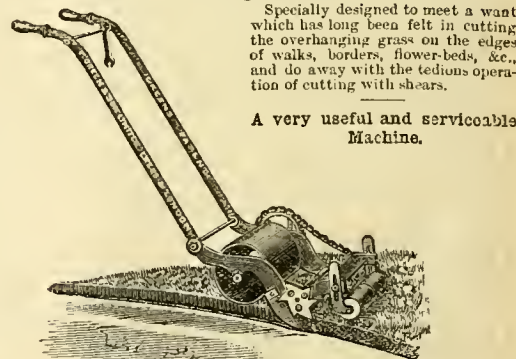


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The GARDENERS' CHRONICLE

ESTABLISHED 1841.
No. 2474.

No. 74.—VOL. III. {THIRD
SERIES.}

SATURDAY, MAY 26, 1888.

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Special Sale.—Monday Next.

CATLEYA ARNOLDIANA, in flower.

MESSRS. PROTHEROE AND MORRIS will include in the SALE of ORCHIDS, at their Central Sale Rooms, on MONDAY NEXT, by order of Mr. F. Sauder, a fine plant of the rare CATLEYA ARNOLDIANA. This is absolutely the only plant in existence, excepting those sold in 1883. For full description, see *Gardeners' Chronicle*, July 5, 1884, page 7.

The specimen has eleven bulbs, nine of them with leaves, and three leading growths and four flowers, and is to be sold without reserve.

On view morning of Sale, and Catalogues had.

Special Sale, Monday Next, May 28.

CATLEYA LAWRENCEANA.

ONCIDIUM UNDULATUM.

WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS will include in the SALE of ORCHIDS, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, by order of Mr. F. Sauder, a specially fine lot of CATLEYA LAWRENCEANA, consisting of splendid specimen plants, and a splendid lot of the extremely rare ONCIDIUM UNDULATUM.

On view morning of Sale and Catalogues had.

Monday, May 28.

ODONTOGLOSSUM NEVADENSE, without reserve.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sauder, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, May 28, at half-past 12 o'clock precisely, fine established plants of this extremely rare and beautiful Odontoglossum, very few of which exist in collections.

On view morning of Sale, and Catalogues had.

Monday Next, May 28.

VANDA HOOKERIANA, WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sauder to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, May 28, at half-past 12 o'clock precisely, a grand importation of VANDA HOOKERIANA. This species is very difficult to import, and the consignment is in a specially fine condition.

On view morning of Sale, and Catalogues had.

Acton, W.—Monday Next.

6000 well-grown BEDDING and GREENHOUSE PLANTS of the usual description.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises, The Priory Nursery, Chaucer Road, Acton, W. (close to the Station, N. L. Railway), on MONDAY NEXT, May 28, at 1 o'clock, by order of Mr. B. Harding, without reserve.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68 Cheapside, E.C.

Tuesday Next.—Orchids in Flower.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, May 29, at half-past 12 o'clock, precisely, over 300 lots of ORCHIDS in FLOWER, from various collections, including numerous plants and fine varieties of Odontoglossum Alexandrae, O. Pescatorei, O. vexillarium, Oncidiums, Dendrobiums, Cyripediums, Masdevallia Veitchii grandiflora and Harryana, Oncidium macranthum, two grand specimens; Sobralia macrantha, Cattleya gigas, C. Mendellii, and C. Mossie; Lælia purpurata, Russelliana, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.

CYRIPIDIUM BELLATULUM, Rehb. f.

MESSRS. PROTHEROE AND MORRIS beg to announce that the PLANT in FLOWER, to which was awarded a First-class Certificate by the Royal Horticultural Society, on May 22, will be ON VIEW, at their Sale Rooms, on FRIDAY NEXT, June 1.

This species will prove a gem amongst Cyripediums, and Gentlemen will be able to form their own opinion of the enhanced beauty that may be expected from flowers produced on established plants when it is stated that these on the plant exhibited were found partially formed in the case when unpacked.

Friday Next.

HIGHLY IMPORTANT SALE.

AERIDES FIELDINGII varieties, CYRIPIDIUM BELLATULUM, DENDROBIUM FINDLEYANUM, D. HERCOSTUM, PHALENOPSIS GLORIOSA, Rehb. f.; SACCOLABIUM GUTTATUM, VANDA AMESIANA, V. ROXBURGHII.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 1, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., very large quantities of choice imported ORCHIDS; in the finest possible condition, comprising Aërides Fieldingii varieties, several hundreds of Cyripedium Bellatulum, C. Boxallii, C. hirsutissimum, C. Parishii, Dendrobium Findleyanum in quantity, one of the most highly prized species, now rare in collections; D. hercoglossum, a lovely species described in *Gardeners' Chronicle*, October 13, 1886; D. signatum, D. Brymerianum, D. chrysotis, D. Bensoniae, D. heterocarpum, D. nobile, marvellous masses; D. Wardianum, D. Lowii, Phalenopsis gloriosa, Rehb. f., *Gardeners' Chronicle*, May 5, 1888; Saccolabium ampullaceum, S. guttatum, probably the finest ever offered; Vanda Amesiana, seen by collector with 185 flowers on one plant; V. Roxburghii, the finest ever imported; and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.

The Broomfield Collection of ESTABLISHED ORCHIDS. Important Unreserved Sale of the Second Portion of this celebrated collection of ESTABLISHED ORCHIDS, by order of Robert Warner, Esq., who is disposing of their collection in consequence of long continued ill health. 1000 ODONTOGLOSSUM ALEXANDRE, not a single plant having yet flowered in this country.

MESSRS. PROTHEROE AND MORRIS are instructed by Robert Warner, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 1, at half-past 12 o'clock precisely, the Second Portion of his well-known collection of ESTABLISHED ORCHIDS, consisting of about 1000 Odontoglossum Alexandrae, entirely unflowered plants. The whole were collected by Mr. Carder specially for Mr. Warner, and amongst those which have flowered from the same importation numerous well-known varieties have bloomed. Also a very fine lot of special varieties of LÆLIA PURPURATA. The whole of the Sale absolutely without reserve.

On view morning of Sale, and Catalogues had.

South Tottenham.

To Florists and Others.—By order of the Executors, under the Will of Mrs. May Widay, deceased, a block of FREEHOLD BUILDING LAND, comprising an area of over a quarter of an Acre with eight span-roof Greenhouses standing thereon. The property has a frontage of 65 feet to Clyde Road, South Tottenham, by a depth of about 198 feet, and will be sold with possession.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of PROPERTIES, at the Mart, Tokenhouse Yard, on FRIDAY NEXT, June 1, at 2 o'clock precisely. Printed particulars to be had of the Auctioneers, 67 and 68, Cheapside, E.C.

Established Orchids.

Unreserved SALE of the First Portion of ESTABLISHED ORCHIDS formed by Dr. Duke, of The Glen, Lewisham.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Dr. Duke to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, June 5, at half-past 12 o'clock precisely, without reserve, the First Portion of his Collection of ESTABLISHED ORCHIDS, comprising, amongst others, splendid plants of the following:—

Cologyne Massangeana	Cyripedium Lindeni candidum
" Lowii	" Sanderianum
" Lomentosa	Lælia elegans
" Parishii	" amanda
Odontoglossum mulus	" anceps, white, true
" Uro-Skinneri	" Dawsoni
" Edwardi	Miltunia candida, true
" Cervantesi decorum	" Morelana atro-purpurea
Cattleya Wagneri	" Regnellii purpurea
" gigas	
" Sanderiana, &c.	

No plants will be sold privately prior to the Sale. Catalogues will be ready in due course, and may be obtained of the Auctioneers, 67 and 68, Cheapside, E.C.

Preliminary Notice.

THE DOWNSIDE COLLECTION OF ORCHIDS. HIGHLY IMPORTANT SALE of the whole of this renowned Collection, including many plants matchless in point of rarity, and the whole remarkable for culture and condition, embracing unquestionably the most valuable and extensive Collection of Established Orchids that has ever been submitted to Public Competition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Wm. Lee, Esq. (who is selling the Estate of Downside, and relinquishing the cultivation of Orchids), to SELL by AUCTION, on the Premises, Downside, Leatherhead, in the month of JULY NEXT, the whole of this most valuable Collection of ESTABLISHED ORCHIDS.

The days of Sale, and further particulars will shortly be published.

Messrs. P. & M. desire to mention that no plants will be Sold Privately, but that the whole will be submitted to Public Competition.

Central Auction Rooms and Estate Offices, 67 and 68, Cheapside, London, E.C.

Thursday Next.—(Sale No. 7686.)

VALUABLE IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, May 31, at half-past 12 o'clock precisely, a fine importation of BRAZILIAN ORCHIDS, received direct, comprising the rare Cyrtopodium St. Ledgerianum, Cattleya velutina (altata), Sophronitis, Burlingtonia venusta and fragrans, Miltonia flavescens, &c.; also some splendid pieces of Odontoglossum crispum, best type; O. grande, Lycaste Skinneri, &c., from Messrs. Shuttleworth, Carder & Co.; an extensive consignment of Burmese Dendrobies in variety, a fine lot of choice Established Orchids, many in Flower and Bud, &c.

On view morning of Sale, and Catalogues had.

A further Portion of the Valuable Collection of ORCHIDS formed by the late John Day, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 6, at half-past 12 o'clock precisely, a further portion of his COLLECTION of ORCHIDS, comprising fine plants of

Cyripedium purpuratum	Aërides Schroderae
" chlorocyanum	" expansum Leonis
" Leeanum (Sir Trevor Lawrence's var.)	" Emerichii
" album	Odontoglossum Ruckerianum
" venarium	" nebulosum, grand var.
" Haynaldianum	Dendrobium Ainsworthii
" Schlumieri	fifty bulbs.
Cologyne Massangeana	

Miltunia Regnellii superba, Masdevallia ignea, superb var.; some exceptionally grand forms of Odontoglossum Alexandrae, &c.

On view morning of Sale, and Catalogues had.

Wednesday, June 20.

ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 20, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will SEND LIST as soon as possible.

To Orchid Growers.

The Magnificent Collection of ORCHIDS formed by the late T. A. Tilly, Esq., of Oakley House, Gledhow, Leeds.

MESSRS. HEPPER AND SONS are instructed by the Executors to SELL by AUCTION, in their Rooms, East Parade, Leeds, on WEDNESDAY and THURSDAY, May 30 and 31, commencing each day at 11 o'clock prompt, the COLLECTION of RARE and CHOICE ORCHIDS, amongst which may be mentioned a fine healthy lot of Cool-house ORCHIDS, including many hundreds of the fine Odontoglossum crispum, Pescatorei, large specimen Uro-Skinneri, extra fine plants of vexillarium var. rubellum and superbum, &c.; a very select and grand lot of Lycaste Skinneri, in extra strong plants; magnificent pans of Disa grandiflora, two specimens of the true Cologyne cristata hololeuca (alba); a grand lot of well-grown Cattleyas, in compact specimens, such as Mendellii, gigas, Downingii, Gaskellii, Mossie, Sanderiana, &c.; a fine group of various Cyripediums, Angulosa; extra strong plants of the grand Dendrobium Wardianum, thyrsoiflorum, densiflorum, &c.; the rare Sobralia zantholeuca, and other choice things. The collection is in fine healthy condition, and most of the plants are in compact masses, suitable either for public exhibition or private decoration.

Also on FRIDAY, June 1, the GENERAL COLLECTION of GREENHOUSE PLANTS, formed by the late Mr. Tilly.

Catalogues may be had ten days before the Sale of the Auctioneers, East Parade, Leeds; or 12, Piccadilly, Bradford. The whole Collection of plants may be inspected at Oakley House on Saturday and Monday, May 26 and 28, and in the Sale Rooms, on the respective Sale mornings.

Ileworth, Middlesex.

SOUND INVESTMENT in a FREEHOLD and COPYHOLD FRUIT FARM, close to the town and 1½ mile from Spring Grove and Isleworth Station, L. & S.W. Railway.

MESSRS. S. WALKER AND RUNTZ will SELL by AUCTION, at the Mart, on WEDNESDAY, June 13, at 2 o'clock, the well matured and productive FREEHOLD and COPYHOLD FRUIT FARM, with two Brick-built Cottages, Stabling, Cow-shed, Dairy, and numerous Out-buildings, known as Worton Hall Farm, Worton Lane, Isleworth. The property includes a Kitchen Garden, Grass Land, and a well matured Orchard, and covers a superficial area of about 18 acres, a portion of which is Copyhold. Let on yearly tenancy at £125, but fairly estimated to be worth £150 per annum. Tenant paying all usual Outgoings. Possession at Michaelmas.

Particulars of Messrs. CLARKE, RAWLINGS AND CO., Solicitors, 66, Gresham House, Old Broad Street, E.C.; at principal Hotels in the neighbourhood; at the Mart, and of the Auctioneers, 22, Moorgate Street, E.C.

Carshalton, Surrey, Barrow Hedges.

VALUABLE CONSERVATORY and other Potted PLANTS, ORCHIDS, EXOTIC FERNS, &c., GARDEN and FARM IMPLEMENTS, the remaining HOUSEHOLD FURNITURE of the usual description, a few PAINTINGS, and MISCELLANEOUS EFFECTS.

MESSRS. E. AND H. LUMLEY (having Let the Property on Lease), will SELL by AUCTION, as above, on THURSDAY, May 31, at 1 o'clock. Catalogues in due course.

LUMLEYS, Land Agents and Auctioneers, St. James's Street, London, S.W.

Beckenham, Kent.

To NURSERYMEN, FLORISTS, and CUT FLOWER GROWERS.

The VALUABLE GROUND LEASE (57 years unexpired at only £18 per annum) of the Victoria Nurseries, Bromley Road, comprising a substantial Dwelling-house, 10 Large Glass and Forcing Houses, with heating appliances and every possible convenience for carrying on a lucrative Business. Standing in Nursery Grounds of 2 Acres. To be Sold, with possession, at the Mart by

MESSRS. EDMUND ROBINS AND HINE (of 5, Waterloo Place, Pall Mall), on JUNE 15, by order of the Mortgagees.

Particulars of **EDWIN ELLIS**, Esq., Solicitor, 23, Birch Lane, E.C.; or of the Auctioneers.

London, S.E.

Owner going abroad. Great sacrifice.

TO BE SOLD, FLORIST BUSINESS, two Greenhouses, 40 feet and 80 feet, both heated, Store House and Potting Shed. Lease 28 years. Rent, £25. Price, including Stock, about £350. Any reasonable offer entertained.

Apply, **PROTHEROE AND MORRIS**, 67 and 68, Cheapside, E.C. (Folio 653.)

London, S.E.—Dissolution of Partnership.

TO BE SOLD, on advantageous terms, a compact NURSERY of 2 acres, with seven Greenhouses, all Heated, and 81 Frames. Lease 7, 14, or 21 years. Rent, £120. Price £300. Stock optional.

Apply to **PROTHEROE AND MORRIS**, 67 and 68, Cheapside, London, E.C. Folio 6496.

FOR SALE, A SEED BUSINESS.—A First-class Business is offered for Sale, owing to the Advertiser going abroad through ill-health. The business is a genuine and very lucrative one. Turnover medium, but profits good. The connection is high-class and could be greatly extended. To a party with moderate capital there is seldom a better opening to be had. Ingoing easy.

Address in first instance, in confidence, No. 111, KEITH AND CO., Advertising Agents, Edinburgh.

Blunham, Bedfordshire.

Seven Miles from the County Town, about One Mile from London and North-Western Railway Station, Blunham, and Two and a half Miles from Great Northern Railway Station, Sandy.

THE ORCHARD, a Gentleman's Compact Residence, situate in nicely-planted Grounds, comprising GARDEN, LAWN and PAIDOCKS, with pretty Carriage-drive and Entrance, with several enclosures of highly productive garden land, altogether about 50 acres, in a high state of cultivation. The House, which is on a gravel soil, contains Hall, Stairs, Drawing-room, 14 feet by 15 feet 8 inches; Breakfast-parlour, 12 feet by 12 feet; Dining-room, 20 feet 6 inches by 15 feet; a Gentleman's Room, 8 feet by 10 feet 6 inches; large Store-room, well fitted; Kitchen, Scullery, Cellar, and Wash-house; Four principal Bedrooms, Servant's Bedroom, Closets, Dressing-room, Water-closet, and Back Stairs; there is a small Homestead, Two-stall Stables, Coach-house, and Loft over. The front Paddock is enclosed with Ornamental Timber, and the Garden is well planted, and includes a small Conservatory. Good Fishing may be had near, and the meets of the Oukley and Cambridgeshire Hounds are within an easy distance. The drives in the neighbourhood are pretty, and the roads very good. The Residence is within range of the celebrated Bedford Schools, which are available by cheap railway School tickets.

For Cards to View, Rent, Terms, &c., apply to Messrs. **USHER AND ANTHONY**, Estate Agents, 9, St. Paul's Square, Bedford.

ORCHIDS.**THE LIVERPOOL HORTICULTURAL CO.**

(JOHN COWAN), Limited,

Have just received Large Importations of

ORCHIDS,

Including fine lots of

LÆLIA PURPURATA,

" PERRINI,

CATTLEYA WALKERIANA,

" CRISPA,

ONCIDIUM VARICOSUM ROGERSI,

" KRAMERIANUM,

ODONTOGLOSSUM VEXILLARIUM,

MILTONIA SPECTABILIS.

Circulars with full particulars on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

SUTTON'S FLORISTS' FLOWER SEEDS.

Begonia, Calceolaria, Cineraria, Cyclamen, Gloxinia, Primula, &c., the finest strains in existence. See SUTTON'S AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct from SUTTON AND SONS, Reading.

PRIMULA, Double White, 5s. per dozen.

35s. per 100.

Price for quantities on application.

Terms, Cash with Order.

TAYLOR AND CO., Nurserymen, Timperley, Cheshire.

150,000 Panicles.

PANSIES and VIOLAS.—Having one of the finest collections and largest stock of both Pansies and Violas in existence, we are prepared to supply good, well-rooted plants at the following low price:—**PANSIES**, in 50 choice, either Show or Fancy varieties, 12s. per 100, £5 per 1000; in 30 varieties, 10s. per 100, £4 per 1000. **VIOLAS**, in 12 best varieties, 7s. per 100, £3 per 1000. **VIOLAS**, all yellow, 8s. per 100, £3 10s. per 1000. Special quotations for larger quantities. **PENTSTEMONS**, choicest varieties out, in 12 or more varieties, 12s. per 100, £5 per 1000. The above are our selection only, 2s. per 100 more will be charged for purchaser's selection. Terms:—Package free for cash with order.

FLETCHER, SON AND CO., Florists, &c., Chesterfield.

Special Offer.**SEED POTATOS.**

H. AND F. SHARPE, having a Surplus Stock of the following varieties of SEED POTATOS, are prepared to offer them at reduced prices, to clear out:—

Imperator

Reading Hero

Pride of Ontario

They have also

Reading Russet

Climax

Snowflake

Seed Growing Establishment, Wisbech.

PALMS.—A few hundreds, well-grown, strong and healthy.

Seaforthia elegans, *Latacopia borbonica*, *Phoenix reclinata*, 12 inches high, 4s. per dozen, 30s. per 100. Packages and Carriage free.

Latania borbonica, *Seaforthia elegans*, *Phoenix reclinata*, and *Corypha australis*, 20 to 24 inches high, 1s. 6d. each, 16s. per dozen.

Seaforthia elegans, *Latania borbonica*, *Phoenix reclinata*, *Euterpe edulis*, and *Areca lutescens*, 2 feet 6 inches to 3 feet high, 3s. to 5s. each.

Fine feathery-foliated *Seaforthia elegans*, 4 feet high, 15s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

OLD-FASHIONED HEDGES.—English

YEWs, bushy and with a profusion of fibrous roots, 1½ to 2 feet, 6s. per dozen, 35s. per 100; 2 to 2½ feet, 8s. per dozen, 50s. per 100; 2½ to 3 feet, 9s. per dozen, 60s. per 100; 3 to 3½ feet, 12s. per dozen, 81s. per 100. Prices of larger sizes and other evergreens, suitable for hedges (e.g., **TREE BOX**, **HOLLY**, **LAUREL**, **PRIVET**, **CYPRUS**, **JUNIPER**, **THUJA**, &c.), on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from Store-pots, all well-rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter.

VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100, 50s. per 1000; 12 choice named varieties, 8s. per 100.

LOBELIA Bluestone, *pumila magnifica*, true, from Cuttings, 2s. 6d. per 100, 20s. per 1000; Brighton Blue, fine, 3s. per 100, 21s. per 1000.

CALCEOLARIA Golden Gem, 5s. per 100, 40s. per 1000; Camden Hero, fine dark, 8s. per 100.

HELIOTROPE Jaun d'Amour, Miss Nightingale, dark, 6s. per 100, 50s. per 1000.

AGERATUM Imperial Dwarf, blue, 5s. per 100, 40s. per 1000.

COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100, 50s. per 1000.

IRENE LINDENI, dark crimson, good bedder, 8s. per 100, 50s. per 1000.

ELARGONIUM Vesuvius, finest bedding scarlet, 8s. per 100, 75s. per 1000; Master Christie, 12s. per 100; Mrs. Levers and Jenny Dodds, fine pink, 10s. per 100; Henry Jacoby, best crimson, 12s. per 100; Madame Vaucher, white, 12s. per 100; Queen of Belgians, finest white, 3s. per dozen, 20s. per 100; Niphetos, bedding white, 12s. per 100; Waltham Seedling, Lucius, Jenn Sisley, and White Vesuvius, 10s. per 100.

SILVER VAREGATED May Queen (Turner's), Princess Alexandra, Flower of Spring, 12s. per 100; Little Trot, dwarf, 12s. per 100; Prince Silverwings, 10s. per 100; Lady Plymouth, 10s. per 100.

Bronze McMahon, Black Douglas, The Czar, the best bedders, 15s. per 100.

TRICOLOR Mrs. Pollock, 15s. per 100; Sophie Dumaesque, Lady Cullum, Sir R. Napier, 18s. per 100.

DOUBLES, F. V. Raspail, fine scarlet; M. Thibaut, pink; M. Baltet, best white, 12s. per 100.

TROPEOLUM Vesuvius, 8s. per 100; Mrs. Ellis, best dwarf scarlet, 10s. per 100.

FUCHSIAS, in twelve good named sorts, 8s. per 100.

PELAGONIUMS, Show and Decorative, from single pots, good, 20s. per 100, 3s. per dozen.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.

Cemetery Nurseries, Gravesend, S.E.

TEA AND NOISETTE ROSES,

OF BEST SORTS ONLY.

Now ready, fine plants, in 5-inch pots, 1s. 6d. each, 12s. per dozen, 80s. per 100. On prepaid orders packing not charged; and if of 20s. and upwards prepaid Carriage free to any Station on the Brighton and South Coast or South-Western Railways; and if of 80s. and upwards and prepaid, Carriage free to any Railway Station in England and Wales.

Prices of New Varieties quoted on application.

EWING AND CO., Sea View Nurseries, Havaot, Hampshire.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE COMMITTEE have the pleasure to announce the following Contributions to be added to the Subscription List of the Right Hon. **JOSEPH CHAMBERLAIN, M.P.**, on the occasion of his presiding at the 45 Anniversary Festival, to be held on JULY 4, 1888:—

The Marquis de Castegay, Scaresbrick Hall, Ormskirk	£10 10 0
John Muir, Esq., Richmond (annual)	2 2 0
Miss Mitchell, Macrocarpa, Ventnor	10 10 0
George Wills, Gardener, Tetecote, Holsworthy, Devon	10 10 0
Thomas McClure, Gardener, Hartley Grange, Winchfield	1 15 6
Charles Ross, Gardener, Welford Park, Newbury	10 10 0
James Harris, Gardener, Wooland House, Blandford	10 10 0
Joshua Fellows, Esq., Churchfield, West Bromwich (annual)	1 1 0
George Culverwell, Gardener, Newcastle, Ireland	1 1 0
James Barnard, Gardener, Camden Wood, Chislehurst	10 10 0
R. Jordan, Gardener, Llanasay House, Godalming	2 2 0
Joseph Willis, Gardener, Hollowmead, Bishop's Teignton	1 1 0
J. B. Thomson, Seedsman, Birmingham (annual)	1 1 0
P. Jacob, Esq., Cheam Park, Cheam (annual)	1 1 0
Richard Hunt, Gardener, Hurst Grange, Twyford (annual)	1 1 0
William Davies, Gardener, Tha Warren, Hayes Common (annual)	1 1 0

Cheap and Good Bedding Plants, nearly all from SINGLE POTS.

GERANIUM S.—Bronze, McMahon, 14s. per 100.

„ „ Black Douglas, 14s. per 100.

„ „ Beauty of Calderdale, 14s. per 100.

„ „ Silver-variegated, Bijou, &c., 10s. per 100.

„ „ Gold-leaved, Crystal Palace Gem, 10s. per 100.

„ „ Creed's Seedling, 10s. per 100.

„ „ Silver Tricolor, Glen Eyre Beauty, 15s. per 100.

„ „ Italian Uita, 15s. per 100.

„ „ Madame Vaucher, white flowered, 10s. per 100.

FUCHSIAS, in twelve best exhibition double and single varieties, 8s. per 100.

LOBELIA, Bluestone, compacta multiflora, &c., 2s. 6d. per 100, 20s. per 1000.

CALCEOLARIAS, Golden Gem, transplanted, 8s. per 100.

HELIOTROPE, light and dark, 5s. per 100, 45s. per 1000.

AGERATUM, Cannell's Dwarf, 5s. per 100, 45s. per 1000.

IRENE LINDENI and **HERBSTII**, 5s. per 100, 45s. per 1000.

MESEMBRYANTHEMUM cordifolium variegatum, 8s. per 100, 50s. per 1000.

ALTERNANTHERA paronychioides aurea, paronychioides magnifica, amabilis, amara latifolia, and amena spectabilis, 6s. per 100, 50s. per 1000.

Terms cash.

FLETCHER, SON AND CO., Florists, &c., Chesterfield.

Special Cheap Offer, all Carriage Free,
Of first-class BEDDING and BORDER PLANTS, &c., for the coming season, by

S. SHEPHERSON, Florist, Prospect House, Relper, Derbyshire. The prices are quoted at per dozen or hundred, but persons with small gardens may select smaller quantities without any additional price, but not less than 2s. worth carriage free.

SINGLE DAHLIAS, strong seedlings, from newest varieties, including new whites, to bloom well this summer, 1s. 3d. per dozen; extra strong, 1s. 8d.

CHRYSANTHEMUMS, great special culture, the best and most distinct varieties only of the large-flowered incurved, reflexed, early and late bloomers, Pomposis, Japanese, &c., including many grand new varieties by the best English, Continental and American raisers, 12 distinct varieties, named, well-rooted plants, for 2s. 2d. for 8s. 6d., free.

CHRYSANTHEMUMS (annuals), Carter's six grand new varieties—Earl Beaconsfield, New Double White, The Queen, New Double Golden, The Sultan, and W. E. Gladstone. Nothing can excel the brilliant beauty of these, and smothered with bloom all summer. Two of each for 1s.

SUNFLOWER, Carter's grand new Double Golden Yellow, 12 for 1s.

FUCHSIAS.—Great special culture of these; 200 varieties, many fine new of 1887, double and single, light and dark, 2s. per dozen, true to name, and well rooted.

TOMATOS.—The three best sorts for amateurs and exhibitors—Carter's Perfection, The Mikado, and Kay's Early Promise. Strong plants, four of each for 1s. 6d.

VERBENAS.—Seedlings from Roman's new hybrids, far ahead of all others for exhibition and free flowering. Twelve varieties, mixed, for 1s.

And all the following first-class Bedding Annuals, at 2s. 6d. per 100, 50 for 1s. 6d., 500 for 10s., carriage free:—Large flowering imported double STOCKS, CHRYSANTHEMUMS, and Victoria ASTERS, French striped and African Lemon and Orange MARIOLDS; finest Scotch varieties GODETIA, Lady Satio, Rose, and Duchess of Albany; two grand new varieties CORNFLOWER, the new blue; splendid NASTURTIUM, tall and dwarf; newest varieties, mixed DIANTHUS, DIEMATIUS; beautiful white cr mixed EVERLASTINGS.

S. SHEPHERSON, Florist, Prospect House, Balper, Derbyshire.

SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious MUSHROOMS. See Seed LIST, Free.

RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

A Few Large Healthy

PALMS, 3 to 5 feet high, for immediate disposal—*Latania borbonica*, *Seaforthia elegans*, *Chamaerops excelsa*, and *Phoenix reclinata*—from 10s. per pair. **GARDENER**, Holly Lodge, Stamford Hill, London, N.

PENTSTEMONS.—CLEARANCE SALE.—A charming assortment of the newest and most beautiful varieties. Splendid for the garden, choice named sorts, fine young plants, per doz., 2s. 6d.; 6 for 1s. 6d. Extra choice, per doz., 3s. 6d.; 6 for 2s. Carriage free.

DANIELS BROS., Town Close Nurseries, Norwich.

DAHLIAS.—CLEARANCE SALE.—From our magnificent collection, including all the most beautiful and popular varieties. Show and Fancy, Pompon and Single-flowered, per doz., 4s.; 6 for 2s. 3d.; per 100, 30s. New and extra choice sorts, per doz., 8s.; 6 for 3s. 6d.; per 100, 45s. Cactus-flowered varieties, new and select, including the most beautiful and distinct sorts, per doz., 8s.; 6 or 3s. 6d.; 3 for 2s. All in strong young plants, correctly named. Post-free.

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CHRYSANTHEMUMS.—CLEARANCE SALE.—A splendid collection, including all the most beautiful and popular varieties, Incurved, Japanese, or Pompon, strong, well-rooted cuttings, correctly named, per doz., 1s. 6d.; per 100, 10s. 6d. Extra choice sorts, per doz., 2s. 6d.; per 100, 15s. Post-free.

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NEW DOUBLE ZONAL PELARGONIUMS.—Splendid, massive, double flowers, of the most brilliant and level colours, magnificent for pots. Fine young autumn-stock plants, correctly named, per doz., 2s. 6d.; 6 for 1s. 6d. Extra choice, per doz., 3s. 6d.; 6 for 2s. Carriage free.

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IVY-LEAVED PELARGONIUMS.—Magnificent new double-flowered varieties of the most charming and brilliant colours. Splendid for pots or the garden, fine young plants, well set with flower-buds, correctly named, per doz., 3s. 6d.; 6 for 2s. Extra choice sorts, per doz., 4s. 6d.; 6 for 2s. 6d.; 3 for 1s. 6d. Carriage free.

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PURE HOME-GROWN SEEDS.

JOHN SHARPE & SON

WILL BE PLEASED TO FORWARD THEIR

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SEED GROWING ESTABLISHMENT.
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Special LIST of Choice Perennial Flowers, Florist's Flowers, and Vegetable Seeds, for Summer and Autumn Sowing on application.

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Seed and Bulb Merchants,
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NEW SINGLE DAHLIAS,

Raised by J. Cheal & Sons and T. W. Girdlestone.

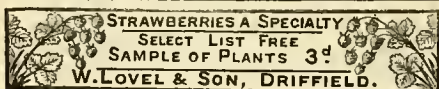
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POMPON, SHOW AND FANCY DAHLIAS.

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WHOLESALE SEED GROWERS AND MERCHANTS,
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(Business Established, 1770).

Will be glad to send, upon application, Special Offers of their Selected Stocks of
SWEDE, YELLOW, HYBRID, & WHITE-FLESH TURNIP SEEDS.

Also their Superior Stocks of

MANGEL WURZEL SEEDS,

All of which usually give much satisfaction to their Constituents.

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OLD FASHIONED FLOWERS

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HERBACEOUS PLANTS

For Present Planting.

HARDY ROSES, in Pots,

For BEDS and BORDERS.

Cut Flowers and Decorative Table
Plants, &c.

J. & A. Dickson & Sons.
The Queen's Seedsmen, Chester.

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THE SEED CATALOGUE

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Amateurs, Gardeners, Stewards, and all interested in Gardening, are invited to peruse this Catalogue before placing their Orders. Although a book of nearly 100 pages, nothing is charged for it, but 2d. should be sent for postage.

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H. CANNELL AND SONS have the nicest lots of the following, perhaps, ever seen:—

CARNATIONS, Tree, 5s. per dozen, 35s. per 100.
CHRYSANTHEMUMS, 3s. 6d. per dozen, 24s. per 100.
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BEGONIAS.—Tuberous-rooted, last year's seedlings, finest strain, 4s. per dozen.

DAHLIAS.—Best Show, Cactus and Single varieties, in small pots, 3s. 6d. per dozen.

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ROSES.—Tea, Gloire de Dijon, Maréchal Niel, Niphetos, and other best varieties. Our selection, in 4s-pots, 10s. doz. Packed upright in open boxes. Cash with order.

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EXTRAORDINARY OFFER.—New CACTUS DAHLIA, "Henry Patrick." I grow it largely for cut flowers—pure white. None can equal it. Gained First-class Certificate, Royal Horticultural Society. Secure it Do not lose a season. 12 good plants, 3s.; 100 for 21s., post-free. 6d. each if less than 12 sent.—W. CROSS, Florist, Newark, Notts.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each. Descriptive LIST on application.—**RICHARD SMITH AND CO.,** Nurserymen and Seed Merchants, Worcester.

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PANSIES—PANSIES (Show and Fancy).— Lister's celebrated collection, winner of all the principal prizes for years. My selection for competition, 3s., 4s., 6s., per doz. Bedding varieties, VIOLAS, in fine mixture, 1s. 6d. per doz.; 12 fine named varieties, 3s. per doz. Cash with order. Just published, price 6d., cloth 1s., my "Treatise on the Cultivation of the Pansy," copy gratis to purchasers of 5s. worth. CATALOGUE on application. ALEX. LISTER, Florist, Rothessay, N.B.

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The best Flowering and Ornamental Foliaged kinds, in various sizes, our selections, 9s. per dozen, 50 for 22s. 6d. and 35s.
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The following popular Plants, to bloom this Summer:—

ABUTILONS, of sorts, 3s. per dozen.
ACHIMENES, 12 corms, distinct sorts, for 2s.; 12 sorts, 6 corms of each, for 6s.
BOUVARDIAS, grand sorts, 12 for 4s., 50 for 12s. 6d., or 21s. per 100.
CHRYSANTHEMUMS, choicest sorts only, 12 varieties for 2s. 6d., 50 for 10s., or 18s. per 100.
DAHLIAS, to name, 12 plants for 3s., 50 for 10s. 6d., or 18s. per 100.
FUCHSIAS, a charming collection, 12 varieties for 3s., 25 for 5s. 6d., 50 for 10s. 6d.; 100 young plants, out of pots, for 15s.; 12 new Fuchsias of 1887 for 5s.
GERANIUMS, zonals, double flowering and Ivy-leaved varieties, 12 for 3s. and 4s.; 50, extra choice, for 21s.
GLOXINIAS, 12 choice varieties for 6s., 25 for 10s. 6d.; Seedlings to bloom this year, 3s. per dozen; seed, 6d., 1s., and 1s. 6d. per packet.
HELIOTROPICUMS, 12 pretty sorts for 2s. 6d.
LANTANAS, distinct varieties, 2s. 6d. per dozen.
PELAGONIUMS, choicest sorts, 12 varieties for 6s. and 9s.; 12 extra good 12s. and 18s.
ROSES in pots, finest Noisette and Tea-scented kinds, for forcing and indoor decorations, 15s. and 18s. per dozen.
SALVIAS and **TROPEOLUMS**, finest sorts, 2s. 6d. per dozen. See GENERAL CATALOGUE (130 pages), post-free 3d.
WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham; The Stamford Nursery, Bowdon; and 10 and 12, Market Street, Manchester.

BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 40s. per dozen; named Seedlings, 12s., 18s., and 21s. per dozen. Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. The best and cheapest combined procurable. CATALOGUES gratis.
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100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rock-work, which produce flowers and render the garden attractive all through the year. New LIST of sixty-four pages Free.
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Cheap Bedding Plants.

GERANIUMS.—Strong and healthy autumn-struck plants, from single pots.
Vesuvius (Scarlet), **Madame Christine**, **Madame Vaucher**, **Bronze** (Perille), 2s. per dozen, 12s. per 100.
Happy Thought, **Henry Jacoby**, C. P. Gem, **Silver-leaf**, **Miss Tottie Hardy**, delicate rosy-salmon; **Queen of Pinks**, 2s. 6d. per dozen, 15s. per 100.
Ivy-leaf, best double named varieties, 6s. per dozen.
PELAGONIUMS, Show and Decorative, choice named, 4s. 6d. per dozen.
LOBELIA (true), from Cuttings, "Emperor William," best blue, 2s. 6d. per 100, 20s. per 1000.
DAHLIAS, single, named sorts, of all shades of brilliant colours, including "White Queen" and "Paragon" 2s. 6d. per dozen, 18s. per 100, from single pots.
 .. Double, best named show varieties, 2s. 6d. per dozen, 18s. per 100, from single pots.
 .. Double Pompon, splendid colours, named, 3s. per dozen.
 .. Cactus, **Juarez**, **Constance**, **Fire King**, 5s. per dozen.
AGERATUM, "Hardy's" Extra Dwarf, beautiful large-tufted blue, 5s. per 100.
AQUILEGIA Chrysantha, nice plants, 4s. per dozen; mixed colours, 1s. per dozen.
CHRYSANTHEMUMS, selection of finest show varieties, named, from single pots, 2s. 6d. per dozen, 18s. per 100.
PINK, Mrs. Sinkins, pure Double White, 4s. per dozen.
 .. Old Double White, choice, 2s. 6d. per dozen.
MARGUERITES, large and small White, 10s. per 100.
VIOLA CORNUTA, "Queen of Blues" and "White Virgin," 5s. per 100, 45s. per 1000.
 Package free. Plants allowed for carriage. Terms cash. CATALOGUE gratis.
H. I. HARDY, F.R.H.S., Stour Valley Nurseries, Bures, Suffolk.

MR. J. CHAMBERS, Westlake Nursery, Isleworth, London, W., is offering his new Double **VIOLET "VICTORIA"**. Grandest of all Violets. Three Certificates, First-class. Plant now for getting up Winter Stock Clumps, 18s. per dozen.
 Also offering for the first time his new White **VIOLA "SNOWFLAKE"** at 12s. per dozen. First-class Certificate, Crystal Palace, May 12. Remittance with all orders.

ROSES IN POTS FOR PRESENT PLANTING.



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(Rose Growers by Appointment to Her Majesty the Queen),

WALTHAM CROSS, HERTS.

Desire to call attention to their very large and fine stock of Roses in pots for present planting, suitable either for making new plantations or for filling vacancies.

STRONG PLANTS, in 5-inch (48-sized) pots, 10s. 6d. to 15s. per doz., 75s. to 100s. 100.
EXTRA-SIZED PLANTS, in 8-inch pots, 24s. to 30s. per doz., £10 to £12 10s. per 100.

The varieties include leading Hybrid Perpetual, Tea-scented, and other kinds. The present time is especially favourable for making plantations of Roses on their own roots, of which a large selection is always kept in stock.

ROSES FOR POT CULTURE.

Many thousands of plants of the best and most suitable varieties, 12s. to 18s. per dozen, £4 4s. to £6 per 100; the same of extra size, 24s. and 30s. per dozen.

HALF-SPECIMEN AND SPECIMEN ROSES.

The finest collection in the Trade. The plants are now trained, and bloom-buds well set. 7s. 6d., 10s. 6d., 15s., 21s., 42s., and 63s. each.

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For Conservatories and Outdoors. All the best kinds. 10s. 6d. to 18s. per dozen; extra strong, 24s. and 30s. per dozen.

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The Nurseries adjoin the Waltham Cross Station (G. E. R.), about half an hour from London. Entrance 4 minutes' walk from the Station.

WM. PAUL & SON, WALTHAM CROSS.

FRIDAY NEXT.

CYPRIPEDIUM BELLATULUM, RCHB. F.

MESSRS. PROTHEROE AND MORRIS beg to announce that the **PLANT IN FLOWER**, to which was awarded a First-class Certificate by the Royal Horticultural Society, on May 22,

Will be **ON VIEW** at their Sale Rooms, on **FRIDAY NEXT, June 1.**

This species will prove a gem amongst Cypripediums, and Gentlemen will be able to form their own opinion of the enhanced beauty that may be expected from Flowers produced on Established Plants, when it is stated that those on the plant were found partially formed in the case when unpacked.

FRIDAY NEXT.—HIGHLY IMPORTANT SALE.

AERIDES FIELDINGII VARIETIES, **CYPRIPEDIUM BELLATULUM**, **DENDROBIUM FINDLEYANUM**, **D. HERCOGLOSSUM**, **PHALÆNOPSIS GLORIOSA**, Rchb f.; **SACCOLABIUM GUTTATUM**, **VANDA AMESIANA**, **V. ROXBURGHII**.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY NEXT, June 1**, at half-past 12 o'clock precisely, by order of Messrs. HUGH LOW & CO., very large quantities of **CHOICE IMPORTED ORCHIDS**, in the finest possible condition, comprising **AERIDES FIELDINGII** VARIETIES, several hundreds of **CYPRIPEDIUM BELLATULUM**, **C. BOXALLII**, **C. HIRSUTISSIMUM**, **C. PARISHII**, **DENDROBIUM FINDLEYANUM**, in quantity, one of the most highly prized species, now rare in collections; **D. HERCOGLOSSUM**, a lovely species, described in *Gardeners' Chronicle*, October 16, 1886; **D. SIGNATUM**, **D. BRYMERIANUM**, **D. CHRYSOTIS**, **D. BENSONLE**, **D. HETEROCARPUM**, **D. NOBILE**, marvellous masses; **D. WARDIANUM**, **D. LOWII**, **PHALÆNOPSIS GLORIOSA**, Rchb. f., *Gardeners' Chronicle*, May 5, 1888; **SACCOLABIUM AMPULLACEUM**, **S. GUTTATUM**, probably the finest ever offered; **VANDA AMESIANA**, seen by Collector with 185 flowers on one plant; **V. ROXBURGHII**, the finest ever imported; and other **CHOICE ORCHIDS**.

On view morning of Sale, and Catalogues had.

Send for an ILLUSTRATED PRICE LIST of

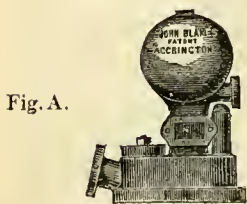
JOHN BLAKE'S PATENT SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of Towns, Villages, Irrigation, Railway Stations, Mansions, Fountains, Farms, &c.

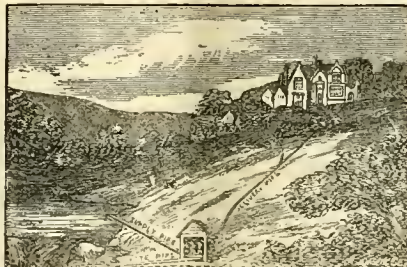
No Cost for Motive Power, which is obtained from a Stream of Water passing through the Ram.

NO OILING OR PACKING REQUIRED.

MADE IN SIZES TO RAISE FROM 300 TO 500,000 GALLONS PER DAY. WILL FORCE TO A HEIGHT OF 1500 Feet.
SPECIAL RAMS for HIGH FALLS, to send up One-Third of the Water passing through them.



This Ram raises a portion of the same water that works it.



View of Ram Worked by Water from a Spring, and supplying the House and Garden on the Hill.

This Ram, whilst worked by a stream of impure water, will pump clean water from a well or spring.



Fig. B.

EXTRACTS FROM TESTIMONIALS.

VILLAGE WATER SUPPLY.

From Mr. THOMAS VARLEY,

Agent to the Trustees of the late William Roundell, Esq., Gledstone Estate, West Marton, Skipton, August 11, 1887.

"DEAR SIR,—The Patent Hydraulic Ram you fixed five years ago on this estate is still working as well as it did on the day it started. It is driven by spring water carried along the hillside in 950 yards of iron pipe, and forces up an abundant supply to an underground tank on the hill at a distance of 2 miles from, and at an elevation of 280 feet above the ram. The water is then gravitated through several pipes and branches, having a total length of about 4 miles, for the supply of the mansion, gardens, stables, estate workshop, and steam boiler, the village of West Marton, and several farms. There are five fire-plugs inside the mansion and seven outside; and as the underground reservoir is 70 feet above the mansion, seven jets of water can be thrown over the house in case of fire. As there is still a considerable overflow from the underground reservoir running to waste, I intend to form a second reservoir at a lower level, and utilise the water for other farms. I have much pleasure in being able to report as above."

From J. B. McCALLUM, Esq., C.E.,

Borough and Water Engineer, Blackburn, November 1, 1886. Guide (Borough of Blackburn) Water Supply.

"DEAR SIR,—Following is the short report I promised to send as to the work performed by the Hydraulic Rams—supplied by you to the Blackburn Corporation—after they had been in operation sufficient time to take proper observations.

"The district of Guide—population about 500—in the Borough of Blackburn, is situated above the highest reservoir of the Blackburn Waterworks, and had no regular water supply until last July, when the Water Committee caused two of your Patent Hydraulic Rams to be put down and worked by water from a reservoir having a varying but maximum head of 34 feet 3 inches on the Rams—the waste (clean) water gravitating to a lower adjacent reservoir.

"You contracted to supply Rams which would force 8000 gallons per day each through 1295 yards of delivery pipe to a service tank 170 feet above the Rams, and I am bound to state that the result has considerably exceeded my expectations, as the Rams are capable of pumping, and have pumped, much more water than you promised. The percentage of efficiency exceeds all I expected, and is, in my opinion, much more than is usually obtained from hydraulic Rams.

"From a test I made on September 29, I found that two Rams with $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch strokes respectively, supplied with 194,630 gallons per day, together pumped 26,090 gallons per day to a height of 170 feet, giving 71.43 per cent. of efficiency, and one ram working at $\frac{3}{4}$ -inch stroke, and with only 16—18 feet of working fall, supplied with 154,587 gallons per day, pumped 10,587 gallons per day to the same height, showing 72.75 per cent. of efficiency.

"At a subsequent test on October 11, one ram at $\frac{3}{4}$ -inch stroke, and having 31 feet 9 inches of working fall supplied with 121,083 gallons per day, pumped 17,583 gallons per day to an elevation of 171 feet, the efficiency in this case being 79.57 per cent.

"In arriving at these results the greatest care was taken to positively measure the water, besides having a meter check on feed and delivery pipes.

"The work carried out by you at Blackburn is substantial and satisfactory in every way, and if any engineer wishes to make his own observations he is at liberty to come here and do so."

From Mr. HENRY ROBINSON,

Engineer to the Stockport District Waterworks Company, September 8, 1883.

"DEAR SIR,—I can now report well of the two Hydraulic Rams we have fixed to your instructions for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 68 feet, but on testing them I am convinced that 50,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equal to half the capacity of the 6-inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found."

From Mr. J. A. RUTHERFORD,

Agent to C. F. H. Bolckow, Esq., Estate Office, Marton Hall, Middlesborough, September 26, 1883.

"DEAR SIR,—I am glad to say that the Rams you put down on the Hambleton Estate, for Mr. C. F. H. Bolckow, are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a day, and with enough water to work the Rams at full power, 2000 gallons a day. With a supply of 11 $\frac{1}{2}$ gallons per minute they are lifting 2200 gallons, and when working full power, 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start, and have gone well since."

The Delivery Pipe, in the above case, is 9000 feet in length.

From THOMAS ROBERTS, Esq.,

Estate Surveyor to His Grace the Duke of Sutherland, K.G., Surveyor's Office, Trentbarn Hall, Staffordshire, April 13, 1886.

"DEAR SIR,—I am pleased to say that the Hydraulic Ram you supplied and fixed at Tintenor (the residence of the Marquess of Stafford, M.P.) does its work very satisfactorily, with a fall of 9 feet 6 inches, raising 9000 gallons daily to a height of 150 feet. The Duke of Sutherland, K.G., inspected the working of the Ram, and expressed his entire satisfaction with it.—I am yours faithfully,

"THOMAS ROBERTS."

From HENRY MORTON, Esq.,

Agent to the Most Honourable the Marquess of Ripon, K.O., Ripon, April 12, 1886.

"DEAR SIR,—The Patent Ram, with $\frac{1}{2}$ mile of service pipe, a large galvanised tank, and other fittings, which you fixed for the Marquess of Ripon, for the conveyance of water from Hutton Moor Springs to Blows Hall and Capt Hewick Hall, are highly satisfactory to all concerned, both as an engineering success and the intrinsic merits of the materials supplied. About 6000 gallons of water per day are forced into the tank at Blows Hall, nearly a mile distant, and 127 feet above the Ram, the overflow falling into a 20,000 gallon underground tank, from which it gravitates through the 4-inch main 870 yards long, with a fall of 70 feet to the service-cocks and fire-plugs at Capt Hewick Hall, where in case of fire, two or three powerful jets of water can be thrown on to the roof of the Hall.

"I consider your method of carrying out the work is everything that could be desired, and, whilst the waste-power water from the Ram is less than you specified, the quantity elevated is just what you guaranteed.—I am, dear sir, yours very truly,

"HENRY MORTON."

From WILLIAM DICKINSON, Esq.,

Agent to the Most Honourable the Marquess of Abergavenny, K.G., Eridge Estate Office, Hargate Lodge, Tunbridge Wells, July 3, 1885.

"SIR,—I am instructed by the Marquess of Abergavenny to say that the Patent Hydraulic Ram, with over two miles of pipes, forcing water to a height of 290 feet, which you erected at Eridge Castle about nine months ago, has given his lordship entire satisfaction, and he has every confidence in its continuing to do so.—I am, sir, yours faithfully,

"WILLIAM DICKINSON."

From Captain TOWNSHEND,

Wincham, February 10, 1877.

"In answer to your inquiry I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long, at the rate of 80,000 gallons per day, although you only promised 50,000."

JOHN BLAKE, ENGINEER, ACCRINGTON, LANCASHIRE, ENGLAND.



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Plants now ready, 3s. 6d. each.

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*As a Supplement
TO THE
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*FOR
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OF

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THE

Gardeners' Chronicle.

SATURDAY, MAY 26, 1888.

WINDOW-BOXES.

THE bay window of the room in which this is written is fitted with boxes placed on the ledge outside, and formed in three divisions, 9 feet long, 10 inches wide, and 6 inches deep, and each box is well drained by a number of holes in the bottom, and by a layer of broken crocks. The boxes were made by a journeyman carpenter at a cost of 15s., and are painted green. I might have filled my bays with zinc troughs filled with Minton's tiles, having the colours stamped and burnt in, or with Doulton's hand-painted tiles, each tile being to that extent a work of art, and costing 3s. or 4s. or more, while the stamped tiles cost from 7d. to 1s. each. Boxes like mine may have their plainness relieved by the well-known device of nailing pieces of cork in the front in rustic fashion, but Ivy planted in them and trained and nailed thickly, so as to completely hide both the deal and its paint, is, to my mind, more handsome, and far more durable than cork, and superior in some cases even to tiles. Ornate window-boxes may be quite in keeping with other *tout ensemble* of costly dwellings, but for those of humbler pretensions plain boxes seem preferable. Among the trailing plants Ivies are the most permanent and continuous in their effect, serving for summer as well as winter. The gold and silver variegated Ivies and those with finely-cut leaves are the handsomest, but they are proportionately slow in their growth.

The aspect of this particular window being north, certain plants are specially suitable to it. Last year a row of well-grown Fuchsias of several sorts, filling the whole length of the bay, with an edging of small Ferns and blue Lobelias for relief, and the green apron of Ivy hanging below, made the owner's heart proud. It is the notion of some people, who live secluded in parks and pleasaunces, that the public should be excluded by barriers placed at least a mile from their sacred edifices. This, however, is an error, handed down from the barbarous ages when men were full of fight and mischief, and went about armed for destruction. In these days more than half the population reside in towns, and nine-

tenths of the total number of the window-boxes are in these towns and their suburbs. Mine are in a street of thirty houses, where, with twice that number of window-boxes we garden partly for our neighbours, so that all the world enjoys our window-boxes, or may do so and welcome. Last year the Fuchsias were the "observed of all observers." On the opposite side of the house Pelargoniums and other lovers of the sun do better in the boxes than Fuchsias.

During the past winter my boxes have been filled with evergreens, including variegated Euonymus, Aucuba japonica, Thuia aurea, delicate Cupressus, and some plants of Yucca recurva which are much admired. These were all well grown specimens, filling up the boxes handsomely. Small plants would have been looked on askant by the neighbours as poor skinny things. If economy be an object, these same plants may remain in the boxes the whole year round. For the sake of variety, I prefer to remove the evergreens, which are plunged in their pots in the garden on the south side of the house, to be used again next autumn. The boxes are refilled immediately—Crocuses, early Tulips, Hyacinths, Double Snowdrops, Primroses, Hepaticas, and Violets, being amongst the earliest flowers adapted for that purpose. Aubrietia and various alpine may be introduced at this time. I have a box whose edges are at this moment overhung nicely with four varieties of bright green Saxifragas, and several other plants of that class which are found in most nurseries clambering over rockwork, or overlapping the face of dwarf walls. It is needless to name all these things, space forbidding it, and the intelligent student of box-gardening will soon discover that the methods of decoration are inexhaustible and that he must necessarily set some limits to the sorts he cultivates. The alpine alone, or Ferns and Selaginellas, are charming subjects, especially for north aspects.

Flowers that come next in succession are Narcissus, Anemone, Ranunculus, Polyanthus, Pansy, Wallflowers, Lily of the Valley, Brompton Stocks, Daisy, and Viola. Then come Nemophila and Mignonette, Lobelia speciosa, Echeverias, Cyclamens, Musk, Heath, Amaranthus, Cinerarias, the graceful Dielytra spectabilis, and many others, followed by all the flowers of summer. Unless a beginner has great confidence in his or her original genius I would recommend copying the work of others, just as artists in another department study the models of their predecessors. The following arrangement has been admired—the box painted green and planted with scarlet and white Pelargoniums mixed with yellow Calceolarias bordered with Musk and Lobelia speciosa. But the last touch of art was the arch wreathed with Canary Creeper (*Tropæolum peregrinum*, commonly called canariensis), and passing from end to end of the box. Arches above window-boxes may be objectionable in some cases, as they obscure the view; but that does not apply to the training of creepers up the sides of the windows, which has a charming effect. The various kinds of Pelargoniums head the list of summer flowers for boxes, and they are grown now in such variety that contrasts may be obtained without the use of other flowers, except small ones used as edgings; or the Pelargoniums may be planted with patches of such annuals as Nemophila and Mignonette between them, edged with the plants already named, and with Sweet Peas, Convolvulus, Canary Creeper, and Echeveria caracasana running up the window sides.

Subtropical plants, such as Dracena, Ficus,

Palms, and others, have become favourites in recent times, but without enlarging on them here, I must be content to notice two methods by which renewals may be effected, namely, by means of one's own reserve garden and greenhouse, or by purchase. The latter is probably the cheapest method, especially in towns where plants of all sorts are provided in enormous quantities, and where private gardening is a costly pleasure. H. E.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM BELLATULUM, n. sp.

This is near to *C. Godefroyæ*. The leaves, however, are blunt, very strong, 10 inches long by 3 inches in width, beautifully marbled with light hieroglyphic spots above, with innumerable brown dots underneath. The immense flower, 11 inches in circumference, is spotted all over, some of the spots being very large; the colour is white, or whitish-yellow. It is an introduction of the indefatigable Messrs H. Low & Co. The staminode is novel. It is much longer than in any other variety, oblong, tridentate at the apex, nearly free from hairs, and beautifully spotted. This peculiarity I have never seen in any of the affinity, and this induces me to make a new species. I have studied numbers of flowers of the affinity. No one, however, has been so liberal in sending specimens as Mr. W. Lee, who, during 1886 and 1887 sent me numbers of flowers of *Cypripedium Godefroyæ* always with their leaves. And all that number does not show a single staminode comparable to that of Mr. S. Low's sending. *H. G. Rehb. f.* [Certificated at the Royal Horticultural Society, May 22. En.]

POLYSTACHYA LEONENSIS, Rehb. f.

This curious little *Polystachya*, described a long time ago from a dried specimen collected by Barter in the Niger Expedition (*Otia Bot. Hamburg*, p. 112) has at length been introduced alive, and may be seen in flower in the Kew collection. It was received from Sierra Leone, and so closely resembles Barter's dried specimen that I have scarcely a doubt it belongs to the same species. The very characteristic thick roots, clothed with white velvety tomentum, the habit, and the velutinous peduncle and pedicels, are precisely identical; and, although the racemes are at present a little shorter, I think this is merely a question of development, for I can find no essential difference in the flowers. This specimen enables me to add a note as to the bulbs, also the colour of the flower. The bulbs are globose-depressed, half an inch across, and arranged in a string along the creeping rhizome so thickly as to touch each other. The upper sepals and petals are light green, the lateral sepals suffused with brownish-purple in their lower half, the lip white, with the lateral lobes suffused with light purple behind, the front lobe, the central keel and the basal part of the lip covered with a curious white mealiness. *R. A. Rolfe.*

FOREIGN CORRESPONDENCE.

ARAUCARIA EXCELSA.

This beautiful Conifer, the Norfolk Island Pine, is at home in the calcareous rock soil of the Mediterranean shores. It has been introduced nearly everywhere, and thrives everywhere, provided there is plenty of lime in the soil and a moderate amount of moisture. I have seen it growing luxuriantly in the Malta gardens, in the Balearic Islands, in Spain, in the *Alameda*, or public garden at Valencia. It thrives in all our Riviera gardens, and is luxuriant at Monte Carlo, and in my rock terraces, in a soil all but entirely composed of lime, with very little vegetable loam. The marine air must remind the *Araucaria excelsa* of its native home—Norfolk Island, in the

Pacific, to the north end of Australia, lat. 29°. The soil of this island is, no doubt, calcareous. I have several of these handsome trees, two more especially, which, although only fifteen years old, rise nearly as high as the summit of the Grimaldi Tower, which is 66 feet from the ground.

They bear the summer heat and drought, but want moisture at some periods of the year to thrive, and must have a considerable amount of soil under them. I planted several on small terraces in pockets on the rocks above and around me; but they only lived, did not thrive. This is the case with Agaves and Aloes, and with many other plants from dry regions like Mexico, Australia, and the Cape. With little or no soil they live on healthily, but remain small, merely vegetating. Given soil, even in moderation, they go ahead rapidly. I had occasion to transplant a year ago two large trees for the foundation of a house I am building. Not having the proper appliances, and the trees being on the mountain-side, it was a difficult business. I had forty men, however, to assist, so we managed the transfer by cutting a round ball of earth, preserving roots as much as possible, and then raising the entire mass by pulleys and levers, and then dropping them into the terrace lower down destined to receive them, just as the mast of a vessel is raised and dropped into its place. They were freely watered every second or third day all the summer, have survived, and are doing well.

This operation gave me an insight into the root-growth of these trees. There was a mass of fibrous roots that had penetrated into every crevice of the rock, like seaweed on shore rocks. They had found their way into every fissure, and covered the jagged rocks with fibres like a mat. We had always well irrigated these trees; the water had sunk into the rocks, and the root-fibres had followed it everywhere. It quite convinced my garden subordinates that I was right when I talked of "watering the rocks" in winter to secure tree-growth in the dry summer. Before this they had thought me half crazed to water after rain, to get at the rocks. The terrace on which they were growing being below others on the mountain-side, water discharged on the terraces above had constantly filtered down to their roots, which explained their luxuriant growth.

I find that in summer, if the soil or rocks get too dry, the Araucarias begin to shed their foliage, so this is now my criterion. The moment the leaves on the lower branches begin to fall I have the soil in which they grow freely irrigated, and they at once cease to fall. I have made one of my numerous tanks overflow at will in the vicinity of my two largest trees, and thus have secured frequent and thorough irrigation in summer. Since I have done this, for the last two years, their growth has been much more vigorous, and the length of the bole between the annually formed whorls of branches and leaves has much increased.

At Monte Carlo there are several fine specimens of this Conifer. They are growing rather differently to what they do with me—more thick-set, the whorls of branches nearer together, more pyramidal in a word. With me, on the mountain-side, they are running up. As in their native home they are said to reach a height of 200 feet, I am in hopes that my trees, well watered and attended to, will become very tall, and right pleasant to the sight, should I live to behold it.

I have the *Araucaria brasiliensis* also, but it merely vegetates. Our winter is probably too cold; I can, however, scarcely understand the *A. excelsa* doing so well in the Mediterranean; for Norfolk Island—where only, I believe, it is found wild, is only 29° from the equator. It is a most beautiful and singular tree, confined to Norfolk Island in the Pacific, 1000 miles north-east of Sydney, and which is merely a few miles in circumference, 5 miles in diameter by 2½. Its flora has a great affinity to the Australian vegetation, I believe, while the *Araucaria* is found in a fossil state in the carboniferous sandstone, or at least, fossil Coniferae of that type are so found. Thus it may be a remains of the vegetable world that flourished on

a great continent in the Pacific Ocean in past geological eras; a singular and grand thought. The *A. excelsa* is one of the most beautiful of the Coniferae, and may again become common all over the world

NATAL NOTES.

FREESIA REFRACTA ALBA.—I have read with interest the recent correspondence in the *Gardeners*

seem accommodating, as they flourish equally well in clayey soil, black loam, or sand. After a careful raking the ground is laid out in beds, and the bulbs planted in drills. From the time of planting to flowering, which is in September—our first spring month—all weeds must be kept down, otherwise the crop will be smothered. Very little rain falls all this time, but the soil keeps tolerably moist till towards spring. Early in September, with a temperature of 60°—70° day and 40°—50° night, the flowers begin to expand, and very lovely they are, so acceptable at the time of year; their perfume, as is well known, is strong and delicious. If, as is generally the case at this juncture, the weather keeps very dry, the beds must be well watered by water-can, hose or irrigation. As soon as the bulbs are ripe—some time near December—they must be lifted and kept in a dry place, as if left in the ground the summer rains would rot them. In their native country, where the summer is a dry one, I believe they are allowed to remain in the soil until required for export. I venture to suggest that this *Freesia* might be grown in the south of France, and other suitable places, for perfumery.

SUTHERLANDIA FRUTESCENS.

A leguminous shrub, with handsome scarlet racemose flowers. A native of the Cape, Natal, and Free State. An infusion of the leaves and flowers of this plant has been long known amongst the Dutch as a remedy for cancer.

A COMPARISON BETWEEN CAPE AND NATAL PLANTS.

Grahamstown List.

<i>Barosma scoparia</i>	<i>Rhus obovata</i>
<i>Cyrtanthus obliquus</i>	<i>Senecio coccolor</i>
<i>Habenaria speciosa</i>	<i>Struthiola ovata</i>
<i>Metalasia muricata</i>	<i>Selago corymbosa</i>
<i>Protea cyaroides</i>	

Maritzburg List.

<i>Aristea Eckloni</i>	<i>Pavetta assimilis</i>
<i>Clerodendron glabrum</i>	<i>Pentstemon variabilis</i>
<i>Disa polygonoides</i>	<i>Strobilium speciosa</i>
<i>Gazania serrulata</i>	<i>Sisymbrium cordatum</i>
<i>Ochna atropurpurea</i>	

Few things could better show the great difference between the flora of the Cape and Natal than a comparison of the above lists, as in both cases they fairly represent local plants. Grahamstown is situated about 300 miles south-west of this place; the elevation is 1700 feet, whilst we are 2000. The rainfall is about the same in both cases—30 inches; and we are both near enough to the sea to feel the winds from thence, Grahamstown being 30 miles from the coast, whilst we are some 20 miles farther inland. More than this, Grahamstown is by the best authorities reckoned within the same floral region as Natal, since its plants are more like ours than the strictly Cape ones. A list of typical Cape plants would include—

<i>Amaryllis belladonna</i>	<i>Helichrysum vestitum</i>
<i>Acetosis acaulis</i>	<i>Leucadendron argenteum</i>
<i>Barosma crenulata</i>	<i>Protea speciosa</i>
<i>Disa grandiflora</i>	<i>Rochea coccinea</i> , &c.,
<i>Erica coccinea</i>	

which is seen to differ still more from Natal. The produce cultivated in the Cape districts, broadly speaking, is Tobacco, Wheat, and the Vine. Round Maritzburg the staple crop is Maize and subtropical fruits, with Sugar, Tea, and Coffee on the coast. Thus, one part of South Africa supplies just what the other stands in need of. *R. W. Adlam*.

ORCHID NOTES AND GLEANINGS.

LISSOCHILUS PARVIFLORUS, Lindl.

This apparently very rare South African Orchid may now be seen flowering at Kew, together with two other species of the genus. *L. parviflorus* was described by Lindley over half a century ago (*Gen. and Sp. Orch.*, p. 191) from a single dried specimen in the Hookerian Herbarium; and soon afterwards the same author saw a living specimen from the stores of Messrs. Loddiges of Hackney. This is described in the *Botanical Register* for 1838 (*Misc.*, p. 14), and there is an excellent coloured drawing of



FIG. 85.—*ARAUCARIA EXCELSA*. (SEE P. 648.)

in mild climates near the sea—now it has escaped from its modern island home. *Henry Bennet, M.D., Torre di Grimaldi, Italy.*

[In this country the tree forms a grandly decorative plant for large conservatories, such as the Temperate-house at Kew. See also p. 651 of the present issue, Ed.]

Chronicle on Freesia culture, and as the bulbs are grown here with much success, I may be allowed to give my experience. This *Freesia* is not, I believe, a native of Natal, but of the Cape, and is only known here under cultivation. Late in autumn—that is, in March—ground is got ready, a good manuring and thorough digging being indispensable. *Freesias*

a single flower in the Lindley Herbarium. Both these specimens are reported as coming from Algoa Bay, and are the only ones I have seen, with the exception of the one now flowering at Kew, already mentioned. The habit is tolerably similar to that of *L. Krebsii*, but the leaves are barely over half an inch broad, the racemes more compact and the flowers a little smaller. The petals, however, are not yellow, but heavily veined with reddish-brown, a little darker than the markings on the sepals; the ground colour being light green. The front lobe of the lip is deep yellow, much flatter than in *L. Krebsii*; the side lobes veined with reddish-purple. *L. streptopetalus* and *L. Krebsii* are the two others above-mentioned as also in flower. The latter is well known, and the former much resembles it, though smaller in every respect. The petals are paler yellow, the sepals much less heavily marked, and the front lobe of the lip flatter and shorter. *R. A. Rolfe*.

CIRRHOPETALUM CUMINGII, Lindl.

This graceful little plant, one of the prettiest species of a very singular little genus, is now flowering in the Kew collection. The flowers, which are of a warm reddish-purple, are arranged in a spreading circle, in an umbellate fashion, as in the case of other species of the genus. It is closely allied to *C. fimbriatum*, though the colour of the flower is far more brilliant and attractive. Like it, the upper sepal and the petals are fringed all round their margins with long glandular hairs. The lateral sepals are about an inch long. The fleshy lip has two erect longitudinal keels, and is attached by a very slender bristle, the balance being so nicely adjusted that a slight touch sets the whole of the lips in the umbel oscillating backwards and forwards in a highly curious fashion. The species was originally introduced from the Philippine Islands by Cuming, and flowered with the Messrs. Loddiges in 1841. An excellent figure is given at t. 4996 of the *Botanical Magazine*. *R. A. Rolfe*.

MAKING SHAPELY TREES.

For all that has been written, how few well understand that pinching back a growing branch weakens it! Yet it is a truth that should be learned by heart, and rehearsed once a year, lest it be forgotten. Some of the most important operations of gardening depend on recognising this truth, and were I to undertake a gardening university—a college where young men should be educated to the horticultural ministry—I would have this printed or painted on the walls of the lecture-room, and possibly in the dormitories beside.

Even cutting back mature branches weakens a tree, for all they seem to grow so strong after being pruned. Look at a Willow stump annually cut back for osiers, and look at the chance one in some corner of the lot left to grow up to a tree. The branches on the stump annually cut back will make growths of 5 or even 10 feet. No such growth can be found on the mature tree. True, but the trunk of the tree may be 9 or 12 inches in circumference, while your osier stump will be but 3 or 4 inches. Or look at the annually trimmed Osage Orange hedge. The one in the corner, suffered to grow as a tree, is a tree, with a tree's glorious trunk, and the broad spreading head which a tree should be proud of; but the plants in the hedge have stems no thicker than the wrist. This tests the vigour question by actual growth; and how about longevity? Does the osier stump last as long as the Willow tree—the Osage hedge as long as the tree in the corner? Does the pollarded street tree last as long as the noble specimen on somebody's lawn? Nobody will answer affirmatively.

Everybody must know that pruning a branch really weakens it. But when we actually come to every-day practice in the garden, among our fruit trees, Vines, or ornamental things, who ever thinks of it or recognises it? Here is a Grape Vine trained on a barn or a trellis, and every shoot is cut back alike. In the course of time there are a few strong

shoots at the top, the whole of the lower part naked, or with but a few weak shoots or leaves, of no use whatever from the Grape grower's point of view. Or it may be a pretty ornamental bush or evergreen tree, annually "trimmed" with shears, cutting off the head and sides; in a few years the branches have all died out below, and a bunch of twigs—crows' nests—from the summit is all that there is left of the once lovely bush. One can pass many a garden where the whole shrubbery, through this ignorant trimming, looks as if the worn-out brooms of street scavengers had been brought in and stuck about to ornament the grounds.

The good course to pursue in getting a tree or Vine to be uniform, is—remembering that pinching back a growing shoot weakens it—to do this work while the growth is going on. Suppose, for instance, the shoots on a growing Vine are all weakish at the bottom, and a few strong ones are pushing at the top; we should pinch these strong ones back, and take out the growing point soon after it starts, or as soon as it occurs to us that the lower branches need strengthening. If it be an evergreen that we would thicken at the bottom, pinch out the growing points of the stronger branches, but let alone the weaker ones. If it be a Pear tree that we would train to any special form, keep back the stronger branches, and let the weaker ones grow. Only in this way can we get branches where we need them.

Without a knowledge of the principles inculcated in this article, such work as this could not be done. Pruned as our people shear trees, it would not be long before every branch at the bottom would be dead, and a dozen or two at the top be all that would remain. The columnar Pear grower has to pinch back all the strong-growing shoots toward the upper portion of the tree, as the season progresses, and any shoot that seems stronger than the rest, anywhere. In the fall and winter, when the finishing time for pruning arrives, the upper part of the tree is still severely pruned. It would be an absolute impossibility to get a columnar Pear tree as our people prune, but nothing is more easy when we recognise the principle that pruning or pinching back a shoot tends to weaken it.

People may say there is no use in all this trouble to make peculiar forms of trees; that Nature does for us all and more than the Frenchman can do with all his garden skill. That may or may not be so. It is not my point to discuss this here. The object is simply to illustrate the general principle that pruning or pinching back a strong shoot weakens it, and that the weaker ones profit by what to the stronger ones has been denied. *Thomas Meehan*, in "*American Cultivator and Country Gentleman*."

THE ALPINE GARDEN.

THYMUS SERPYLLUM ATRO-PURPUREUS.

THE same comment as that appended on the common Alpine verna may be given to *Thymus Serpyllum*. They are both frequently met with throughout the Alps, the latter one growing on the English mountains also. The Thyme may be said to be even of freer growth yet, but on account of its pale red colour it is considered a second-class plant only. Its dark purple variety, however, is certainly an acquisition, and ranks among the finest subjects which can be planted on in the rock garden. It was found in the mountains of north England by Mr. James Backhouse, of York, together with the splendid dark purple *Saxifraga oppositifolia* var. *pyrenaica maxima superba*. This is one of the most valuable novelties the firm of J. Backhouse & Son have enriched our rockworks with. *C. Briner*, New York.

SPRING ANEMONES.

The Crown Anemone is a flower that was very popular years ago, and collections of named varieties were cultivated for exhibition purposes. Now, beautiful and useful as it is, it appears to have failed to hold a position in the public estimation. Attempts

are made to revive an interest in the flower, and thus it is we hear of Poppy Anemones, or Empress Anemones, or French Anemones.

In Holland large numbers of Anemones are grown, and they have select collections of double varieties, which come to this country in the form of dry roots in August and September, and can be purchased at a comparatively cheap cost. It is best to lift the roots after they have done flowering, and have ripened their foliage, and then place them away in drawers, or some such place, until planting time comes round again. If left in the ground they are apt to rot, and especially so if the earth be wet and cold in winter.

Among the spring Anemones should be placed *A. fulgens* and *A. apennina*. It is scarcely necessary to say much about the former, as it is now to be found in most gardens, but it is different in the case of the Apennine Anemone. For planting in borders, or in semi-wild places, I know of nothing more appropriate. It should be carefully planted in good soil, at a depth of 6 inches, and then let alone. I remember, some years ago, seeing a large patch of this Anemone growing amid the shrubs at Ealing Park, and when in full bloom it made a charming display. I think it should be planted in a fairly adhesive loam, and have a little shade in the hottest part of the day. I have a clump of it which, having been left undisturbed for a few years, has grown into a large tuft, and is an object of great beauty in spring. In common with the Crown Anemone, this species is largely grown in Holland, and the roots are sent to this country in autumn.

The old double and single scarlet Anemones are delightful border flowers also. Selections from the former have sometimes been made, but there is little real difference between them and the normal types. For cutting from, and especially for bunching for market, they are most useful. I have seen beds of them that were a gorgeous sight when in full bloom; and when concentrated in this way one gets a better idea of their attractions than when isolated plants are grown. If lovers of hardy flowers would grow a bed of the old double scarlet, planting the roots in well-prepared soil, they will admit that the result amply compensated them for any labour or expense they may be put to. *R. D.*

PRIMULA PUNESCENS VAR. NIVALIS.

This plant is also known under the names *viscosa*, *nivea*, and *pubescens alba*, though it matters little what name we adopt if we value it merely from a decorative standpoint. It is perhaps the best of the whole group of alpine Primulas, and is much prized on account of the snowy whiteness of its flowers, and the freedom with which they are produced on well-grown plants. I happen to have under my care a small batch of plants which have borne this spring from seven to eight trusses each on an average; in fact, the little group in question was a sheet of the purest spotless white, almost hiding the foliage from view, and from which I hope to get a nice crop of seed. As my mode of culture differs considerably from that of many growers of this plant I will give it in detail; it is simple, however, and very brief. Firstly, then, the time for potting: for this part I prefer the autumn, and for this reason, that it never interferes with a good crop of seed having a fair chance of ripening. But some may urge that seed bearing is calculated to weaken the plants considerably. Exactly; then let the cultivator provide his plants with nourishment suitable and sufficient for enduring the test, and rest assured that if we would increase our stock of such things by tens or by hundreds, that a unit may die out here and there even in the most skilful hands. Secondly, the best soil to employ is simply what an Auricula grower would give his plants. But I do not employ what Auricula growers do as a rule. My choice of soils are these:—Good fibrous loam and thoroughly decayed manure in equal parts, with leaf-soil and Thames grit (or any sharp grit), to about one-half of above; this makes an excellent mixture. Plant firmly, and be sure to get your plants buried right

up to the leaves, leaving no bare stem in sight, for from these stems roots are freely emitted. Have a free open drainage, and water plentifully throughout the spring and summer months; this, with full exposure to sunlight, completes my way of growing this plant. I am strongly of opinion that many alpine perishes through insufficient sunlight in English gardens, coupled with a system of coddling, and various attempts to imitate certain conditions under which they are found naturally. *E. Jenkins.*

ROSES.

NEW ROSES.

THERE were exhibited at the fortnightly meeting of the Royal Horticultural Society on Tuesday, May 8, three new Roses which I think are worthy of some more notice than that in the report of the meeting given here. Unlike those that I noticed previously, they are really seedlings, and not sports; they are of French origin, not English, and will be eagerly looked for by rosarians by-and-bye. They were exhibited by Messrs. W. Paul & Son, and attracted a good deal of attention.

Madame George Bruant.—I had already mentioned this Rose from a bloom sent to me by Messrs. Cooling & Son, of Bath, and had, I hoped, somewhat guardedly expressed my doubts as to the reality of the cross—not, of course, supposing for a moment that the hybridization had not been attempted, but that, as in many cases, no real cross had taken place, Nature in some form or other having been beforehand; but the plant exhibited showed most undoubtedly that the cross had really been effected. There was no doubt of the rugosa foliage and wood, while the flower had apparently imbibed the Tea blood; it was semi-double, and I very much question whether many will consider it any improvement on the very pretty single form of rugosa (white); but as the Japanese Rose is so very hardy, it is possible that we are on the way now to a hardy free-flowering class of hybrids, and there is no saying how far the skill, intelligence, and careful manipulation of the French raisers may take us; they will not, at any rate, give us a set of Roses which require continued replenishing, and the best blooms are only cut on maiden plants.

Gloire de Margottin has been raised by my good old friend, Margottin, of Bourg La Reine, and will, I think, be likely to keep his name first amongst rosarians for many years to come. It is a vigorous growing and most floriferous Rose, each shoot producing a flower-bud, so that it will be most valuable for forcing. We want a good Rose of this colour for the purpose, free from the dingy purplish colour of some now used for the purpose. Margottin has evidently been working for this colour. Some years ago he told me he was harking back to the times before *Géant des Batailles*, and was working on *Gloire des Rosamènes*, the most brilliant coloured perhaps of all Roses. He brought out a couple of years ago *Gloire de Bourg La Reine*, brilliant in colour, but not full enough for exhibition Roses; but in *Gloire de Margottin* we have a Rose of the build of *Jules Margottin*, but brilliant in colour. It is perhaps difficult to decide upon the value of a Rose for general purposes from a specimen grown in a pot; but we can, at any rate, decide that it is valuable for all such purposes, and from its substance and fullness I shall be very much inclined to think that it will be a grand Rose for all purposes. *Guillot fils*, to whom we are already indebted for so many valuable Teas, has added yet another Laurel leaf to his crown in the beautiful new flower exhibited by Messrs. W. Paul & Son on the 8th inst.

Madame Hoste.—I had remarked, simply from the raiser's description of it, "this sounds well." I may add now "that it looks well." It is a very beautiful yellowish-white, deeper in the centre, broad, large, and solid petal, with a delightfully short footstalk, so that it holds itself erect, as erect indeed as *Cloth of Gold Noisette*—a flower one, alas! so rarely sees. It

seems also to be robust in habit, and, like most of the Teas, free flowering.

In *Red Pet*, exhibited by Messrs. Paul & Son, we have a pretty Rose of quite another type—an enlarged form of the fairy and miniature Rose. I am not quite so sure that we shall appreciate this enlargement; the great charm of these Roses is their diminutive size, and we may perhaps not like to see this essential characteristic done away with; still it is a very pretty flower, and will be much appreciated for buttonholes.

There were other Roses at the exhibition which were well deserving of the praise bestowed upon them, although not the splendid colour of the *Maréchal Niel*; and the plants of the *Niphetos* exhibited by Mr. Walker were worthy of all praise, while the beautiful boxes of *Lady Mary Fitzwilliam* and *Princess Beatrice*, exhibited by Mr. Bennett, were very beautiful; the latter may almost be defined as a new Rose, although not one of this season, and is, I believe, classed by some amongst the hybrid Teas, and by others as a pure Tea.

It will thus be seen that the lovers of novelties need not despair of having something to gratify their taste; and it strikes me that, what with English, Irish, and French Roses, we are likely, should the season be favourable, to have a most interesting lot of new Roses to look upon in the coming Rose season. *Wild Rose.*

SPIKELESS ROSES.

I find that these are by far the best for pot culture and forcing, and I shall be glad to know whether this has been noticed and remarked on before, for if not the fact is deserving of being chronicled and widely made known, as, besides being better doers, they are much more pleasant to handle when cut, and I, no doubt like many more, often wish there were no thorns to the Rose, and we might perhaps, after a time, by judicious selection in breeding, have them without. I think it will be admitted that most of them that are spineless bear the finest and best flowers, and are remarkable as well for good foliage and wood, and more particularly is this so with the perpetuals introduced within the last few years, as well as that old favourite *John Hopper*, which is still one of the most desirable kinds for growing in pots. Captain Christy has been good with us, too, and this is a Rose I can strongly recommend for forcing, as it opens well and is unique in its delicate colour. *J. S.*

NOTES FROM BELGIAN NURSERIES.

(Continued from p. 618.)

DE SMET FRÈRES, LEDERBERG, are comfortably settled in the fine establishment formerly belonging to M. Verschaffelt, but which has been greatly enlarged and improved by the Brothers de Smet, who seem to inherit their father's energy. A hasty look round disclosed to our view a startling quantity of *Arnica* excelsa of all sizes, several long spans being entirely filled with them.

The *Arancarias* are propagated by cuttings, the cuttings being placed in thumb pots filled with white sand, plunged in coarse yellow sand, and placed under a *cloche* or bell-glass, of which more than a thousand are in use. The cuttings are made in November, by the end of February they have formed thick fleshy roots. In May they are shifted into larger size pots as may be required, and in the summer months the young trees are placed under the shelter of lath houses built on the principle of the Indian "chick" houses lately referred to in these columns.

Kentias occupy no fewer than twelve span-houses, forming, as it were, one vast house, heated by 1000 metres of piping, one pipe being carried along under the roof eaves, the whole devoted to plants of a saleable size, upwards of 15,000 being planted out therein, including *K. Fosteriana* and *K. Belmoreana*, the latter having a more slender habit and narrower leaf segments. Other kinds of Palms were equally

well represented, either as small plants or as large specimens in a fine Palm-house, and a house set apart for the now inevitable *Cypripedium*, which it is hardly possible to think of as being a slighted subject in the Orchid establishments but a few years ago. De Smet Frères have begun with them successfully, and have been enabled to pick up some rare varieties, some of which were in flower at the time of our visit. *Cliveas* are also grown here in prodigious quantities. Some very fine specimens (especially of *Sweet Bays*) to be counted by the thousand, fields of *Azalea mollis*, and a large healthy and clean stock, all in marketable condition, must be recorded at this neat well-ordered nursery.

M. DE SMET-DUVIVIER, MONT ST. AMAND,

makes a specialty of *Dracenas*, green, variegated, and coloured, and possesses a very fine stock of these plants. So finely are the *Dracenas* grown that it seems a matter of wonder how such broad heads and splendid foliage can be obtained from such small pots full of soil. At the time of our visit, one of our own market growers was busily engaged in making a selection, and the numerous gaps noticed told plainly of other visitors who had found the stock good, and the prices convenient. *Aspidistras*, too, are admirably grown; and Palms, *Anthuriums*, and Orchids, are likewise specialties. Here among the Orchids in flower we found some good *Dendrobiums*, a batch of *Miltonia vexillaria*, *Odontoglossum cordatum*, *Calanthe Regnierii*, *Cymbidium Lowianum*, *Promenaea citrina*, *Chysis bracteosa*, *Cattleya intermedia*, a distinct variety, with rose tips to the upturned side lobes of the labellum; *C. amethystoglossum*, *C. Mendelii*, *Miltonia cuneata*, some *Laelias*, and other good things, notwithstanding the fact that M. de Smet-Duvivier was exhibiting extensively and well in the Exhibition.

THE BULB GARDEN.

NARCISSUS COLLEEN BAWN.

WHAT a glorious thing this is—quite the queen of the whites, and the most graceful of the race. I had a root of it from Ireland last autumn, and it has given me four most lovely blooms. All the white *Narcissi* are beautiful, but this has an elegance altogether its own.

N. INCOMPARABILIS PRINCESS MARY.

In 1878 I had this under the name of *N. incomparabilis pallidus anrantius expansus*, which I think is the longest name I ever had with a flower. In 1884 I bought it again as *N. incomparabilis Princess Mary*, a grand new variety which had received a First-class Certificate. Of course I was vexed to find that I had nothing more than "an old friend in a new dress." This is one of the most useful of the *incomparabilis* class, as it grows well and flowers freely. Another good point is that the foliage is comparatively short, and the blooms, without having long stems, are carried some 3 or 4 inches above it. The flowers are large and of fine form. The perianth is primrose; the cup is very large and conspicuous, rich yellow, sometimes stained with dull orange. This is a very fine and distinct variety.

N. J. B. M. CAMM.

This and Mrs. J. B. M. Camm are the most delicate coloured bicolors I have or know. The parson is the more perfect flower, the perianth having greater substance; but the colour of the trumpet in Mrs. Camm is indescribably soft and delicate, and the flower is somewhat drooping, which habit seems to add to its beauty. The parson grows fairly well but the lady certainly has the better constitution.

CHIONODOXA LUCILLE ALBA.

In 1885 I was delighted to find a root of this among some imported bulbs. It has a dwarf sturdy habit, the flower is large and of good substance, and

brilliantly white, with delicate lavender tints on the back of the petals. There is something unique in its appearance which leads every one to ask, "What is that lovely flower?" I am raising seedlings from it, hoping that some of them may come true.

FRITILLARIA MOGGRIDGEE.

Here we have a spring beauty, which ought to find its way into all our gardens. The large flower is carried on a stem not more than 6 inches high; the colour is yellow, with reddish-brown markings. Altogether, it is a very striking plant, and seldom fails to gain attention from those previously unacquainted with it. It is thoroughly hardy, but does not appear to increase very fast. Last season I saved some seed, which is now coming up nicely, so I shall have a good stock by-and-by, but I do not know how long the *Fritillarias* take to reach the flowering stage.

PUSCHKINIAS.

How very seldom these are seen in ordinary gardens, and yet they can be bought at a reasonable price, are perfectly hardy, easily grown, and have a chaste beauty entirely their own. I have had a good many seedlings bloom this spring, but they do not vary much from the two types—the one with violet-blue stripes, the other with smoky-black lines. One of my seedlings has a head of bloom as compact as that of *Orchis maculata*, the colour of the flowers being normal. *Scilla puschkinoides* may also be mentioned for its quiet beauty, but lovers of showy plants will not care for it. These twilight tints are very refreshing after the noontide splendour of the *Daffodils*.

ALLIUM PEDEMONTANUM.

In 1879 I bought a root of this, and planted it in the open border, in soil composed of river grit and loam. For some years I thought it a greatly over-rated plant, and was not at all surprised that it was now seldom mentioned. Last summer I found that it had grown into a large clump, with more than fifty trusses of bloom on it. This mass of rosy-purple drooping flowers was very charming. *Jay Aye*.

BOOK NOTICE.

FLORA OF THE HAWAIIAN ISLANDS.*

The vegetation of no part of the world is more interesting than that of the chain of remote islands familiarly known to English people as the Sandwich Islands. These are now often designated as above, from the name of the largest island of the group, where Captain Cook fell, and which he called Owhyhee. Menzies, Macrae, and Douglas, our own countrymen, were among the first to make known the botanical peculiarities of these islands; but the comparatively recent fuller investigation has been the work of Americans and Germans. The book before us contains descriptions in English of all the vascular plants known to the author, a German, who himself resided in various parts of the islands during a period of twenty years. Unfortunately Dr. Hillebrand did not live to see his own work through the Press, and the part relating to the distribution of the plants, and the physiognomies of the vegetation was left in a manifestly incomplete and fragmentary condition.

The Hawaiian Islands in mid Pacific are the most distant from any continent of any group of equal extent, being upwards of 2000 geographical miles from America, and further from Australia and Asia. Apart from islets, they are about a dozen in number, lying just within the tropics and forming a chain with a north-westerly direction, from Hawaii, the largest island. The total area has been estimated at about 6000 square miles, and the volcanic mountains are extensive and lofty, the highest, according to Hillebrand, being Mauna Kea, which is 13,805 feet high.

"A single day's march will carry the traveller from the tropical heat of the coast to the region of perpetual snow, and in crossing the breadth of an island he may pass from a climate with an annual average rainfall of 150 inches to one of 30 inches or less. In contrast to this diversity in temperature, moisture, and barometric pressure stands the uniformity of soil, which is derived almost entirely from the decomposition of basaltic rock, there being only a narrow band along the coast, in some regions, formed from coral limestone. The ground is generally pervious, so that the rainfall is soon absorbed. Only in the lowest and broadest valleys, and the adjacent flat coast region, and on some of the table lands of the oldest form, where denudation has long been active, and the water retained. In the valleys a heavy retentive clay forms the surface, and affords a suitable bed for the cultivation of Tara and Rice. On the high table-lands of Kanai and West Mani, and also in one or two parts of Molokai, a thick layer of mosses, Liverworts, and Sedges covers the moderately heavy soil; being within reach of perpetual clouds, and continually dripping with moisture, it has increased to beds of turf, and forms extensive bogs, the habitation of many of the rarest plants."

Dr. Hillebrand's book contains descriptions of 844 species of flowering plants, belonging to 335 genera, and 155 species of vascular cryptogams, belonging to thirty genera, making a total of 999 species and 365 genera. Of these 860 species are regarded as indigenous, and 653 of them are apparently absolutely peculiar to the islands; this is nearly 76 per cent. of the whole; but although a very high proportion, it is exceeded in Western Australia, where there is probably the greatest concentration of endemic forms in any part of the world, by about 9 per cent. There are also about forty genera not known to be represented in any other part of the world.

But it is not so much the proportion of peculiar genera and species, as their complex affinities with those of other parts of the world, that puzzles the student of the general distribution of plants. Other remote islands, notably St. Helena, present the same problem, more especially in relation to the probable origin of the Compositae, which largely preponderate.

In the Hawaiian flora we meet with an admixture of forms whose nearest relationships are partly Mexican and South American, partly Australian, and partly Malayan and Polynesian generally. Prominent in the first category are the numerous shrubby Compositae related to *Madia*, *Stiffia*, *Wunderlichia*, and other genera known in cultivation. Then there are the numerous shrubby and arboreal Lobeliaceae belonging to four or five endemic genera, whose nearest connections are the Andine *Burmeistera*, *Centropogon*, and *Siphocampylus*. Hillebrand defines about fifty species of this group, some of which are trees 20 to 40 feet high, the majority, however, being of smaller dimensions, though of arboreal habit.

The Australian element is conspicuously represented by the genera *Metrosideros* and *Acacia*, the species of the latter having their leaves, like the great majority of the Australian species, reduced to rigid expansions of the petiole, and commonly called phyllodes in botanical language. These are the commonest forest trees in all the islands, but the demand for timber has greatly reduced this element in the vegetation, which is being to some extent replaced by the more rapid growing introduced Australian Gum trees (*Eucalypti*). Among other genera of Australian affinity we may mention *Cyathodes* (*Epacridae*), and *Exocarpus* (*Santalaceae*).

Cyrtandra (*Gesneraceae*) is a noteworthy example of the Malayan and Polynesian type, being represented by about thirty endemic species. In this connection it should be mentioned that Hillebrand overlooked Clarke's monograph of the *Cyrtandreae*,* and has redescribed many of the species under other names.

The vegetation of the sea-shore includes a considerable number of plants common to the maritime districts of the Old World, from Eastern Africa to the Hawaiian Islands; such are *Paritium tillaceum*,

Morinda citrifolia, *Cordia subcordata*, *Ipomoea pes-caprae*, and *Pisonia inermis*.

A word or two in conclusion respecting the peculiar element, apart from its relationships. As in many other insular groups, the woody element preponderates, especially in the drier exposed districts, and it includes many curious and rare species. Among them shrubby species of *Lepidium*; the genus *Schiedea* and *Alsinosdendron* (near *Silene*); shrubby *Geraniums* up to 12 feet high, with a stem 4 inches thick; a *Plantago* with an unbranched stem rising to a height of 6 feet, and a *Dock* (*Rumex*), which in the forests grow up among the trees 20 to 40 feet; *Phylostegia* and *Stenogyne* (*Labiatae*) abound in species, many of them growing widely over other shrubs. One of the greatest difficulties in dealing with the flora is the excessive tendency to variation exhibited by the endemic element, so that a satisfactory delimitation of the species is, in some cases, impossible.

With regard to the manner in which Dr. Hillebrand has acquitted himself of the task, practical use of his book alone can afford a sufficient test; but it has the appearance of being well done; and the printer and publisher certainly deserve praise. *W. B. Hemsley*.

ERYTHRONIUM HENDERSONII.

This is a new species, fig. 86, found last April for the first time near Ashland, Jackson County, Oregon, and also at Grant's Pass, Josephine County, and described in the *Transactions of the American Academy* by Sero Watson. It is certainly the finest of all the Dog-tooth Violets, and as it appears quite as hardy as the others it is sure to become a general favourite with growers of these plants. The leaves are sparingly mottled, the stem 4–6 inches in height, one to two-flowered, and probably more as the roots increase in strength, the petals spreading and recurved, about 2 inches long, pale purple or lilac, with a very dark purple centre, surrounded by a narrow strip of pale yellow. The inner segments have an auricle at the base above the short claw, and this is the most important distinguishing feature. It has been flowering in the alpine-house at Kew, and we believe a figure has been made for the *Botanical Magazine*. Another pretty species, and one equally easy to grow, is *E. americanum*. It belongs to the solitary flowered section, flowers large, a fine soft yellow, sometimes spotted at the base. *E. albiflorum* is also worth cultivating. It is a variety of the handsome *E. grandiflorum*, with large white flowers, orange and yellow at the base. It has been figured as *E. giganteum*. *E. purpurascens* is very fine, the light yellow flowers tinged with purple, and deep orange at the base. The most curious of all, however, is a species called *E. propullans*. It was found in Minnesota, the offshoot proceeding from the stem near the middle; the flowers are small, bright rose, yellow at base. I believe it is not yet introduced. *D.*

PLANT NOTES.

CLERODENDRON CEPHALANTHUM.

This is a new species of *Clerodendron*, which was brought to Kew from Zanzibar in 1886 by Sir John Kirk. It is a stout fast-growing climber, with brown stems and large ovate dark green leaves as much as 1 foot in length. The petioles are remarkable on account of their hardening and forming stout hooks, which apparently assist the plant in climbing. These hooks curve downwards, and from their apex the soft herbaceous part of the petiole turns upwards again. The flowers are either collected in a dense head on the ends of ripened shoots, or they are in smaller axillary heads on the uppermost foot or so of the young branches. The calyx is large, 5-lobed, purplish, and the corolla is composed of a long narrow tube 4 inches long, and divided at the top into five spreading segments, with the twisted stamens and stigma 1 inch or so longer. The tube is greenish-white, and the limb or segments creamy-

* *Flora of the Hawaiian Islands*: a description of their Phanerogams and Vascular Cryptogams. By W. Hillebrand, M.D. 8vo, p. p. 673, with a frontispiece and maps. London: Williams & Norgate.

* De Candolle's *Monographie Phanerogamarum*, vol. v.

white. It is a handsome plant, worth a place in large stoves, and it is apparently very easy to manage. Its nearest ally is *C. capitatum* of *Bot. Mag.*, t. 4355, but it is a better looking plant than that species as represented in the plate quoted. *C. cephalanthum* is now flowering in the Palm-house at Kew.

BOUGAINVILLEA SPECTABILIS.

This grand stove climber is not often flowered in England, but at Kew this year it is a success, every branch on a large specimen bearing clusters of brilliant purple-rose flowers, or more properly bracts. Evidently the way to manage this plant, so as to

Buglosses which are found in the Canary Islands. There is a large example of it in the temperate-house at Kew now bearing numerous erect spikes of fiery purple flowers, the spikes measuring nearly a foot in length by some 3 inches in width. For large greenhouses this gorgeous plant may be strongly recommended, as it flowers annually, and its large spikes of bloom remain in perfection for a month or more.

DISA RACEMOSA.

generally known as *D. secunda*, is now flowering finely at Kew. It is quite a first-class Orchid, and being apparently as easy to manage as *D. grandiflora*

have already commenced preparations for swarming by constructing queen cells, it is difficult to prevent them. Sometimes it may be effectual to cut out queen cells, but we have known cases where that has been done and the bees have nevertheless swarmed almost immediately after having commenced about double the number of queen cells before doing so. I forget who it was said that "bees do nothing invariably," and it is very true; therefore a wise beekeeper will be prepared for every and any antic the bees may get up to. It must be remembered that though the days are warm the nights are still cold, and therefore all must be kept warm and snug at night that the brood may prosper.

If, instead of swarming (which in some cases is devoutly to be wished), the bees take to the supers, it is reasonable to suppose that a good surplus may be obtained. When the bees have made some progress—i.e., about half-filled the sections—put another lot under, and the bees will then work in both at the same time. A third may be added in like manner, still under, if honey is freely coming in, and the bees will then quickly finish off the top and work downwards. As soon as the top ones are well sealed they can be removed, and so the work may go on. Thus the bees may be kept at work and the surplus removed without any injury to the bees. If hives are thus worked, it is a good thing to leave the bees a little time to themselves before the honey flow ceases, so that they may be well supplied themselves. This is done in Poland with very great success, and there, we believe, feeding is not much resorted to. Another reason why bees should be supered early is because the early honey from honey blossoms is very good indeed and is generally liked more than later honey, except, perhaps, that gathered from Clover. *Bee.*

TREES AND SHRUBS.

SHRUB FOR SLOPE.

I DESIRE to draw the attention of your readers to a plant which has recently been introduced into some of the "hill stations" (as they are called) in the Himalayas for the purpose of clothing sloping banks. It was first brought down from the snowy altitudes of the range by the late Colonel Gaistin, of Almora, and since then I have personally taken some pains to utilize it, with considerable success. The clothing of our somewhat steep slopes is in the Himalayas of some difficulty. Grass will not grow satisfactorily except at 10,000 feet and upwards. From 6000 to 8000 feet, which is the altitude of our chief hill stations, grass is dried up by the three months drought, sometimes extending to four or five months between the winter snow and the rainy season, i.e., between February and June, during which period sometimes not even a drop of rain falls. The plant in question is the *Rubus nutans*, or, as it is now popularly called with us, the Creeping Raspberry. Although brought from the region of the snows, above 10,000 feet, it will stand the sun at 7000 and 8000 feet admirably, probably on account of the shade afforded by its leaves to the roots. Its foliage dies off in the late autumn, but the new leaves and shoots begin to appear very early in the year, even under a considerable depth of snow. Thenceforward, throwing out a root at every joint, it proceeds to spread with amazing rapidity, and eventually covers the slope on which a few roots have been planted with a strong network of vegetation, killing out all weeds, and fastening the soil with so firm a grasp that the torrents of the rainy season have no appreciable effect upon it. It has in the earlier months of the year a refreshing spring-green appearance, due to the young shoots, and in the later months a warm autumn colouring. At all times it gives the effect of a rich carpet of vegetation of a Strawberry character. Beyond a little surface manuring in December it requires no labour or attention. I send by this mail a photograph of a slope close to my house near Simla, which will give you some idea of the general



FIG. 86.—*ERYTHRONIUM HENDERSONII*: FLOWERS LILAC WITH A CENTRAL PURPLE BLOTCH EDGED WITH YELLOW. (SEE P. 652.)

bloom it, is simply as follows:—Plant in a bed where the roots will be restricted, and where it will be easy to get the soil in the bed quite dry. Train the shoots near the glass where they will get full sunshine. Syringe and water freely all through the growing season. From October to February withhold water entirely. In March loosen the soil, top-dress with good manure, and water freely. The flowers should now show. Thin out, and prune the shoots after the flowers are over. This is briefly the treatment which has proved successful in the management of this plant at Kew.

ECHINUM CALLITHYRSUM.

better known under its garden name of *E. arbo-
reum*, is the largest and handsomest of all the giant

it ought to become a popular garden plant. The figure of it in the *Gardeners' Chronicle* lately (see p. 593) gives an excellent idea of the flowers. The Kew plants were exhibited at the meeting of the Royal Horticultural Society at the Drill Hall on Tuesday last.

THE APIARY.

THE weather at present is everything that might be wished for the prosperity of our bees. If a reasonable amount of food were given in the cold weather there will now be brood in all stages of development. If swarming is to be prevented supering ought to be done at once, but if the bees

character and appearance of the plant. I could send a few roots in the winter to anyone wishing to try it. *E. C. Buck, Bengal Civil Service.*

RIBES CEREUM.

The figure of this plant in the *Botanical Magazine*, t. 3008, gives but a poor idea of the beauty of the shrub. It was introduced for the Horticultural Society by Douglas in 1829, but is not much known. It is of low growth, and the delicate waxy pink-lilac flowers are very attractive in the Ribes bed at Kew just now. In the figure cited the flowers are figured as greenish-white, but in the living plant they are far more attractive.

THE CINERARIA.

OVER a century has elapsed since the introduction of this valuable decorative plant, and how great has been the improvement during this period may be inferred from the annexed figures (fig. 87, p. 657), of which *C. cruenta* has been prepared from plants flowered at Kew during the present spring, from wild seed from the Canaries, while the types of cultivated forms have been kindly supplied by Mr. James, and by Messrs. Cannell. So different is the species, both in habit and appearance, from the superb strains now in cultivation, that unless we had actual historical evidence of their descent, we might almost doubt whether the one could have been directly derived from the other. These wild plants varied from 3 to 5 feet in height, the habit was quite lax, the heads of flowers small, and with few (generally eight) ray-florets, the colour lilac: and they formed a really elegant and graceful group as they stood on the floor at one end of the greenhouse. The descendants of this wild stock are dwarf and compact, with large heads of flowers of the most various shades of colour, and including a series of so-called double forms of almost faultless shape. A glance at a series of these superb varieties, illustrates the survival of the fittest according to the ideas of the florist—a century of careful selection of the most decorative forms.

Cineraria cruenta was originally introduced to Kew by Mr. Francis Masson, in 1777, from the Canary Islands. There it grows on the north side of the Peak of Teneriffe, in what has been called the intermediate zone, and which is said to extend from about 1500 to 5000 feet elevation on the mountain. It appears to be quite local as a wild plant. Lindley describes it as "inhabiting groves of Laurels, Myrica, Faya, Arbutus, Heaths, Ilex, and other shrubs, among which the Sweet Chestnut and downy-leaved Oak are naturalised, and associating with species of *Convolvulus*, *Ranunculus*, *Rubus*, *Geranium*, *Strawberries*, *Violets*, and similar plants. In these regions the air is moist, the sky is almost always overcast with clouds, especially during the day, while in the summer time fogs and mists are common, and in winter storms and heavy rains; there is no frost, and when snow falls upon the upper limits of the zone it melts immediately. The surface of the country is broken up into valleys and mountains, and the soil, though volcanic, is well covered with mould."

It is interesting to be thus able to picture to ourselves the plant and its native surroundings, and these conditions of climate, so different to the dry atmosphere of the lowlands of the Canary Islands, serve to explain the conditions under which it has been found to succeed best under cultivation. Judging by notes attached to wild specimens in the Kew Herbarium, it would appear to range from about 2500 to 4100 feet elevation, thus occurring in the very centre of the intermediate zone, but not at its upper and lower extremities.

It is somewhat curious to note that *Cineraria cruenta*—the *Cineraria par excellence* of gardens, and long likely to remain so—should not be a *Cineraria* at all, but such is the fact. *Cineraria* is a small genus of somewhat over twenty species, located at the Cape of Good Hope, with a solitary outlier in Madagascar. It differs from the world-wide dis-

tributed *Senecio* by very slight characters indeed—simply in having a flat not a rounded seed-vessel. The plant under consideration is a *Senecio*, unfortunately—the *S. cruenta* of De Candolle; though from the fact of its having been originally called a *Cineraria*, a *Cineraria* it is likely to remain, so far as gardens are concerned.

There are several old figures of the plant, and these show the colour as purple, while all the Kew plants were lilac. *C. lactea*, Jacq., *Eclog. Pl.*, t. 105, simply represents a white variety of the same, and thus it seems probable that even as a wild plant there may be some variation of colouring. These figures are:—*C. cruenta*, L'Herit., *Sert. Angl.*, t. 33; *Vent. Malm.*, t. 99; *Bot. Mag.*, t. 406; *C. aurita*, Andr. (not L'Herit.), *Bot. Reposit.*, t. 24; *Senecio cruentus*, DC., Lindl., *Bot. Reg.*, xxv., t. 7. In the *Phytographia Canariensis* it appears as *Doronicum cruentum*, Schultz Bip., in the text (vol. iii., p. 336), and as *Pericallis cruenta*, Webb., on the plate (t. 104). Lastly may be mentioned that most of these figures represent more ray-florets to each head than the one now figured here (fig. 87), which appears to be a truly wild type in the fullest sense of the word. *R. A. Rolfe.*

FORESTRY.

BARKING OAK.—A few years ago the value of the bark was a considerable factor in fixing the price of a standing lot of Oak, now the cost of stripping approximates so closely to the returns obtainable, that practically it makes little difference whether the timber is sold standing or felled. A proof of this is the fact that the quantity of Oak barked each year seems on the decrease. During the past winter I have seen on many estates a quantity of fine Oak felled, which, under the conditions existing within the present decade, nobody would have thought of cutting before the spring. Personally, in spite of what is said in favour of winter-cut trees, I prefer Oak stripped in the ordinary way, but this perhaps is a mere matter of opinion. A more interesting question, especially as we are now in the height of the barking season, is how far the practice of spring felling and saving the bark can be carried on with a fair prospect of making the two ends meet, or securing a moderate profit. It is certain that proximity to a tanyard is a great consideration, as cartage is generally a very large item; still, speaking broadly, I take it that there is a tolerably clear rule which may be followed; and that is, that field and hedgerow trees should be thrown without waiting for the bark, but in the case of woods or coppice timber the bark should be saved. As I have said above, accessibility to a tanyard is of great moment, and when field or hedgerow trees are within easy distance they may yet occasionally be barked at a small profit. This, however, will not alter the general line I have laid down. The reasons are, that coppice-grown bark is appreciably more valuable than field bark, and that in woods and coppices there is none of the inconvenience and damage attendant upon felling trees about the fields late in the spring. In deciding upon felling in woods and coppices, it is a recognised rule to first of all clear the underwood during the winter. I speak now of estates where something like a regular system is adopted, as in not a few cases lately I have seen trees being thrown into tall underwood. This of course is a most wasteful plan. I repeat, then, that where the underwood has been cut and cleared during the winter, the felling of what timber is proper during the spring, and its subsequent removal during the summer, does little or no harm, and is the class of trees upon which the practice of bark stripping will hold its own the longest. With hedgerow and field trees the conditions are entirely different, and so long as prices remain at the present low ebb, it will be quite as advantageous to fell during the winter and lose the bark. The bark itself not being so valuable—at least this is what tanners always maintain—is one reason, but the chief is the damage which is bound to result to crops. Every one who has had the management of work of this sort must know, that felling trees with spreading branches—and field trees are not generally devoid of branches—just at the season when grass and other crops are beginning to grow luxuriantly, is bound to cause trouble

with the occupiers of the land. Damage is simply unavoidable; so even if the stems of the trees are left until after the hay or corn harvest, as the case may be, it is essential that the bark, and also the lop-wood, be carted away within a week or two of the time of felling. A waggon and two or three horses crossing a meadow of mowing grass, or a field of growing corn, is not a small matter. When, however, there was a margin of £2 or £3 per ton on the bark, these difficulties had to be arranged in the best way possible; but now, as I have pointed out, the profit is so small as to make it doubtful whether any at all will remain; it is in the majority of cases better to arrange for the felling of hedgerow and field Oak in the winter season, and confine the barkers to the woods and coppices. *D. J. Yeo.*

PLANTS AND THEIR CULTURE.

INSECTIVOROUS PLANTS.—Under this general heading several interesting genera of plants may be placed:—*Drosera*, *Dionaea*, *Cephalotus*, *Sarracenia*, *Pinguicula*, and *Darlingtonia californica*. These curious plants take up but little space, are easily managed, and never fail to interest. They are subjects of easy culture, provided a few leading principles receive attention. Seeing that they are all more or less "bog plants," it will be necessary to imitate somewhat the conditions of a natural bog in which the plants grow but slightly above the water-level; but their position in a house is very different, as in a glass-house, where a pot or pan is filled with soil and water and planted with these plants, the water would quickly become impure, thereby poisoning the roots of the plants; whereas under natural conditions the water would be, by reason of its bulk and natural outlet, always in a state of movement and constant renewal, and never become inimical to plant life through lack of the necessary aëration. It is, therefore, evident that a bog soil through which water can percolate freely affords a condition favourable to the growth of these plants. Lumpy peat, with bits of living sphagnum moss, just sufficient to quite cover the surface of the soil, after a little growth has been made. *Cephalotus* is partial to pieces of white sandstone added to the soil, good drainage, a moist atmosphere, plenty of light—indeed, direct exposure to the sun is good for them; they should also be frequently syringed—twice daily in summer; a fair amount of ventilation with greenhouse temperature are conditions suited to their well-being. A good way to maintain the necessary moisture around them is to plunge the pots or pans in which they are growing in a bed of sphagnum moss, but if the pots be small, or there are but a few of them, it is better to plunge several together in a box or pan, this will much reduce the risk of their getting dry. The best time to re-pot, is just as they are starting into fresh growth, which they do at various seasons of the year, but spring and early summer are generally the best periods for the operation.

Cinerarias.—A large sowing should now be made, using a compost of leaf-mould, loam, and sand in equal proportions. Sow thinly, and cover lightly, placing the seed-pans in a cool frame which does not require much shading. This will be found to be better than having to use much shading, which causes the seedlings to become spindly—a very undesirable result. Doubles which have gone out of flower should be cut down, and be placed in a suitable growing temperature in order that cuttings may be obtained later. Prick off earlier sown batches, using a free rich soil—placing them in a moist cool position. *F. Ross, Pendell Court.*

THE ORCHID HOUSES.

THE high temperature which it is now necessary to maintain in Orchid houses containing natives of the tropics will lead to increase of the numbers of insects, the same thing occurring in the cool houses. It is well to mention that thrips have a great liking for *Miltonia Roezlii*, but if water be syringed down into the growths and axils of the older leaves once a day it will drive them from their hiding-place, and make it uncomfortable for them, so that they will not do much harm. If the insects cannot be kept under by cleaning the plants separately, it will be better to fumigate with tobacco, before doing so placing the tenderer plants in another

house. Long experience only will decide which will withstand smoke and which will not. Sometimes it happens that one grower can fumigate certain Orchids with safety, while another will come to grief over the same species. Probably this difference arises from the latter growing his plants too soft by employing heavier shading, and affording too little ventilation. Many species might be mentioned which are impatient of tobacco smoke, in some cases the old foliage is affected more than the young growths, and *vice versa*; and it will be found that most of the *Colognyes* and *Calanthes* are very tender, also *Phaius*, *Pleiones*, *Utricularias*, *Pachystoma Thomsonianum*, *Dendrochilums*, *Colax jugosus*, some of the *Zygopetalums*, *Odontoglossums*, and *Masdevallias*. Any plants which may be suspended near the roof will be found more likely to get injured by smoke. Some *Dendrobes* receive a severe check in this way when the pseudobulbs are partly made, their leaves being shed and the growth arrested, under which circumstances a new break will form, and which generally finishes much under its normal size. While growing, make sure that the plants are kept moist at the roots, and the foliage is dry before commencing to fumigate. Any large specimens that are likely to get injured by smoke and are not easily transferred to another house, can be made safe by covering them with a piece of tiffany. *C. Woolford, Downside, Leatherhead.*

THE FLOWER GARDEN.

BEDDING OUT.—The time has now arrived for this work to be taken in hand in gardens wherever possible. There are so many different ways of filling flower beds in the summer, and the subject is to many so important, that the whole of our remarks this week will be devoted to it. As there are three or four methods, so to speak, of summer bedding coming under different appellations, perhaps it would be as well to treat of each separately, and we must here say that the space at our command will not admit of lengthy details.

Mixed Bedding.—Within the past few years this has come into much favour, and deservedly so, for there can be no question that beds planted with a variety of plants are more interesting than if it contained but two or three. Hardy perennials may be made to play an important part in this method, and assuming that a bed is planted with a suitable selection, it need not be without flowers of some kind or other during eight or nine consecutive months. Such beds, however, are rendered additionally attractive in the summer time by having planted at intervals of a few feet some of the more gorgeously coloured tender species, particularly of those kinds whose beauty mostly consists in their foliage. For instance, we may have a large bed, the centre row of which consists of such hardy species as *Solidago canadensis*, *Papaver bracteatum*, *Oenothera grandiflora*, *Bocconia japonica*, and *Verbascum nigrum*; in the same row and at about equal distances space should be left for planting out in June clumps of *Cannas*, preference being given to the dark-leaved varieties, with a plant or two here and there of *Grevillea robusta* or *Amaranthus salicifolius*; the second row might contain *Anemone japonica alba*, *Aster Amellus*, *Chrysanthemum arcticum*, *Lychnis chalcedonica*, *Iris Kämpferi*, *Phlox* of florists' varieties, and *Pyrethrums*; in this row might be planted in June again, *Zea japonica*, variegata, *Solanum marginatum*, or *Melanthus major*, at intervals; in the third row could be planted—*Geum coccineum*, *Aquilegia chrysantha*, *Stenactis speciosa*, *Rudbeckia Newmaniana*; and to these may be added such handsome foliaged plants as *Chilian Beet* and *Solanum pyracanthum*. The outside row might consist of a broad band of *Stachys lanata*, or *Dactylis glomerata variegata*. It must not be supposed that such a bed would present an attractive appearance for more than four or five months, but so planted it would have a far more telling effect than if hardy perennials alone were grown. This system is quite unsuited and altogether out of character in small geometrical beds with Box edgings, &c. In the latter case the more suitable subjects will be found in a different class of plants, and if good taste is brought to bear on the matter some very pleasing combinations of both flowers and foliage may be obtained. The following may be named as examples, viz.:—Silvery-leaved *Pelargoniums* with blue *Viola*, or Purple King *Verbena*, margined *Fuchsia Golden Fleece*. Another pretty arrangement will be found in *Abutilon*

niveum maculatum, interspersed with *Coleus Verschaffelti* and *Verbena venosa*. Again, dwarf blue *Ageratum*s, variegated *Veronica*, and scarlet *Tropaeolum* go well together. The effect of such beds is greatly enhanced by having in the centre such graceful plants as *Dracena congesta*, *D. australis*, and other similar subjects.

Carpet Bedding.—To many persons this style of flower-bed filling is becoming monotonous, which effect perhaps arises from the ways of bedding out. Notwithstanding this fact, there is much about it that is admirable, and there can be no question about the hold it has upon the taste of the public at large; still, for all that, I think the time has arrived when some new ideas should be transfused in some form into its methods, and in one particular this may easily be done. In the majority of cases it is the practice to have the beds of one level, viz., about 6 inches above the grass, but this may be improved considerably by having three distinct levels, where the length and width of the beds will admit of its being done. We have two beds 24 feet by 8 feet on which the practice we are now advocating is being carried out this year; but perhaps I shall best explain my meaning by saying that each bed is formed in a series of terraces; the first level is 6 inches above the grass, the second and third rise one above the other at that height, so that when complete the top of the bed is 18 inches above the level of the lawn; the sides of each elevation are planted with *Sedum lydium* and *Echeveria secunda glauca*; the remaining portion of the beds will be planted in due course with *Alternantheras*, *Mesembryanthemum*, golden *Pyrethrum*, and other plants. This, of course, can only convey a rough idea of their general appearance. No work of this kind is complete without such plants as *Chamaepeuce diacantha*, *Dracenas*, dwarf *Palms*, and other plants of a similar character interspersed over the surface of the beds at regular distances. Many kinds of succulents may also be used in the same way with great advantage. Carpet bedding would doubtless have died out long ago if it had not been for the introduction into the beds of such plants as these.

The Grouping of Colours.—A quantity of bloom of one colour in a single bed finds favour with many persons, and I give the following list as being suitable for the purpose, the second named plant in each case being used as an edging or narrow margin to the first, viz.:—Yellow *Calceolaria* with *Iresine Lindenii*, scarlet *Pelargoniums* with *Centaurea candidissima*, Purple King *Verbena* with *Stachys lanata*, pink *Pelargonium* with *Coleus Verschaffelti*, blue *Ageratum* with *Cerastium tomentosum*, &c. When a number of beds are grouped together, as frequently is the case, and when all are in view from a given point, arrangements should be well considered beforehand, and care must be taken not to plant beds which are in juxtaposition with colours that kill each other; aim rather at contrast or harmony of colour, the latter being considered the more pleasing.

In certain parts of a flower parterre raised mounds of a small size may be planted with such plants as *Pelargoniums* of strong growth, Ivy-leaf varieties being very suitable; *Vitis heterophylla*, *Heliotrope*, *Lantanas*, golden, silver, and other variegated *Ivies*. But this kind of planting must be used sparingly, or the parterre will have a spotty appearance. *J. Horsfield, Heytesbury.* [Standard *Cassia corymbosa*, *Heliotrope*, scarlet *Pelargonium*, are permissible in certain positions near the mansion, and when vigorous and full of bloom they look very well, and are a departure from our usual way of doing things. Ed.]

FRUITS UNDER GLASS.

MELONS.—Where fruits are colouring, discontinue the use of water and the syringe, and maintain a warm atmosphere, so as to secure a high flavour, and do not cut the fruit until it is well cracked round the stalk, unless they are intended for market purposes or to be kept for several days. Melons being always best when allowed to hang on the vine until the flavour is quite up, and should then be put on ice to cool before being sent to table. If a Melon be kept a day beyond the proper time the flavour is more or less deteriorated. Attend to the pinching, training the shoots, and the fertilisation of blooms on successive plants, making fresh sowings of seeds about once a fortnight, for no matter how many sorts are grown in a house or pit, unless a proper succession of plants be kept up, there will be a pure to be a gap in the supply of fruit.

Melons may be very successfully managed in pots and boxes set above the hot-water pipes. A good plan is to grow the Melon plant on in 6 or 7-inch pots, and then stand the pots with the plants on the top of pots 12 or 14 inches in diameter, filled to a depth of three parts with loam; into this the plants will speedily find their way, and a good crop of fruit may be secured in plant and other houses where a suitable temperature can be maintained.

Cucumbers may now be grown out-of-doors with little labour where a box with a spare sash or two can be secured, with a depth of 2 or 3 feet of any kind of fermented straw or leaves, and the Cucumber-house can then be put to some other purpose, or be thoroughly overhauled and repainted. Plants which have borne fruit for some considerable time may show signs of weakness. Where this is apparent crop lightly for a time, encourage the young shoots to grow, and pinch off the bulk of the fruit as it appears, also the male blossoms; top-dress with horse-droppings, leaf-mould and loam, with a liberal quantity of Vine manure in it, and keep the foliage clear of greenfly and red-spider by the use of the syringe.

Strawberries will now demand a large amount of water, in order to keep the plants clean and healthy; where fruit is colouring keep the ventilators open as much as possible, and syringe heavily those plants which are swelling their fruits up to the time of their showing signs of ripeness, when no more syringing must be done. Where a Strawberry-house is at command, Strawberry plants are unwelcome tenants in other fruit-houses. Any plants which still remain out-of-doors will now advance sufficiently fast when put into cold-pits or frames, and these will not require so much watering as those on shelves in airy houses. *Wm. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

STRAWBERRIES.—The flower-spikes have now pushed up rapidly, and on warm borders are already beginning to expand, and on old plants must be thinned somewhat. When a few early Strawberries are required before the time they will naturally ripen outdoors, they may be obtained by placing a frame over some plants that are well furnished with bloom. By this means the ripening of the fruit will be much hastened. Abundance of air must be given during the time the plants are in bloom, and liberal waterings at the roots when the soil is dry, closing the lights late in the afternoons with a certain amount of sun heat. Although rain may have fallen in parts of the country, it has not been sufficient to soak the ground, so that Strawberries which are grown on dry soils will derive great benefit by having a thorough soaking of water before they commence to bloom, afterwards giving another thorough watering to carry the plants over the pruning period. The early forced plants of *Vicomtesse Hericart de Thury*, which will be required to fruit again next autumn, must be carefully attended to with water, and be syringed occasionally, until they can be removed to the open ground prior to being planted out. The same remark also applies to all other forced plants which are intended for planting out to form new plantations. Generally speaking, these plants have to wait till a piece of ground is cleared of an early crop before they can be planted out, hence particular attention should be paid to the details mentioned.

Disbudding.—Continue to disbud Peach and Nectarine trees, and in the case of the young shoots which have fruit at their base, pinch them back to three or four buds. The fruit having now set, the trees should receive a washing with the hose or garden engine; and if this practice be followed up it will help to keep down aphides and spider, and tend to healthy growth. *A. Ward, Stoke Edith Gardens, Hereford.*

HOOPER & CO., LIMITED.—At the annual general meeting of shareholders in this company, the Chairman (C. A. Hooper, Esq.) explained that the business of the company was in a satisfactory condition, that after deducting all the salaries and the expenses of management, there remained a nett profit upon the capital for the six months ending December 31 last of about 9 per cent.; a dividend at the rate of 6 per cent. per annum was declared, the remainder being carried forward. A branch establishment is to be opened in Paris, and another shop has been secured in connection with the present one in Covent Garden Market.

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APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

FRIDAY, JUNE 1 People's Palace, London, E.: Spring Show.

SALES.

MONDAY, MAY 28 Imported and Established Orchids from Mr. F. Sander, at Protheroe & Morris' Rooms.

TUESDAY, MAY 29 Orchids in Flower, at Protheroe & Morris' Rooms.

THURSDAY, MAY 31 Imported and Established Orchids, at Stevens' Rooms.

FRIDAY, JUNE 1 Second Portion of the Bromfield Collection of Orchids, at Protheroe & Morris' Rooms. Imported Orchids, at Protheroe & Morris' Rooms.

Market Gardening Round London.

THE market gardener, like the farmer, is getting at his wits' end to know what crops to grow which will pay. Both are face to face with excessive competition and low prices, and both are asking what is best to be done. Both also are looking to the Imperial Legislature to help them, and though they cry loudly, the political gods are silent. If by legislative acts relief is given in one way, some burden is laid on in another, and there is therefore little or no actual redress of grievance. Both are found asking for some new fiscal arrangements by which a check can be placed upon foreign imports, so that enhanced prices may fall to the lot of the home producer; but that is a matter upon which the multitude, who are the consumers, and who will have cheap prices, must have something to say.

The traditional policy in former times of the party now in power favoured restrictive tariff duties on foreign imports; but the responsible leaders of that party at the present time abjure anything in the way of Protection. The bewildered producer has no more chance of help of that character from politicians than of changing the courses of the stars.

The market gardener feels the pressure of another drawback. The growth of communities round the centre—London—involves the absorption of land for house building that has hitherto produced market-garden produce; and he is being driven farther and farther from the centre to the circumference, but as he travels further afield he does not by any means find land cheaper, wages lower, or local rates lessened, while he has to submit to a greater cost in the way of wear and tear

in having to send his productions an increased distance to market, and is placed at a similar disadvantage in carting back his manure, &c. Take the county of Middlesex, for instance—the centre for many years past of some of the most important market-gardening operations of the day. The absorption for building purposes of land formerly devoted to vegetable products, goes on at an astonishing rate, and the market gardener is driven farther and farther afield. He has to seek other openings for his particular industry; and as soon as agricultural land is utilised for the production of fruit and vegetables, its value goes up rapidly. If in going farther away from the centre the market gardener expects to be helped by a lower rental, he invariably finds himself mistaken. In Middlesex, especially, the supply of land diminishes while the demand increases. It is impossible to increase in extent a superficial acre of land. All that can be done is to make it increasingly productive, and bear crops of the highest value that will command the best price in the market. Great centres of population must be fed; therein lies one gleam of hope; and the market gardener near London may perhaps console himself with the reflection that at a not distant day the growth of population will restrict the areas of cultivation, and a falling off in the supply will mean an advance in prices.

The market-gardener has not only to contend against certain economic principles which affect the tenure of land, increased cost of production, the advance or decline in prices, &c., but he has also to battle with natural forces difficult to grapple with, and which he is powerless to control. Drought, severe frost, withering winds, late and inclement seasons—all these occur, and not at infrequent intervals. How many market gardeners saw in November last a promise of abundant green crops, that literally died away to almost nothing under the influence of prolonged nipping winds, followed by a retarding spring which kept all vegetable crops at a standstill almost until the second week in April. These are opposing forces that have to be considered in the struggle to make market gardening pay.

The market-gardener is sometimes advised to take to fruit-growing in the certain assurance that it will pay. Such advice must be taken cautiously; much depends upon the locality, and more upon the nature of the soil; and it is above all things necessary to grow only such fruit as is likely to command remunerative prices, and to send it to market in proper condition at the proper time. The times have changed for the market-gardener as well as for the farmer. He needs to be a man of pluck, perseverance, and energy, diligent in business, industrious, undaunted, with large powers of foresight and keen calculation. He must not only grow suitable crops, but grow them well and market them judiciously, and if he can, better than any neighbouring competitor. He should know something of the adaptability of crops to soils, and calculate to a nicety when to sow and when to gather. It is by means of enterprise, fertility of resource, and unwearied attention to his business that he can hope to win in the race, and, having these qualities, let us hope that Nature may compassionate his endeavours, and gladden his heart by bringing forth the kindly fruits of the earth in due season.

Australian friends show their sympathy by becoming Fellows. Let us hope that ere long we may see flourishing branches of the Society in each of the Colonies.

THE TEMPLE SHOW, of which we published a full report last week, affords one more illustration of the general rule that big shows do not pay—at least directly. Successful as it was in some respects, it was not so financially—a circumstance that will not excite surprise when the unfavourable character of the weather is remembered. As a show it was magnificent and full of interest, and hence it must have been a cheap advertisement, and will have induced many to have become subscribers. From this point of view it is significant to add that over eighty new Fellows were elected on Tuesday last. Although we take it that the Society is bound to give something to its subscribers, and bound to keep itself prominently before the public, yet the holding of large shows is a very secondary part of its legitimate work, as the benefit to art and science conferred by these great exhibitions is by no means commensurate with their cost, the smaller fortnightly meetings being relatively far more useful and interesting. The difficulty seems to be to get the public to realise that fact. Meantime, the finances are steadily improving, and the muster-roll of Fellows largely increasing.

LINNEAN SOCIETY.—The centenary anniversary of this important Society is in course of celebration as these pages are passing through the press. We have already published the programme of proceedings, and in our next we hope to give particulars of this interesting event, the opening of which takes place at such an hour as to preclude further notice this week.

GARDENERS' ORPHAN FUND.—Another local secretary has organised an entertainment in his district on behalf of the Fund. Mr. J. SMITH, Mentmore, announced a concert for Tuesday last, which we are pleased to learn was a complete success, and resulted in a satisfactory balance for the Fund.

THE ROYAL NATIONAL TULIP SOCIETY.—The annual exhibition of this Society will take place in the gardens of the Manchester Botanical Society, on Saturday, June 9. It may be stated that the opinion of all the growers who exhibit at the annual show is taken as to the best date on which to hold it: and that most generally approved is then selected. On the whole Tulips promise to be late, but very much depends upon the character of the weather. A few days of the high temperature experienced in Lancashire on the 19th inst. would bring on the flowers with remarkable rapidity.

NATIONAL CHRYSANTHEMUM SOCIETY.—A deputation from the committee of this flourishing Society visited Sheffield on Saturday last with a view of arranging the preliminaries of the provincial exhibition to take place in that town in November next. The deputation consisted of Mr. R. Ballantine (Vice-President), W. Holmes (Hon. Secretary), and Messrs. G. Stevens, L. Castle, and G. S. Addison, who were cordially received.

A MANUAL OF ORCHIDACEOUS PLANTS.—MESSRS. JAMES VEITCH & SONS send us part iii. of their excellent work under this title. It contains the Dendrobies, and with its maps and figures is far too important to be dismissed with an *accusé de réception*. We must notice it at greater length when we have had an opportunity of more thoroughly examining its contents. Meanwhile we shall be doing orchidists a service by telling them to buy it.

COVENT GARDEN MARKET AUCTIONEERS' AND SALESMEN'S ASSOCIATION.—The inaugural dinner of the members of this Association was given on Thursday, at the Hummums Hotel, Covent Garden, when Mr. W. N. WHITE occupied the chair. The design of the Association is to promote and

ROYAL HORTICULTURAL SOCIETY.—From Jamaica and from Victoria we receive congratulatory letters as to the improved prospects of the Society since its departure from South Kensington. Some

protect the general welfare and interests of those auctioneers and salesmen who are connected with Covent Garden Market; to maintain uniformity in the rules of the trade, in so far as they affect the auctioneers and salesmen in the market; and to establish just and equitable principles. It will also be the endeavour of the Association to co-operate with auctioneers and salesmen in dealing with other parties in other markets, to minimise risks in relation to any business with each other. Members will be provided with the use of a telephone. After dinner, in submitting the toast of the evening,

direction, and he had no hesitation in saying it would meet with the success it deserved.

CHAMBRE SYNDICALE OF GHENT.—At a meeting held on Monday, 14th inst., the following distinctions were awarded:—

First-class Certificates.—To *Cattleya Lawrenceana*, *Cypripedium Sanderianum*, and *Odontoglossum Pescatorea alba*, from Messrs. Vervaeck & Co.; to *Cypripedium Godefroyæ*, from Mr. J. Hye-Leyssen; to *Odontoglossum crispum* var., from Mr. J. Bray; to *Dichorisandra taniensis*, from Mr. Ed. Pynaert.

since the Jubilee in planting the trees, which will be so arranged as to represent the words, "Jubilee, 1887." Each letter measures 200 yards in length, and 25 feet in width. The first tree of the letter "J" was planted on Jubilee Day.

TREATISE ON THE CULTIVATION OF THE PANSY (ALEX. LESTER).—This is a practical pamphlet by an enthusiastic cultivator of the flower: conveying all that it is necessary for a grower of the flower to know, whether for exhibition or ordinary purposes in the flower garden.



FIG. 87.—*SENECIO CRUENTA*: THE ORIGINAL *CINERARIA*, TOGETHER WITH ILLUSTRATIONS OF ITS MODERN DEVELOPMENTS. (SEE P. 654.)

"Success to the Association," Mr. DENNIS observed that it had only been in existence for about two months, but in spite of that it had grown very considerably. The interest of the salesmen and auctioneers in the market, as well as that of the British public, was primarily the purpose for which the Association was formed. They had recognised two things—that unity was strength, and organisation meant order, efficiency, and economy, and they had endeavoured to organise that which previously had no shape or form. The Association would be able to make regulations for the proper conduct of the business of the market. The tariff charges, too, would be closely looked after. The Association had done some good already in that

REGULAR PELORIA.—Mr. MEASURES sends us a bloom of *Cattleya intermedia* in which the two lateral petals have the form and coloration of the lip, so that practically there are three lips. The column is erect, flattened, with a terminal anther, and with two wing-like processes at the side. Similar variations have been figured in the *Gardeners' Chronicle* from time to time.

JUBILEE PLANTING.—Mr. ASSHETON SMITH, says the *Agricultural Gazette*, is commemorating Her Majesty's Jubilee in a remarkable manner. He has caused to be planted on the slopes of Moel Rhiwen mountain a plantation composed of 630,000 trees. Nearly 200 men have been constantly employed

M. DE LA DEVANSAYE.—This enthusiastic cultivator of *Anthuriums* recently obtained at the Versailles Horticultural Exhibition the *grand prix d'honneur*—a Gold Medal—offered by Baron DE ROTHSCHILD, for his collection of these plants.

THE DESTRUCTION OF THE SHOOTS OF FIR TREES.—Miss WYNN, Appleby Hall, Doncaster, writes:—"The cause of similar mischief to that noticed by your correspondents in your paper for May 5 was due to the stubbing up of the Hazel bushes which had formed the undergrowth in the woods at my home, to replace them with other subjects. The squirrels were, by this act, deprived of their customary winter store of nuts and were

driven by hunger to attack the Firs and Chestnuts, which had not happened before. If gentlemen with estates would plant a piece of ground with Nut trees it would prevent the necessity, or the wish, to destroy the most beautiful of all wild animals in this country." We are sorry not to be able to concur.

STATE SCHOOL OF HORTICULTURE AT GHENT.—M. Ed. RODIGAS has been appointed Director of this establishment, in place of the late Professor KICKX. M. RODIGAS, in consequence, retires from the direction of the Zoological Garden, which he has done so much to improve, but has been appointed Honorary Director of that establishment.

SUN POWER.—Mr. PREECE, in a recent lecture before the Royal Institution of Great Britain, stated that on a fine summer's day the sun expends an average of 1 horse-power on every 30 square feet of the earth's surface in this latitude, or 1450 horse-power per acre. This great gift of energy is neither utilised nor stored by man at present, though Nature presents us with some of it in waterfalls and flowing streams. The sun itself has been more generous. Ages upon ages ago it shone with resplendent glory on a grand luxuriant flora of a uniform but flowerless character in a climate warm and damp. England formed part of a tropical jungle or swamp, where grasses, mosses, ferns, and sedges, Coniferae, Araucariae, Equisetaceae, Sigillariae grew and flourished, perished and fell *in situ*, to be covered up by the following geological formations and compressed into those grand seams of coal that form now the principal source of England's greatness and wealth.

THE BRITANNIA FRUIT PRESERVING COMPANY.—This company has been formed for acquiring and developing the business of fruit growing and fruit preserving carried on by Mr. A. C. WILKIN, at Tiptree Heath, Essex, who will become Managing Director. The amount of the shares is fixed at £50 each. The Secretary is Mr. W. H. SHORT, of Colchester, and the offices are at Trewlands, Tiptree Kelvedon, Essex.

ABIES (OR PICEA) AMABILIS.—Mr. RASHLEIGH obligingly sends us male catkins of this species, which are of value, first, because, so far as we know, they have not been figured; and next, because they are so different in colour from anything known to us. They are 'solitary, linear-oblong, one-third shorter than the axillary leaves, and of a greenish-yellow colour. The anther crest is retuse and emarginate.

PATCHOULY.—In connection with the subject of Patchouly, referred to at p. 616 of the *Gardeners' Chronicle*, November 19, 1887, vol. ii., 3rd series, and also in the March number of the *New Bulletin*, our contemporary, the *Chemist and Druggist*, gives some further information, from which we cull the following facts. The supply of the dried herb, it seems, as well as of the oil itself, has lately been very uncertain and insufficient, probably because the steamers plying between Europe and the Indian ports from which the article is mostly shipped (*viz.*, Penang and Singapore), refuse to accept consignments of Patchouly on account of the danger to other goods stored in its vicinity from the powerful odour imparted by the oil. It is scarcely possible that such communication could take place to any inconvenient extent if the Patchouly were packed with sufficient care, and if the goods placed in the immediate neighbourhood of the shipment were selected with some discrimination; but the fact remains that for a considerable time there has been a great scarcity, and that a market could be found in Europe for considerable quantities of fine leaves and pure oil, as Patchouly, though perhaps its popularity as a perfume is slightly on the wane, is still used largely in conjunction with other essential oils, notably otto of Roses, while the dried leaves are well liked as a sachet powder. London is the central market of the Patchouly trade, and our contemporary says that

the demand is such, that if shipments of good picked leaves could be quickly made to London, the shippers would be able to pocket a very good profit, as the distillers in Germany and southern France, as well as the American consumers draw their requirements from us. "It is not improbable that we shall soon receive supplies of Patchouly leaves and oil from other than the accustomed quarters. In 1886 only 5280 oz. of oil and some 18 cwt. of leaves were exported from Penang, whereas a few years previously the imports of leaves alone in London reached between 600 and 800 cwt. per annum. In 1886 a large German firm, with the idea of emancipating our market from its dependency upon the East, forwarded a supply of seed to Paraguay, in South America, and although the head of the Straits Settlements Forest Department reports 'that plants raised from seed are said to have no scent, but they retain it when produced from cuttings,' the German house seem confident that their efforts will be successful. Patchouly growing is also being tried in the Island of Dominica, and we hear that experiments are said to have been set on foot in Guadeloupe, Martinique, and other French West Indian possessions. Some years ago supplies of Patchouly leaves of very good appearance, though somewhat deficient in aroma, used to be imported into Europe from Java, but this source appears to have dried up lately."

RUGBY AND DISTRICT CHRYSANTHEMUM SOCIETY.—The annual exhibition of this Society will take place on November 21 and 22. Prizes for fruit and other subjects are also offered.

MELONS IN AFGHANISTAN.—The following remarks are taken from Dr. J. E. S. Atchison's paper on "The Botany of the Afghan Delimitation Commission," in the *Trans. Lin. Soc.* for April:—

"Creeping amongst them, and in great luxuriance, was the wild state of *Cucumis Melo*, covered with fruit, none averaging over 1½ inch in length. Whilst young the fruit is pubescent, on ripening perfectly glabrous. These were eaten with avidity, both raw and cooked, by the camp followers. I must say that the ripe fruit has a most delicious aroma sufficiently tempting to induce any one to eat it. . . . I should say that Water Melons rank next to Wheat in value as a food crop. During two or three months of the hot weather the natives seem to live entirely upon them, with a little bread; and they contain so much saccharine matter that in *Berit* a syrup, or sugar, is extracted from them. Ordinary Melons are cultivated, but in much less quantity than the Water Melon, and mixed with them is a great variety of Pumpkins and other Cucurbitaceae. In these Melon fields it is curious to see, either sprinkled thinly through them, or growing in single lines along the outer margin of the fields, the Castor-oil plant, cultivated as it was in GRUFFITH's time, for its oil for burning, the inhabitants being still ignorant of its uses as a medicine."

TREE PÆONIES.—Those gorgeous flowers of spring are now at their best in southern gardens. Mr. T. S. WARE forwarded to us a show-box full of very large sized blooms, the best of which were Reine Elizabeth, nice shade of pink; Aissina, white with crimson centre; Donklaari, flesh colour, very full; Rinzii, rosy-purple; Colonel Markham, purple; and Blanche de Noisette, white, with some tinge of purple at the base of the petals. Some German Wall-flowers, with short compact spikes of double flowers, come from Mr. CANNELL's gardens at Swanley. Some of the colours are bright and decided, others are dingy, but yet might be made effective in the mass, whilst all are sweet-scented.

SMUT (USTILAGO SEGETUM) IN OATS AND BARLEY.—Mr. J. L. JENSEN, Copenhagen, writes:—In my communication on this subject (p. 556) I stated—"It is very possible that if the Barley had been moistened for twenty-four hours, and then subjected to a temperature of 45° C. for five minutes, the desired result would have been obtained." It should have been 56° C.

DISEASE OF ORNITHOGALUM.

SOME time since a correspondent of the *Gardeners' Chronicle* forwarded examples of *Ornithogalum nutans* badly affected by the fungus named *Heterosporium Ornithogali* (see *Gardeners' Chronicle* for June 25 last, p. 840, for figure). He wrote:—"Large clumps are attacked, and in a very few days the whole mass of foliage falls down a blackened mass, as though it had been burned, and it spreads from clump to clump with amazing rapidity." The examples which reached us were jet black in colour from the profuse growth of the fungus, which entirely covered the foliage; the colour came off as clammy dust upon the hands; the fungus was growing with great activity, myriads of spores being in the act of germination.

The fungus is one of the brown moulds, and judging by its specific name would appear to be confined to the genus *Ornithogalum*. The upper portions of two leaves are shown in the accompanying illustration (fig. 88), and the fungus-threads and spores are enlarged 400 diameters in the left-hand bottom corner. The spores, as seen under the microscope are very handsome pale brown bodies, finely spinulose, and either unjointed or divided into from two to eight parts. The spores readily drop from their supports, they are then carried by the air on to other *Ornithogalum* plants, where they immediately reproduce the disease and demolish all parts of the plant above ground.

Heterosporium is one of the so-called brown moulds—*Dermatitiei*. The plant before us is closely allied to the fungus which produces cracks in Apples and Pears—*Cladosporium dendriticum*—described and illustrated in the *Gardeners' Chronicle* for November 28, 1885.

I have only once before heard of *Heterosporium* attacking *Ornithogalum*, and that was from Mr. William Phillips, of Shrewsbury. *Worthington G. Smith, Dunstable.*

HOME CORRESPONDENCE.

RHODODENDRON FALCONERI.—It may interest your readers to know that this scarce species is now in full flower at Sir Kenneth Mackenzie's seat, Gairloch, Ross-shire. Sir Kenneth, writing about it, says, "It has been planted out here for, I think, twenty-five to thirty years, and is about 11 feet high, and as much through; it is now flowering for the first time. There was once before a single bloom on it, but this year there about 150 now expanding. The plant is not common. It is one of which the seed was brought by Sir Joseph Hooker from Sikkim. I am not sure if there has ever been a second distribution of this species, or whether it was ever in the hands of the trade. I never see it in catalogues, and the specimen here was obtained by me from the Botanic Gardens, Edinburgh about 1860, as far as I can recollect." *Howden & Co., Inverness.*

HERBACEOUS PÆONIES.—There cannot be the least doubt that a position where the plants can enjoy full sunshine is the right place for the well-doing of these showy plants, and not only do they then thrive well, but show off their beauty most advantageously. We have here growing in the borders on each side of the drive (which is a straight one) rows of Pæony plants, 440 yards in length, the clumps of which stand at 12 feet apart, and are in some instances, 4–5 feet in diameter. Between the drive and the border is a margin of turf 27 feet in width; and when the plants are in bloom displaying shades of colour varying from deep crimson to almost pure white, and some sweetly scented, the sight is very interesting. To assist the plants during their growing season we give them a good mulching with rotten dung, and occasionally drench them with the farmyard drainage-water. *H. Markham, Mereworth Castle.*

HYBRID DAFFODILS.—I enclose a few flowers of hybrid Daffodil, *N. Pseudo-Narcissus* × *N. poeticus* (*N. Bernardi* of De Candolle). The bulbs were collected by me in the Pyrenees when in flower in June, 1886. They are the natural prototypes of the

"Leeds" hybrids, which are now so well known. I think Mr. Barr will agree that not many Daffodils, even with the longest names ever given at Tooting, can compete for beauty with these unnamed children of Nature, endless in variety of form and tint of colour. I also send three scapes, each with three flowers, of another natural hybrid, *N. muticus* (Gay) $\times$ *N. junceifolius* (Lagasca). This hybrid is a comparatively recent discovery. It is common near Gavarnie. In Nature the scapes are nearly always one-flowered, but in my garden they are mostly three-flowered. *C. Wolley Dod, Edge Hall, Malpas.* [The specimens sent some time since by Mr. Wolley Dod, but of which we were obliged to defer notice, were of extraordinary diversity and beauty. The largest flower measured 4 inches across, with broad creamy-white segments and a cylindrical deep yellow cup more than half the length of the segments. The smallest flower measured 2 inches across. In the form of the cup there are numerous gradations between a short cup and a long trumpet, and almost every shade of colour between pale primrose and deep orange. One had two flowers within one spathe. The other hybrid mentioned has tufted yellow flowers, deliciously fragrant. Ed.]

THE EDUCATION OF YOUNG GARDENERS.—It is almost astounding when we take into consideration the progressiveness of the period, and the degree to which every branch of industry is benefited by the application of science, to find the "old practitioners," if I may so term them, more or less horrified at the idea of their young men enquiring into the why and wherefore of their work. The notion uppermost in their minds appears to be that because they formerly did such a thing at such a place, and at such a time, they must of a necessity do the same again, not always perhaps taking into consideration change of circumstances. The studying of the transition between the "cause and the effect" to those persons seems utterly useless. There is also, I believe, a frequent complaint amongst head gardeners of the want of direct interest as shown by young men in their work. There again they do not appear to take into consideration the greater counter-attractions for young men of the present time that were non-existent say, thirty or forty years ago. These counter-attractions need not be discussed, as they are obvious. The best antidote that I have found to these is the study of botany, which I would recommend to my fellow journeymen. Botany is well calculated to draw out the powers of observation, and a gardener who is interested in the study of botany is, I maintain, also interested in his daily occupation. In conclusion, as one who is "struggling for existence," I thank the *Gardeners' Chronicle* for its action in this matter, and urge on all those who have the success of their profession at heart to continue the agitation for a higher—in the sense of a more appropriate—education of young gardeners. *A. Hartless.*

ACER SCHWEDLERI is just now very beautiful. The young leaves are of the rich colour of a Copper Beech, forming a lovely contrast with the pale yellowish-green flowers. Either, as an ornamental tree, or to mix in with the tender colouring of spring flowers in bouquets for the table, its leaves and flowers cannot be too highly estimated. *E. M.*

HELLEBORUS FÆTIDUS.—In walking through a plantation the other day I came quite unexpectedly on a fine group of the above (popularly known as Bear's-foot), and was compelled to admire its attractiveness and its suitability as a plant for growing in woods and even in parts of the garden where a shady position could be found for it. The flower-stems are 12–13 inches high, and are surmounted by large panicles of pale green flowers tinged with purple. A well drained chalk soil suits it best. *J. H.* [It grows in heavy loam where there is no chalk just as well. En.]

SINGLE DAFFODILS BECOMING DOUBLE.—The way that I account for this supposed fact is, that in consequence of the great rage for Daffodils about five or six years since isolated lots of wild English "pseudos," which had flowered on lawns, &c., undisturbed for years, were probably collected into better quarters for the purpose of producing better flowers. Among the starved clumps or masses, probably planted for many years, were *Telamonius plenus*, which naturally from starvation would run partly single. This occurring often near the roots of trees or on light soil, or again even in rich soil where the mass had got too dense, and also that

the sun's heat—needed to develop all double flowers properly—never reached the centre bulbs, caused the outer ones only to bloom. Some such clumps were put into cultivation, and what more natural than that the doubles showed again? I agree with Mr. Dod, as I have myself been trying experiments with single Daffodils, and I never yet got one to become double. I have found that the "double" English pseudo (true) in a starved state became almost single, very dwarf, and stunted; but when put into garden soil, developed into a form not unlike *Telamonius plenus*; but when I planted the bulbs again in the grass they reverted to the original form—and probably in the course of years may go partly single, with the shadow of a double flower within them to puzzle some future Daffodil fancier. *W. B. Hartland.*

A THREE-FLOWERED NARCISSUS POETARUM.—We herewith send you a few blooms of *Narcissus poetarum*, one spike having three flowers, which we consider unusual. The large bloom sent has come amongst the specimens of *poetarum*, but you will see it is paler in the eye, much larger, is a stronger grower, and flowers earlier. *Pope & Sons.*



FIG. 38.—*HETEROSPORUM ORNITHOGALLI* (DISEASE OF BULBS OF *ORNITHOGALUM*). (SEE PAGE 658).

IRIS SUSIANA.—It may interest some of your readers—who, like myself, may have longed in vain for *Iris Susiana* to flower in their garden—to know that we have at this moment seven healthy young plants in bud—one bud each. Should there be reasonable warmth and sunshine, another week will see them all in bloom. My gardener has, after long trial, discovered how to treat this most weird and wonderful and difficult of Irises. Last summer we had but one bloom out of several plants; this year all the plants will bloom except two or three. *E. J. B.*

A FIELD OF FLOWERS.—The above title, originated I believe by Dean Hole, well describes the prettiest floral display to be seen in this neighbourhood last season. Mr. Bellis, the gardener at Newstead Abbey, having a large piece of ground (about half an acre), which he was for some time unable to crop, was induced by our manager to purchase a mixture of 6 lb. of flower seeds left over from the preceding year, which would ordinarily have been thrown away, and to sow the ground with it. This was done; and the seed, which included a portion of

almost everything in our catalogue, was well mixed and sown broadcast. The result was a display combining the most gorgeous effect of colour produced by the bedding system with the attractive negligence of the wild garden, and which was much admired by every one who saw it. Those who have old or surplus seeds in stock would do well to take the hint, and utilise them by sowing thickly any waste spot or wild part of the garden. *Charles E. Pearson, Chilwell.*

PRIMROSES IN RURAL DISTRICTS.—In the Notes and Queries column of *The Echo* there recently appeared an enquiry, as to where common Primroses could be met with near London? A sensible reply is given under the name of "Selborne," who gives the name of a locality in Kent where Primroses can be found in abundance, and he wisely adds, "Visitors are requested not to carry away roots." Some such caution as this is necessary, for, mainly owing to the institution of the Primrose League, Primrose plants have been taken up by the thousand, in order to meet the requirements of political celebrations. Hundreds of these plants had their way into suburban gardens, only to die ere the summer is over. The immense quantities of blossoms that are gathered in April tends to rob the country of thousands of what would be naturally sown seedlings; and the demand for seeds of the common Primrose is becoming larger every year, and it is rising in price. It is too much to say that there is danger of the Primrose being lost, but it is necessary to enter a protest against the destruction of plants which goes on annually in such a needless manner. *R. D.* [We think the danger is overestimated. Ed.]

DOUBLE CINERARIAS.—Beautiful and useful as are the flowers of the double varieties, and durable, too, in comparison with the somewhat fleeting character of the single varieties, they have yet, so far, failed to become popular. During the past fifteen years they have been produced from time to time, to be hailed with interest and admiration, and then become eclipsed by other novelties. Why this should be so, it is difficult to say, for the double Cinerarias possess qualities that seem to fit them for general culture; but they have certainly failed to hit the popular taste so far. But the fine varieties which Messrs. Henry Cannell & Sons, of the Swanley Nurseries and Messrs. Kelway & Son, nurserymen, of Langport, have raised, may be the means of exciting a new interest in these double Cinerarias. At Swanley double Cinerarias in bloom can be counted by the hundred, Mr. Cannell having procured some of the best of the older varieties, and obtained some seed from them; the result is that he has raised a large number of seedlings, not a few being of high merit. His main difficulty lay in selecting the very best for naming, for if these double Cinerarias do become popular, those who fancy them will desire to have plants of the fine varieties certificated by the Royal Horticultural and Royal Botanic Societies; for seeds cannot be depended upon to reproduce the exact varieties, though they will do so to a considerable extent. Mr. Cannell took a batch of his new varieties across to the recent International Horticultural Exhibition held in Ghent, where they appear to have been warmly appreciated. The new varieties Mr. Cannell has selected for naming are as follows:—Blue shades: Indigo Blue, the deepest blue of all—rich indigo-blue, slightly tipped with lake, large and very double flowers, and extra fine quality; *Aspasia*, deep blue—large, full, and symmetrical flower, dwarf habit, and compact head of bloom (awarded two First-class Certificates of Merit); *Advance*, violet-blue, large, full, and very fine, dwarf bushy habit—considered to be a decided advance upon Mr. Thomas Lloyd (awarded a First-class Certificate of Merit); *Beauty*, of a pleasing shade of lavender-blue, large globular flowers; and *Mauve Queen*, mauve, tinted with violet, the base of the florets slightly white—quite distinct. *Crimson*, rose, and pink shades: *Crimson King*, deep crimson, slightly shaded with magenta—medium-sized flowers, excellent form; *Superb*, bright magenta—dwarf habit, and remarkably free; *Perfection*, rosy-magenta, of a very pleasing shade—dwarf and bushy, extra fine; *Faust*, clear bright rose, slightly white at the base of the florets—flowers large, and freely produced in compact trusses (awarded two First-class Certificates of Merit); *Mary Anderson*, clear magenta, the base of the florets pure white—very double and distinct; and *Gem*, very bright lilac-pink, dense heads of flower—dwarf and compact habit. Tipped varieties: *Rosalind*, pure white, deeply tipped with blue, large flowers, compact

heads, highly effective; Clare, white, edged with deep mauve, and occasionally shaded with rose; Gigantea, violet-blue tipped with lake, the reverse of the florets white—immense well shaped flowers; Miss Cannell, pure white heavily tipped with clear magenta, shading off to a lighter tint towards the base of the florets, fine and distinct; Nellie, white, edged with deep clear pink, well formed flowers, very attractive; Marguerite, pure white, tipped with lilac, very pretty; and Mr. Midson, white, broadly tipped with a pretty and delicate shade of lilac, large full flowers, quite distinct. After the plants have been cut down to within 4 or 6 inches of the ground, they are then stood in a cold frame, or on the cool and shady side of a hedge; and as soon as the young growths are sufficiently advanced, they are taken off and inserted as cuttings in the ordinary way. That the double varieties are a little more difficult to cultivate than the single ones is true; they do not make so much root as the single forms, and therefore should not be overpotted. The blue-flowered varieties are found to put forth more roots than the others. They are found to grow freely in good Cineraria soil, and the pots should be well drained. *R. D.*

FRUIT PROSPECTS.—The prospects of the fruit crop in the north of Yorkshire are in many respects good; Apricots are setting well, and will be plentiful, if we have no spring frosts to destroy them. The Plum crop looks badly, although odd trees appear to have plenty of bloom-buds. Many trees that bore a good crop last year are now almost without a bloom-bud. Pears are fairly good in this neighbourhood, especially on trees that bore a light crop last year. The best appearance is made generally on trees grafted on the Quince stock, which promise to carry a good crop two years in succession. Trees several times grafted on the Pear stock also show for a good crop. Apples promise to be good on many trees, especially those that bore light crops last year. Some that carried a crop last year are now without a bloom-bud. In a garden where there is a variety of trees the crop no doubt will be sufficient. Trees grafted on the Paradise stock are decidedly the best; the fruit-buds are not so fine as I have seen them, owing, no doubt, to the drought of last summer, and to the many cold nights which followed hot days. On several occasions the thermometer fell from 75° in the day to 35° at night, so that neither Apples nor Pears were of their usual good quality in this part of Yorkshire. Bush fruits suffered terribly from the ravages of bullfinches. Gooseberry bushes in some instances were quite spoiled. Nuts promise to be good, if they are not destroyed by spring frost. *William Culverwell, Bedale.*

POLEMONIUM CONFERTUM.—Amongst many plants which seem to have derived new life from the hot suns of last summer, I may mention *Polemonium confertum*. Until now it has scarcely maintained a miserable existence; it is now a compact leafy tuft in perfect health, with seven flower-spikes, of which I enclose a specimen. It is the best I have yet seen of the *Polemoniums*. It seems to require a very strong and open soil, and moderate shelter. Mr. Wood, of Kirkstall, gave me the plant, and advised me how to treat it. *C. Wolley Dod, Edge Hill, Malpas.*

GESNERA CARDINALIS.—This is one of the best *Gesnera* to grow. For the last five or six weeks a group of plants of this species has been flowering incessantly in the Begonia-house at Kew, where they have attracted much attention. Each plant grows to the height of 12 or 18 inches, and is of compact habit. The stems, arising from the large tubers, are thick and fleshy, giving off opposite cordate-crenate and somewhat crinkled leaves, which are more or less horizontally placed on the stem. The lower leaves measure generally about 8 inches long, and are wide in proportion. The leaves become smaller as they ascend, often ending in mere bracts. The flowers, which are produced in clusters from the axils of the upper leaves, are about 3 inches in length, with a rather long bilobed upper segment; the lower segment is divided into three lobes, the middle one having a few very dark blotches on the inner side. The colour on the outside is a bright scarlet, but is much fainter inside the tube of the flower. The entire surface of the plant is densely clothed with short soft white hairs. The cultivation of this species is a comparatively easy matter. The batch of plants in question were nearly all raised from seeds sent to Kew about March of last year. The seeds soon germinated, and when the seed-

lings had formed a couple of good leaves, the best of them were pricked into pans, and allowed to remain in them until the beginning of the present year, when again the strongest plants were potted into 5-inch pots, in which they are now flowering. The best soil to use is light loam and peat, with some leaf-mould and sand, all well mixed together, while the temperature should be moist and tolerably warm, to keep them in good flowering condition. *J. W. Q.*

VINE LEAVES TURNING YELLOW.—Will you, or some of the readers of your paper, kindly explain why the leaves on one particular spur of a Vine which I have in one of my early houses should from infancy to maturity remain cream-coloured, all other growths on the same rod remaining of their natural colour? The rod is planted in an outside border, which is well drained, and has always carried a good crop of fruit, the particular spur always finishing its fruit equally well with the others. This has now been a regular thing for many years past, the spur always breaking well, and every growth on it being of the same abnormal colour. I enclose a leaf for your inspection, and trust that some light may be thrown upon the subject. *W. R.* [It is a case of "sporting," but it is impossible to give a satisfactory reason for it in this case. A Horse Chestnut in our neighbourhood does the same thing annually. *Bo.*]

HABROTHAMNUS ELEGANS.—What a fine old thing this is when planted out in the conservatory or greenhouse, where it can have room for both roots and top, for, when so favoured, it seldom, if ever, ceases blooming, for as the growth is continuous and the flowers form at the ends of all the young shoots, from which they depend in long racemes, plants are more or less gay all the year round. If wanted in full beauty at any particular season, the way to manage it is to keep the plant dry for two or three weeks or so to rest it, and then prune back, after which it will quickly break, when a soaking of liquid manure or water should be given, and the breastwood allowed to grow out at will. The most suitable places to grow this *Habrothamnus* are on back walls, or on pillars, or other roof supports, where it can have plenty of light and sun, in which position it shows itself off to the greatest advantage. In preparing the border it should be made deep, and have good drainage; the soil best adapted to grow the plant in is fresh turfy loam, with just sufficient sand to keep it open and porous. *J. S.*

COUNTY GOVERNMENT BILL.—I am glad to notice that you urge the Council of the Royal Horticultural Society to call a public meeting of market gardeners and others engaged in horticulture to discuss the Local Government Bill, and the proposed new Department for Agriculture. It is rumoured that the cost of administration of the new county government will be very expensive. The annual outlay is variously estimated at from £5,000,000 to £10,000,000. If the lowest estimate is taken, and deducting the amount of £3,000,000 which is proposed to be transferred from the Imperial Exchequer there will still be a deficiency of about £2,000,000 to provide for by an increase of taxation, and assuming £150,000,000 to be the present rateable value of England and Wales, this would mean an increase of taxation of something like 2d. in the pound. Land already has to bear very heavy charges for local purposes in the shape of poor-rates, school board, police, and highway rates, &c. In some districts of Surrey I have known corn, Cabbage, and grass land to have to pay a sanitary rate of 6d. in the pound; and farm land in some parishes has to pay for the lighting of the village. What will be the effect of taking towns out of this Act and constituting them counties of themselves? Towns have a higher rateable value than districts of equal area. Country members should investigate this point, otherwise country districts may be called upon to bear an undue proportion of the county expenditure. For instance, the county of Surrey contributes something like £3000 a year towards the maintenance of the London bridges. If a large slice of metropolitan Surrey and the borough of Croydon be taken out of the county and formed into counties of themselves, unless the amount paid by the county for the repair of the London bridges is proportionately reduced, the agricultural land in the county will have to contribute an undue proportion. I hear on good authority that the County Council of Surrey will have fifty-two elective, and seventeen

selected members; twenty-six of these will be elected by urban, and twenty-six by rural districts, and they will be elected *en masse*; the County Council thus formed will proceed to cut up the country into districts for the purpose of the creation of the district councils, who are to replace the present Local Boards and Rural Sanitary Authorities. These new authorities are to take over the liabilities of the old bodies. It seems unfair that the new districts should be called upon to take over liabilities incurred by authorities and districts with which they previously had no connection; land which now is comparatively lightly rated will have to bear burdens which they never incurred or sanctioned and from which they have enjoyed no benefit. Agriculturists should make themselves acquainted with the provisions of this Act, and should urge their members to watch the Act, otherwise they will find themselves worse off than at present. *Rusticus.*

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, MAY 22.—Owing to the Whitsun holidays last Tuesday's meeting was a comparatively bare one, and only a few visitors attended.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. J. Fraser, J. Walker, H. Herbst, W. Goldring, W. H. Lowe, G. Paul, R. Dean, B. Wynne, H. Ballantine, J. Dornay, H. M. Pollett, J. O'Brien, E. Hill, A. J. Lendy, W. Holmes, G. Duffield, and J. Laing.

A few very interesting Orchids were shown, one of the most noticeable being *Cypripedium bellatulum*, from Messrs. H. Low & Co., Clapton, a new discovery which Prof. Reichenbach has classed as a species (see p. 648). The flower is exactly like a very vigorous *C. Godefroyae*, but is more heavily spotted, and a dried flower measures 4 inches in diameter. The plant shown bore two expanded flowers, which were not fully developed, and which had been found partially open on importation, and consequently were not properly coloured. We shall shortly give an illustration of this flower.

Mr. Glover, gar. to E. Ellis, Esq., Manor House, Wallington, Surrey, showed a few good plants, which were *Cattleya Schroderae* (fine), *Mormodes buccinata flavida*, Indian-yellow, with the labellum and column slightly paler, *Thunia Marshalliana*, *Angraecum Sanderianum*, *Oncidium Marshallianum*, and *Cattleya Lawrenceana*, all of which were good well-grown specimens.

Cattleya Mossiae, a good full-coloured form, was sent by Mr. Gordon, Twickenham; and Mr. Cowley, gar. to F. G. Tautz, Esq., Studley House, Shepherd's Bush, had a pure white form of the same species called *Studleyana*, the lip was tinted with crimson; he also had a good plant of *Cattleya Wagneri*, another white species.

Cattleya Mendelii alba, pure white, with a pale tint of yellow at the base of the throat, was shown by Mr. Kidd, gr. to R. E. White, Esq., Ardaroeh, and he also had a form of *C. Mossiae* named *superba*, which was well coloured. Mr. Ballantyne, gr. to Baron Schroder, The Dell, Egham, sent a spike of *Aërides Fieldingi alba*, pure white throughout, and very beautiful.

A very interesting plant was shown by Messrs. J. Veitch & Sons, Chelsea, S.W.; it was a hybrid *Epidendrum*, between *E. radicans* and *E. evectum*, and which had been named in compliment to Mr. J. O'Brien; the flowers were borne on a stem about 3 feet in length, and were intermediate in size between the parents, the colour rosy-purple, lip fringed as in *evectum*, and the yellow crest being taken from the other parent. There were eight expanded flowers and several buds. They also showed *Dendrobium porphyrogastrum* (Huttoni × *Dalhouseianum*), pale pink with a darker lip; also *Angulosa intermedia* (Clowesii × *Ruckeri*), which was pale red-cream outside, spotted over the interior surface with "crushed strawberry," thereby partaking of the colours of both parents.

From the Royal Gardens, Kew, there was sent a very interesting collection of plants, including some good Orchids; *Disa racemosa*, recently illustrated by us (see p. 593), which is to many people more pleasing than *D. grandiflora*, on account of its soft rosy-purple hue; *Diacrium bicornutum*, a plant with terete pseudobulbs 9 inches long, flowers white, with

faint purple spots on the labellum; *Masdevallia triaristella*, with flowers about two-thirds of an inch in length of the body, and about a quarter of an inch wide, red-brown internally, exterior, and tails yellow—a quaint looking plant, attaining a height of about 3–4 inches. Another noteworthy plant was *Ilaberlea rhodopensis*, a Gesneraceous plant, half-hardy, bearing three to five flowers in a peduncle of about 5 inches, the lobes of the corolla are white, throat yellow, tube lilac exteriorly, leaves radicle; it has been growing on the rockery at Kew; *Onosma tauricum*, a yellow Boragewort; *Phaius Manni*, segments brown, the central lobe of the lip long and white, with a red-brown throat; the old *Exacum macranthum*, which is highly decorative, and of such a bright blue; also *Lotus peliorhynchus*, a native of Teneriffe, shown as a basket plant, for which purpose it is eminently adapted with its long racemes of red Pea-like flowers.

Messrs. Kelway & Sons, Langport, contributed a goodly collection of Tree Peonies (cut blooms), mostly their own raising, in all nine boxes, which formed one of the attractive sights of the display, and a Silver Banksian Medal was awarded. The following were conspicuous varieties:—*P. montan* simplex, single, white with crimson base and centre, stamens bright yellow (very pretty); *Osiris*, double, very distinct, rich deep crimson-red almost black; *Triomphe de Vandreussen*, large and double, pale rose; *Caroline*, double, pale flesh, fading to white; *Loudonia*, pale pinkish-purple, and good in form; *Reine Elizabeth*, bright pink; and *Mrs. Lowe*, of a similar character, but darker in tint; *tenuifolia* fl.-pl., bright crimson, was the best herbaceous form. This firm also sent *Abutilon vitifolia*, with a pure white flower, and the corolla opened flat so that it reminded one of *Anemone japonica*. Certificated as a good half-hardy plant.

Messrs. H. Cannell & Sons, Swanley, Kent, sent a collection of forty varieties of *Calceolarias*, exhibiting evidence of fine culture and displaying great range in colour; the individual flowers were large and freely produced. (Silver Banksian.)

Mr. Gordon, Twickenham, received a similar award for a collection of ornamental foliage Maples arranged with Tree Peonies, which made a very pretty group. These Maples are exceedingly pretty, and good effects are to be obtained by employing the hardiest of them in shrubberies. One of the Peonies, Prince Albert, was certificated. It was a double rich rosy-crimson flower.

A Bronze Banksian Medal was given to Mr. J. Forbes, Buccleuch Nurseries, Hawick, N.B., for a good and varied collection of about a hundred varieties of fancy Pansies and Violas, which were exhibited on shoots of the plant; not merely the cut flowers lying flat on a board, which destroys all gracefulness. There were many excellent flowers, of which we are only able to enumerate a few of the best:—*Prize-taker*, deep brown blotches, yellow rim, and purple margin; *Bessie Bell*, deep purple, pale straw border; *G. O. Trevelyan*, rich purple-brown self; *Astion* (Viola), rich purplish-blue self; *A. McKinnon*, rich claret self; *Gold Digger*, red-brown self; *Mrs. J. Cockburn*, deep purplish-brown, yellow margin to lower part of the flower; *Arabe*, purple margin, pale claret suffused on white; and *W. Dean*, deep purple-brown, centre bright yellow, with the margin of the upper petals purple-brown.

Messrs. J. Laing & Sons, Forest Hill, staged a capital group of plants, and received a Silver-gilt Banksian Medal. *Caladiums* were a leading feature in this exhibit, and numerous varieties were shown, a Certificate being awarded to Comte de Germiny, red leaf, lighter spots and darker nerves. There was the new hybrid Rose, *Madame G. Brunt*, illustrated in our columns for February II, p. 169, which is very sweetly scented. *Gloxinia virginalis*, with white erect flowers. *Begonia Baroness Rothschild*, pale flesh, almost white, with a crimson margin; *B. Princess Mand*, double white, full, and having no guards; also *Geonomas*, *Adiantums*, *Civeas*, &c.

G. F. Wilson, Esq., F.R.S., Weybridge, showed *Pinguicula caudata* in flower, and also *Primula Redii*, *P. glabra*, *P. obtusifolia*, *Lilium Thomsonianum*, and *Roses*. A Rose (T), *Sappho*, was shown from Messrs. W. Paul & Son, Waltham Cross; it has been previously referred to.

Messrs. Paul & Son, Cheshunt, Hert., contributed a group of hardy plants of great interest. *Arnebia echioides* was represented by a good plant; also, *Gemm miniatum*, *Leontopodium sabacum*, *Eritrichium nanum*, about 1 inch high, with a flower like that of the Forget-me-Not—a very pretty little thing; also *Polemonium himalaicum*, *Phlox*

Douglasii, *Cortusa matthiola grandiflora*, and many others of equal interest.

A few Carnations were shown by Mr. Hall, Cambridge, and Mr. Driffeld, gr. to H. K. Mayor, Esq., Winchmore Hill, N. II. Scott, Esq., Wimfield, sent a good form of *Odontoglossum Andersonianum*.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, showed *Prostanthera lasianthos*, a beautiful shrub for the warm greenhouse. A plant struck from a cutting about two years ago is now 5 feet high, and laden with delicate lilac flowers. It is one of those old things which deserve to be brought forward again. *Alsine verna*, fl.-pl., a double white form, was shown by Messrs. Froebel & Co., Zurich, Germany.

FIRST-CLASS CERTIFICATES.

To *Caladium Comte de Germiny*, from Messrs. J. Laing & Son.

To *Begonia Baron Rothschild*, from Messrs. J. Laing & Son.

To *Begonia Princess Mand*, from Messrs. J. Laing & Son.

To *Ilaberlea rhodopensis*, from Royal Gardens, Kew.

To *Rose (Tea) Sappho*, from Messrs. W. Paul & Sons.

To *Pæony (tree) Prince Albert*, from Mr. W. Gordon.

To *Arnebia echioides*, from Messrs. Paul & Sons.

To *Angulosa intermedia*, from Messrs. Veitch & Son.

To *Epidendrum James O'Brien*, from Messrs. Veitch & Son.

To *Prostanthera lasianthos*, from Mr. F. Ross.

To *Cypripedium bellatulum*, from Messrs. Hugh Low & Co.

To *Alsine verna plenissima*, from Messrs. Froebel & Co., Zurich.

To *Disa racemosa*, from Royal Gardens, Kew.

To *Aërides Fieldingii alba*, from Baron Schroder.

To *Abutilon vitifolium*, from Messrs. Kelway & Sons.

Fruit Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. J. Lee, W. Marshall, G. T. Miles, J. Burnett, A. H. Pearson, P. Crowley, J. Cheal, and T. B. Haywood.

Mr. D. Campbell, Priory Gardens, Roehampton, had a fine lot of *Asparagus*, and also a brace of *Tender and True Cucumber*, both in excellent condition and well grown. Mr. A. Ward, Stoke Edith Park Gardens, sent seedling *Broccoli* of average merit; *Tomatos*, *Blackwood Park*, were splendid from Mr. J. Bowerman, gr. to C. Hoare, Esq., *Blackwood Park*, Basingstoke, the fruits being large, fine, and well coloured. H. Merryweather, Esq., Southwell, sent *Apple Banbury Seedling*, which had been well kept.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL.

MAY 18 TO 25.—The Council and Mr. Findlay must be congratulated upon a charming exhibition; and especially upon the display made in the spacious covered avenue, formerly known as the Annexe. In the place of the framework covered with canvas there is a noble glass-roofed corridor, with a hall beyond; and in the former, on the sloping banks at either side and circular groups in the centre, can be staged everything for which room cannot be found in the new plant-house. In the hall, fruit, cut flowers, alpine plants, &c., found a place; and the corridor and hall supplies convenience for exhibitions at any season of the year, the like of which cannot be found elsewhere in the country. In the fine plant-house the visitor missed the huge foliage plants shown by Messrs. Schloss, Rylands, and others; and the splendid *Dracenas* and *Crotons* usually sent by Messrs. R. P. Ker & Sons, Liverpool, were wanting. Still there was an imposing display, grouped, as usual, with excellent taste and judgment by Mr. Findlay. Herbaceous and bulbous plants were very fine; but alpine fell considerably below their usual fine quality, and not a few appeared as if they had been pushed on into flower under glass. Fruit was good for the season; Pine-apples were a leading feature.

The weather was gloriously fine—a Whitsuntide summer—and the visitors were able to enjoy the beauty of the renovated gardens now to be seen in all the glory of their rejuvenescent spring tints. There was no lack of company upon the two open-

ing days. The Manchester public certainly appear to visit and appreciate their flower shows when the weather is at all favourable. The judges' luncheon was specially attractive, owing to its being also in celebration of the coming of age of the Society; and there was a large company under the presidency of the popular chairman of the committee, Mr. Joseph Broome, Mr. Samuel Barlow being his *vis-a-vis*. This took place in the new dining-hall. The after-dinner speaking was heard under the disadvantage of the acoustic properties of the building.

ORCHIDS.

Amateurs.—In the class for the best collection of Orchids, Ferns, Palms, and other decorative plants mixed together and arranged for effect, there were three competitors; the positions, however, in which the plants were to be staged were very dissimilar, one occupying by far the best position at the end of the large exhibition house, another a much narrower space, with two or three iron columns in some degree spoiling the effect; the third competitor having simply a portion of a table in the middle of the house. The successful competitor was A. Heine, Esq., Fallowfield (J. Craggs, gr.), whose group was capitally arranged, the centre being an immense *Dendrobium fimbriatum oculatum* full of flower-spikes, many in bloom and others yet to open. Almost immediately in front of this was a fine basket of *Dendrobium devonianum*, with over twenty pseudobulbs full of flower. These were slightly raised and bent over the basket on all sides, making a very pretty effect. The whole of the space was covered with Palms, Ferns, &c., of medium size, numerous *Cattleya Mossiae* and *C. Mendelii*, *Oncidium*, with their long arching sprays of flowers; *Odontoglossums* in many species and varieties, two very noticeable plants being *O. citrosum* at the extreme ends so upraised that the pendulous spikes were just above the green ground of the group. Several large masses of *Dendrobium Wardianum* were used at the back. These were full of flower, but lacked colour. The 2nd prize fell to T. Slatter, Esq., Stand, near Manchester. The group was much more closely set up, less green being used, making the Orchids appear a little cramped. Good plants of *Crotons* were worked in amongst the showy *Cattleyas* and *Lælis*; some good *Dendrobiums*, notably fine forms of *thyrsoform* and *Devonianum*, a very choice lot of hybrid *Odontogloss*, also a distinct pale form of *Cattleya Lawrenceana*, several good baskets of *Odontoglossum Rossi major* and *membranaceum*, and capital blocks of *Sophranites grandiflora*, with a dozen flowers on them were nicely hung about overhead. The Duke of Sutherland, Trentham (Mr. P. Blair, gr.), was 3rd. Some choice things were in this group, notably the *Masdevallias*. These plants were small, but the varying shades of purple and crimson, lilac and scarlet, were much commented on. Many good forms of *Odontoglossums*, *Dendrobium Ainsworthii*, and *D. A. roseum* were also observed.

In the class for twelve Orchids Mr. Heine was again 1st; in fact, in the other classes for six, ten *bona fide* specimens, ten *Cattleyas*, and three *Vandas*, the same exhibitor carried off 1st prizes, showing uniformly good specimen plants, healthy and full of flower.

In the class for twelve, Mr. Heine's group contained *Lælia purpurata Aurora*, a lovely pale form, with thirteen spikes; *Dendrobium densiflorum*, with fifty spikes; *Vanda teres*, with twenty-five spikes; *Cattleya Mossiae*, with fifty flowers; *D. chrysotoxum*, with twenty spikes; *Vanda suavis*, with three spikes; *Calanthe veratrifolia*, with sixteen spikes; *Cattleya Skinneri* had twenty-five trusses of fine flowers; *D. thyrsoform*, twenty spikes; and *Lælia purpurata alba*, a grand broad-flowered form, had eleven spikes, &c. Mr. R. Elphinstone, Stretford, was 2nd, with fine plants of *Dendrobium Devonianum*; *D. Wardianum*, twenty-five flowering bulbs; *Cattleya Mendelii*, *Cypripedium villosum*, with twenty flowers; *C. Hookeri*, with twelve flowers; *Lælia purpurata*, twenty spikes; *Odontoglossum facetum*, with six spikes; *C. citrina*, an immense plant on a block, carried quite twenty blooms; *Cattleya Skinneri* had twenty-four spikes, and there was a fine piece of *C. Warneri*, besides others.

In the class for six, Mr. Heine had no competitor; his plants were of large size, notably *Dendrobium densiflorum*, with fifty spikes; *Cattleya Mossiae*, with the same number of flowers; *C. Mendelii*, with forty blooms; another large *C. Mossiae*, and a fine *Lælia purpurata*; *Calanthe veratrifolia*, with twelve spikes of its pure white flowers. The ten *Cattleyas* with which the same gentleman secured 1st were *C. Mossiae*, forty flowers; two

other *C. Mossiae*, almost as large; three *C. Mendelii*, of different forms; *C. Skinneri*, with fifteen spikes; *C. Skinneri alba*, with nine flowers; *C. Schroderi*, with four blooms; and one other.

With three *Vandas* (all varieties of *suavis*), among them being the *Gottschalkii* variety, Mr. Heine was the 1st and only exhibitor.

In the class for ten *bona fide* specimens one other group was staged. Mr. Heine was far ahead, having *Oncidium Marshallianum*, two fine spikes; *Cattleya Mendelii*, forty flowers; a dark form of *Laela purpurata*, with five spikes; *Anguloa Clowesii*, with sixteen flowers; *Calanthe veratrifolia*, twelve spikes; *Vanda tricolor cinnamomea*, *Laela purpurata alba*, *C. Mossiae*, with fifty flowers; and *Dendrobium thyrsiflorum*, with twenty spikes. Mrs. Hodgkinson, Bowdon (D. Boardman, gr.), was 2nd, having a fine *Oncidium sphacellatum*, good; *Cattleya Mossiae*, *Laela purpurata*, *Lycaste Skinneri*, and *Dendrobium Falconeri*.

Nurserymen.—In these classes Mr. H. James, West Norwood, staged the only group of Ferns, Palms, and Orchids, and was awarded 2nd prize. His plants were small, and included *Cattleyas*, *Epidendrum vitellinum majus*, *Laelias*, *Odontoglossum crispum* and *Miltonia vexillaria*; also a *Saccolabium premorsum*, it being almost the only specimen of this species in the exhibition. Mr. James was 1st with ten Orchids, staging good plants of *Cymbidium Lowi*, a very fine variety, carrying four long spikes; *Dendrobium nobile*, finely bloomed; *Oncidium macranthum*, *Laela purpurata*, *Masdevallia ignea* and *M. Veitchii*; also *Cattleya Mossiae*, *C. Mendelii Lawrenceana*, and *Oncidium Marshallianum*. In the group of Mr. J. Cypher of Cheltenham, who was 2nd, was a large *Cattleya intermedia*, full of flower; *Calanthe veratrifolia*, *Cattleya Mossiae*, *Miltonia vexillaria*, *Dendrobium densiflorum*, *D. thyrsiflorum*, *Odontoglossum crispum*, full of spikes; &c.

Mr. B. S. Williams, Victoria Nurseries, Holloway, showed a very large assortment of *Amaryllis*, Ferns, Orchids, and *Sarracenias*. Among the Orchids we noticed *Oncidium coucolor*, *O. sarcodes*, with many fine spikes; *Cypripedium Selligerum*, *C. vernixium*, *C. Swianianum*, *C. callosum superciliale*, *C. Argus*, *C. candidum* and *C. roseum*, *Cymbidium Lowi*, *Odontoglossum polyanthum*, *O. citrosomum* in quantity, and *Calanthe Dominiana*.

Messrs. F. Sander & Co., St. Albans, exhibited several very distinct hybrid forms of *Odontoglossum*, and some fine cut blooms of *Cattleyas* and *Laelias*. The *Odontoglossums* included *Whillansianum*, *gemmatum*, *crispum guttatum splendens*, *c. album marginatum*, and *c. maculatum*; a very large form of *Cypripedium ciliolare* named *St. Albans var.*, was also among them. Mr. J. Charlesworth, Heaton, near Bradford, had a very nice group, which included *Odontoglossum Harryana* in two distinct forms; some grand hybrids of *O. crispum*, also *Cattleyas*, *Masdevallias*, *Oncidium macranthum*, *Angraecum Leonis*, *Cypripedium Godefroyi*, *C. niveum*, and *C. Warneri*.

The Liverpool Horticultural Company (J. Cowan) showed a very extensive collection of Orchids, Ferns, and Palms; and of good things amongst them were—*Dendrobium Bensoniae* full of flower; *D. lituiflorum*, *D. Devonianum*, *D. Jamesianum*, the rare *D. Veitchianum*, *Odontoglossum crispum*, *O. Cervantesii*, *O. Hallii*, and many fine pieces of *Chysis bracteosa*.

Mr. W. Owen, Hartford Nursery, Northwich, showed numerous cut blooms of *Cattleya Mossiae* in variety, *C. Mendelii*, *Odontoglossum crispum*, *Lycaste Skinneri*, &c. These were shown in specimen glasses with small Ferns placed between them, and were very effective.

STOVE AND GREENHOUSE PLANTS: FINE-FOLIAGE PLANTS, FERNS.

Amateurs.—These plants were not so fully shown as has been the case in years gone by. The Messrs. Cole & Son, Nicholls, Stevenson, and Schloss, have passed away, and their places have not been filled. The classes these famous exhibitors used to fill were not, in some cases, contested at all. S. Baerlein, Esq., Didsbury, (Mr. G. Williams, gr.), takes 1st for ten fine-foliage plants, in which we observed a large and well grown *Dion edule*, *Cordylina indivisa*, *Kentia*, *Encephalartos*, &c. The same exhibitor was 1st for eight stove or greenhouse Ferns, showing *Cibotium regale*, *Dicksonia antarctica*, *Davallia polyantha*, *Goniophlebium Reinwardti*, *Cyathea Burkei*, &c. Mr. A. Birley, Pendleton, was 2nd.

The class for Azaleas was very poorly represented, no good plant appearing in the three collections. S. Baerlein, Esq., was awarded 2nd, the 1st prize being withheld. With six *Ericas* the same exhibitor

was 1st with nice plants of *E. Spenceriana*, *E. ventricosa coccinea minor*, *E. affinis*, *E. tricolor*, &c. S. Baerlein, Esq., was 1st with four *Yuccas*, four *Palms*, and six *Dracenas*. In the latter class he had *D. Lindenii recurvata*, *D. Leopoldi*, *D. Goldiana*, *D. Rossi* and *D. Cooperii*; Colonel Wingfield Shrewsbury was 2nd.

S. Baerlein, Esq., was again 1st for a group of miscellaneous plants in or out of bloom, arranged for effect and occupying a space not exceeding 150 square feet. This was an excellent arrangement, the bright-coloured plants standing out well above the green below, which had a somewhat undulated surface. *Rhodanthes*, *Hydrangeas*, *Gladiolus*, &c., were freely employed below and among the lower plants. These groups, of which there were several, formed a capital feature in the long corridor adjoining the "exhibition house."

The hardy Ferns were in good condition, the 1st prize falling to A. Birley, Esq., who staged nice plants of *Lastrea filix mas*, *Bolanderia*, *Athyrium femina grandiceps*, *A. f.-f. Fieldiae*, *A. f.-f. Craigii*, *A. f.-f. plumosum*, *A. f.-f. Iodeoides*; *Polystichum angulare proliferum*, and *Osmunda regalis purpureum*: Mr. Hodgkinson was 2nd, with nicely-grown plants, and had in his group *Oncoclea sensibilis*, *Osmunda gracilis*, and several good *Athyriums*.

Gloxias were much better than usual, Mr. R. Elphinstone winning with plants full of bloom; Mrs. Sargent Sale, was 2nd.

Nurserymen.—In these classes Mr. J. Cypher was 1st for ten stove and greenhouse plants in flower, Mr. H. James coming 2nd. In the former group were plants in Mr. Cypher's usual good style of culture—large specimens full of bloom, prominent among them being an immense *Pimela*, with a diameter of 6 feet, full of flower; *Aphelaxis macrantha purpurea*, *Darwinia tulipifera*, *Anthurium Scherzerianum* Wardi, with eighteen spathes of immense size; *S. Cypheri*, a very good form; *Erica ventricosa magnifica*, grandly bloomed; a large *E. Cavendishii*, two good *Azaleas*, and others. Mr. James had good plants somewhat smaller, among them being a capital *Ixora*. Mr. Cypher was again to the fore with eight fine-foliage plants, staging *Cordylina indivisa*, *Cycas circinalis*, *Kentia Forstermanniana*, &c. The same positions were taken by these two exhibitors with six *Ericas*, plants small though well bloomed—*depressa*, *profusa*, *Queen Victoria*, *Aitoniana* major, *Cavendishii*, and *ventricosa* in different forms being present.

Roses.—For a group of thirty *Roses* in any size pot including standards, Messrs. G. Paul & Son, Cheshunt, were 1st—Paul Neron, Celine Forestier, Lord F. Cavendish, Maréchal Niel, Merveille de Lyon, Ulrich Brunner, Marie Baumann, Etienne Levet, White Baroness, were among the most prominent. Mr. W. J. Williams, Stockport, had a capital lot, much less in size, but clean and healthy, with from twelve to twenty flowers on each. Messrs. G. Paul & Son were 1st again for twenty *Roses* in pots not more than 9 inches across. This was a very nice lot, Mons. Furtado, Madame Cusin, Edward André, Dupuy Jamain, Lady Alice, Alba rosea, and Madame Gabriel Luizet, &c., were in excellent form. Mr. W. Williams 2nd.

In the amateurs' division Mr. James Brown, Heaton Mersey, was 1st, with some well grown and bloomed specimens, the leading varieties being Marie van Houtte, Mad. C. Joigneaux, Mad. Hyp. Jamain, Marguerite de Roman, Marie Ducher, François Levet, Madame Lacharme, &c., 2nd, Mr. Thomas Dickens, Higher Broughton.

Pelargoniums.—Messrs. Charles Rylance & Co., nurserymen, Ormskirk, had, as usual, some very fine specimens, the leading varieties being Corsair, Gaiety, Volante nationale alba, extra fine; Kingston Beauty, Edward Perkins, &c., 2nd, Messrs. R. Fleming & Son. The only exhibitors of eight fancy varieties were Messrs. C. Rylance & Son, who had nicely-grown and bloomed specimens of Ellen Buck, King of Fancies, Cloth of Silver, Mrs. A. Wigan, &c.

Pansies in Pots.—Of these there was a remarkable display, some one hundred and seventy pots being staged in the various classes. The practice of making up specimens is permitted; that is to say, a dozen or so of rooted cuttings, each bearing one or more fine flowers, are placed in an 8-inch pot, and when this is well done, a really remarkable display is produced. The trade contributions were particularly remarkable for their effect.

The best twenty specimens of show varieties came from Mr. S. Robinson, nurseryman, Sale, who had George Rudd, Y.S.; Dr. Hardy, D.S.; Lord Derby, Y.G.; Ebor, Y.G.; Lady Derby, Y.G.; Cunliffe

Brooks, Y.G.; Lizzie Bullock, Y.G.; Othello, D.S.; Captain Speirs, W.G.; and Cloth of Gold, Y.S., being the leading varieties. 2nd, Mrs. Eliza Mellor, Rose Cottage, Chorlton, who had Amy, Y.G.; May Queen, W.S.; Mrs. Harvey, Y.G.; Sunny Park Beauty, Y.G.; Bluestone, R.S.; Roebuck, Y.G.; Cloth of Gold, Y.S., &c.

In the class for twenty fancy Pansies, Mrs. Mellor staged a superb lot, the leading varieties being Champion's James Donely, Countess of Strathmore, Walter Houldsworth, Earl of Beaconsfield, Lady Falmouth, John Strachan, George Vaer, and White Lady; 2nd, Mr. S. Robinson, who had capital blooms of Perfection, May Tate, W. A. Dixon, A. McMillan, Walter Shearer, Mrs. James Watt, John Turnbull, &c.

In the class for twenty *Violas* an extra prize was awarded to Mrs. Mellor, who staged nineteen specimens only, one having been purloined the night previously. The leading yellow varieties were Sovereign, yellow; Little Gem, Pilgrimage Park, and Beauty of Sale, white; Archie Grant, Queen of Blues, and Lilac Queen, blue; Countess of Kintore, and Dr. Hornby, of the Magpie type.

In the amateurs' division, the best six show Pansies came from Mr. James Mellor, Didsbury; J. Sergeant, of Sale, being 2nd; and the same exhibitors were 1st and 2nd with the same number of fancy Pansies, in both cases staging fine blooms of the varieties already named. Mr. Thos. Dickens had the best six pots of *Violas*, Mr. W. Hayes, jun., Sale, being 2nd.

Calceolarias and Cinerarias.—A few groups of these were shown, generally creditably, but not of a nature to call for special remark.

Cut Flowers.—These were limited in quantity, but they made up in quality. The stand, twelve Tea-scented *Roses*, to which the 1st prize was awarded, came from J. M. Buckley, Esq., Rock Ferry, probably as fine a dozen as was ever staged in competition. They consisted of Princess of Wales, Alba rosea, Madame de Watteville, Grace Darling, Niphetos, Hon. E. Giffard, Comtesse de Naddillac, Anna Olivier, Souvenir d'un Ami, Marie van Houtte, Madame Welch, and Catherine Mermet. 2nd, W. Ambrose, Esq., Douglas, with a fine dozen Maréchal Niel. In the class for twelve cut *Roses*, other than Tea-scented, Mr. J. Brown, Heaton Mersey, was awarded a 2nd prize. In the nurserymen's class for eighteen Tea-scented *Roses*, Messrs. Paul & Son, Old Nurseries, Cheshunt, were 1st, with some good blooms shown in duplicate, comprising Maréchal Niel, Niphetos. The Bride, Catherine Mermet, Souvenir de Paul Neron, Perle des Jardins, Sunset, and François Kruger. A Cultural Commendation was awarded to Colonel Winesfield, Shrewsbury, for a box of thirty-six blooms of Maréchal Niel of high quality. A stand of fancy Pansies, from Mr. W. H. Frettingham, nurseryman, Beeston, was commended.

Nurserymen—Pitcher Plants.—The best collection of ten, including *Sarracenias*, came from Mr. A. J. A. Bruce, Cheadle, who had good examples of *Nepenthes Mastersii*, *Sarracenia Mitchelliana*, S. Williamsii, S. Flambea, S. Maddisoni, S. purpurea, S. Toliaana, S. Chelsoni, S. Wilsoni, S. Swaniaina, &c.; 2nd, Mr. H. James, nurseryman, West Norwood, with *Nepenthes Rafflesiana*, N. robusta, N. distillatoria, N. Hookeri, *Sarracenia Atkinsoniana*, S. Toliaana, S. purpurea, S. flava maxima, &c.

Hardy Herbaceous and Bulbous Plants.—In the nurserymen's division Messrs. James Dickson & Sons, Upton Nurseries, Chester, contributed two groups of really wonderful merit, and they made an imposing display in the annexe. In the class for an unlimited collection this well-known firm were 1st, with *Liliums* in variety, *Spiraea aruncus*, *Dielytra spectabilis*, *Carnations*, *Irises*, *Tulips* of various showy species, *Narcissus*, herbaceous *Paeonies*, *Primula japonica alba*, P. Sieboldi in variety, &c.; 2nd, Messrs. Stansfield Bros., Southport. Messrs. J. Dickson & Sons were the only exhibitors of sixty plants, having a very fine lot indeed, in which were *Arundo Donax variegata*, *Heliconia*, *Quanso variegata*, *Polemonium Richardsoni*, *Tulipa fulgens variegata*, *Doronicum plantigerum*, *Liliums*, *Funkia Sieboldi*, &c.

In the amateurs' division R. P. Gill, Esq., Sale, was 1st, with thirty plants—a very good lot, including *Spiraea aruncus*, S. palmata alba, *Lilium Harrisii*, P. obconica, *Trollius europeus*, *Leucjum aestivum*, *Spiraea astilboides*, *Carnation* Mrs. R. Hole, *Ajuga genevensis*, &c.

Alpine Plants.—These fell below their usual high quality, having generally a drawn and weedy appearance; while in some of the collections plants in all probability as foreign to the Alps as to the North

Pole were introduced. Messrs. Paul & Son were 1st, with forty plants in or out of flower, having many varieties of Saxifrage, Phlox frondosa, Primula farinosa, Androsace ciliata, Anemone alpina sulphurea, Polygala Chamæbuxus purpurea, &c. 2nd, Messrs. James Dickson & Sons, whose leading subjects were *Cypripedium calceolus*, *C. species*, *Gentiana verna*, *Ramondia pyrenaica*, *Lithospermum prostratum*, &c.

In the amateurs' class for thirty plants R. P. Gill, Esq., Sale, was 1st, with *Saxifraga corydendron*, *Spiraea* species, with marked foliage, like a *Henckera*, and small pink flowers; *Silene pendula compacta*, *Asperula odorata*, &c. 2nd, Mr. Sargeant.

Mr. Gill was the only exhibitor of twelve plants, having good examples of *Sibthorpia europæa*, *Saxifraga granulata*, *S. pyramidalis*, *S. aizoon*, *Antennaria dioica*, &c.

Clematis.—The best six specimens in pots came from Mr. Thos. Dickins, Higher Broughton, who had fairly good specimens of *Maive Queen*, *purpurea elegans*, *Lucie Lemoine*, *Fairy Queen*, *lanuginosa candida*, and *Jackmanni*.

Collection of Japanese Plants.—Messrs. John Waterer & Co., nurserymen, Bagshot were the only exhibitors in this class, and their contribution made two fine groups in the corridor. It included finely-developed specimens of *Acer*s, in great variety, *Thiopsis dolabrata*, *Retinospora plumosa*, *R. plumosa aurea*, *R. obtusa erecta viridis*, *R. obtusa variegata*, &c., *Sciadopitys verticillata*, *Cryptomeria japonica*, *Osmanthus variegatus*, *Juniperus japonica variegata*, *Taxus japonica*, &c.

Hardy evergreen Trees and Shrubs.—Two very large and varied collections of these were staged in the open air. The best came from Messrs. Waterer & Son. Among them were *Hollies* in variety, and coniferous plants of various types, some of the variegated forms being specially attractive. Mr. W. H. Frettingham, Beeston, was 2nd.

Groups of Plants arranged for effect.—These formed a very fine feature, arranged in sloping banks in the corridor. In the nurserymen's division Messrs. R. P. Ker & Son, nurserymen, Liverpool, were 1st with a remarkably arranged group, *Maidenhair* and other ferns forming the groundwork, with brilliantly coloured *Crotons* distributed about it; scarlet *Azaleas*, *Palms*, &c. 2nd, Mr. James Mason, Ashton-on-Mersey—a good group, but lacking the richness of the preceding.

Fruit.—The dishes of fruit were more numerous than usual; and it was, generally speaking, of good quality. In the collection of eight distinct kinds, Sir J. W. Pease, Bart., M.P., Darlington, was 1st and the only exhibitor; he showed good *Black Hamburghs*, and *Early Frontignan Grapes*, Best of All Melon, *Hale's Early* and *Early Beatrice Peaches*, *James Veitch Strawberry*, *Court Pendu Plat Apple*, and a *Pine*.

There were no less than nine stands of *Black Grapes* put up, the 1st prize being taken by W. Brotherton, Esq., Chorley; J. F. Campbell, Uttoxeter, 2nd; and Sir J. W. Pease 3rd. For two bunches of white *Grape* P. Thelluson, Esq., Brodsworth Hall, Doncaster, was 1st, with *Duke of Buccleuch*; W. Brotherton, Esq., 2nd, with *Foster's Seedling*. For two *Pine-apples* Mrs. Byass, Tunbridge Wells, was 1st, Sir J. W. Pease 2nd; for one *Pine-apple* Sir J. W. Pease was 1st.

Twelve pots of *Strawberries* only brought one competitor, the *Duke of Sutherland* (gr. Mr. Blair), who was 1st with Sir Harry. The same exhibitor was 1st with a dish of the same variety of *Strawberry*, fine large fruit, of splendid colour; Mrs. Byass was 2nd. The *Duke of Sutherland* was 1st with a dish of *Cherries*. Sir J. W. Pease was 1st with a green-flesh *Melon*, and also with a dish of *Peaches*; the *Earl of Ellesmere* being 2nd in this latter class. Special prizes were awarded to Sir J. W. Pease for *Melons*, *Cucumbers*, *Citrons*, and *Lemons*; to Colonel Legh, of High Leigh Hall, for *Seakale*; Mr. W. Brotherton, for *Tomato*, *Moor's Gem*; and Mr. R. P. Gill, for *Mushrooms*.

Miscellaneous.—Messrs. Ryder & Son, nurserymen, Sale, staged a large group of seedlings of *Primula Sieboldi*, and *Certificates of Merit* were awarded to the following:—Bruce Findlay, bright purple; alba magnifica, white, charmingly frimbriated; Mrs. Ryder, white, the reverse pale pink; and Leo H. Grindon, rosy-purple. They also staged a good lot of cut *Pelargonium* blooms. *Certificates of Merit* were awarded to Messrs. Paul & Son, for H.P. *Rose Lady Alice*, and to *Iris paradoxa*, a dark flowered species, with a singular-looking maroon coloured lip.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending May 21.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Difference	
				Above 42° from Mean since Jan. 3, 1888.	Below 42° from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	2 above	53	0	— 52	+ 184
1. SCOTLAND, E. ...	3 above	64	0	— 82	+ 139
2. ENGLAND, N.E. ...	3 above	75	0	— 83	+ 73
3. ENGLAND, E. ...	3 above	90	0	— 126	+ 153
4. MIDLAND COS. ...	2 above	81	0	— 166	+ 147
5. ENGLAND, S. ...	2 above	86	0	— 218	+ 204
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 above	63	0	— 116	+ 107
7. ENGLAND, N.W. ...	2 above	82	0	— 145	+ 117
8. ENGLAND, S.W. ...	1 below	70	0	— 237	+ 254
9. IRELAND, N. ...	0 (aver.)	64	0	— 147	+ 68
10. IRELAND, S. ...	0 (aver.)	70	0	— 186	+ 113
— CHANNEL ISLANDS	1 below	77	0	— 211	+ 154

DISTRICTS.	RAINFALL.		BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.
Principal Wheat-producing Districts.	Tenths of Inch.		Inch.	
0. SCOTLAND, N. ...	2 more	100	15.7	30
1. SCOTLAND, E. ...	2 more	84	10.0	36
2. ENGLAND, N.E. ...	2 less	73	8.0	31
3. ENGLAND, E. ...	1 more	73	7.4	45
4. MIDLAND COS. ...	1 less	65	6.9	8
5. ENGLAND, S. ...	5 more	67	8.5	38
Principal Grazing, &c., Districts.				
6. SCOTLAND, W. ...	6 more	71	14.4	25
7. ENGLAND, N.W. ...	2 less	74	7.4	32
8. ENGLAND, S.W. ...	2 more	73	10.4	37
9. IRELAND, N. ...	2 more	77	10.7	30
10. IRELAND, S. ...	4 more	68	11.9	34
— CHANNEL ISLANDS	2 more	88	10.2	14

THE PAST WEEK.

The following summary record of the weather for the week ending May 21, is furnished from the Meteorological Office:—

"The weather has been cloudy and somewhat unsettled in most of the west and north-west parts of the kingdom, but generally fair elsewhere. Thunderstorms were experienced, however, in different parts of the country on the 18th or 19th, those in Scotland being very severe.

"The temperature has continued a little below the mean in 'England, S.W.' and the 'Channel Islands,' but has about equalled the normal for the season in Ireland, while in Scotland and all the other English districts it has been 2° or 3° above. It was very high over Great Britain on the 19th, when maxima of 77° or 78° were recorded in Scotland, and between 77° and 80° in most parts of England. In Ireland, the south-west of England, and the 'Channel

Islands' the maxima for the week were lower, ranging from 67° to 73°. The lowest of the minima were generally registered on the 15th, when the thermometer fell to 31° in England, S.W., to 32° in 'England, E.' and the 'Midland Counties,' and to between 33° and 37° in most other districts. In Ireland and the 'Channel Islands' the lowest reading was 39°.

"The rainfall has been rather less than the mean in 'England, N.E.,' the 'Midland Counties,' and 'England, N.W.,' but more in all other districts.

"Bright sunshine shows a considerable decrease on that recorded last week, the percentage of the possible amount of duration, ranging from 25 in 'Scotland, W.,' to 45 in 'England, E.,' and 48 in the 'Channel Islands.'"

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JUNE 2. (AVERAGE OF FORTY-FOUR YEARS.)

May 27	56°.9	May 31	58°.1
" 28	57°.2	June 1	58°.4
" 29	57°.5	" 2	58°.6
" 30	57°.9	Mean for the week ...	57°.8

Obituary.

FRANCIS RAUCH.—We regret to announce the death, on the 13th inst., of Mr. Rauch, Superintendent of the Imperial Gardens, Laxenburg, Austria. The late Mr. London received assistance from Mr. Rauch and his brother in the production of *The Arboretum et Fruticetum Britannicum*, as well as with other works of a like nature.

ENQUIRIES.

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

SUPPORTING THE BRANCHES OF LARGE CEDARS OF LEBANON.—I should be glad to have the opinion of gardeners through the *Gardeners' Chronicle* respecting the chaining up of large limbs of Cedars of Lebanon. Having frequently noticed that the branch snaps off just beyond the iron collar at the end of the chain, it has occurred to me that the branches should have more spring, for I find they will come down a great many feet without breaking if allowed more play. Doubtless there is something to be said in allowing the chain to hang loosely, but it is a question with me if it would not be better to let the branches alone, as it is a nice calculation how far the branch will come with its weight of snow without breaking. There are here some very fine old trees very much valued by the owner, and, indeed, they are looked upon as landmarks for miles round. These trees have been much chained up in recent years, but the snow in recent winters has much disfigured one of them. According to my experience, it is only the dead weight of snow that breaks Cedars, no winds injure these giants with their roots far down into the chalk. W. Waterman, Charleywood Cedars, Rickmansworth.

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPLES: *Westmoon* and *B. Caswell*. It is now too late in the season to name these fruits with certainty.

CINERARIAS: *Canon D. P.* We are sorry not to be able to throw any light on the matter. The disease does not look fungoid, nor could we find any insect. The appearances are more those of mechanical injury.

C. VUYLSTEKE: See number for April 28.

DAFFODIL LEAVES: C. W. D. We do not think the injury is due to fungus, but probably to something wrong at the root.

FUNGUS ON SAVIN: E. M. Podisoma sabinae, which also attacks the Hawthorn, when it assumes a totally different appearance, and has been named Roestelia.

GARDENERS' ORPHAN FUND: H. J. C. The date has been fixed, but at a much earlier date than that you proposed.

NAMES OF PLANTS: F. Russell. 1, Ranunculus amplexifolius; 2, Mesembryanthemum Cooperi; 3, Aubrietia græca; 4, Spirea sp.: send better specimen; 5, Daphne cneorum.—Constant Reader. 1, Doronicum austriacum; 2, Berberis stenophylla; 3, Kerria japonica; 4, Ceanothus rigidus.—L. H. 1, Mackaya bella; 2, Davallia tenuifolia; 3, Dielytra eximia; 4, next week; 5, Selaginella umbrosa.—P. O. M. 1, Berberis stenophylla; 2, the white variety of Lamium purpureum; 3, Stachys lanata; 4, Armeria maritima; 5, Saxifraga umbrosa; 6, Matricaria inodora; 7, Saxifraga hypnoides; 8, Saxifraga hypnoides var.; 9, Iberis coriifolia.—J. W. Adonis autumnalis (Pheasant's-eye), cornfield weed.—J. B. 1, Corydalis flava; 2, next week.—W. W. Claytonia perfoliata, a garden escape.—L. H. Erica moschata; H. C. 1, Lastrealepis; 2, Selaginella Wildenowii; 3, Adiantum affine; 4, A. hispidulum; 5, A. venustum; 6, Claytonia perfoliata.—C. J. Rowe. Odontoglossum Andersonianum.—W. G. Odontoglossum pulchellum majus.—F. 1, Mesembryanthemum, next week; 2, Fuchsia, next week; 3, Onion plant, Ornithogalum longe-bracteatum.—C. E. F. Asplenium Hemionitis.

ODONTOGLOSSUMS: A. M. Fair forms of each.

ORCHID LEAVES: J. G. W. The leaves have been infested by thrips, although none of the insects were found on them.

PEACH LEAVES DISFIGURED: W. S. Arises from faults of management. The foliage is thin, and very tender, and the holes burnt in it are caused by the sun shining on them while wet.

PICEA ALANENSIS: J. J. F. Many thanks. You can adopt which nomenclature you prefer. English nurserymen now stand alone in calling Spruces Abies, and vice versa. All modern botanical books and especially the standard Genera Plantarum of Bentham and Hooker, call Silver Firs Abies and Spruces Abies. The plant was figured and described in Gardeners' Chronicle, January 24, 1880, and under whatever name grown is one of the hardiest and most ornamental species.

SHEDDING OF THE FRUITS OF NEGRO LARGO FIG: F. L. This may be due to faults of management, such as endeavouring to ripen the largest Figs formed last autumn instead of rubbing them off; dryness at the root, overcrowding of the shoots; but as you give no details of the methods of cultivation pursued, we are unable to tell you, with any certainty, the cause of the mischief.

SHRUBS: A. Rides. Ilex diphyrena. Send the Rhododendron hybrids to some nurseryman who grows these plants extensively.

TWIN CUCUMBER: D. T. Not uncommon; is often sent here.

WEED DESTROYER: D. & S. Your letter is, unintentionally no doubt, insulting. The editorial and advertising departments are quite distinct, and publication in the one does not in any way pledge us, still less our correspondents, to say anything about the matter in the other. Send a sample to the Royal Horticultural Society's garden at Chiswick, and an impartial trial will be given, on which we might be disposed to report in due time.

WINE FROM RHUBARB: T. B. B. It may be made from the juice alone, putting 3 lb. of sugar to the gallon. Let the "must" ferment at first in an open vessel covered with a cloth, which it will do at a temperature of 55°–60° in a short time. The yeast may then be taken off, and the liquid put into a cask, allowing the fermentation to go on, filling up with some that has been reserved. If a still wine be required, let the fermentation work itself off entirely. The wine should not be used for two or three years, and care must be taken to fill up the cask with some of the wine which has been kept in bottles, once a month at least. It will be like dry sherry, and without any perceptible flavour of Rhubarb. The same kind of juice

may be made into a champagne, by bottling off the wine before fermentation has quite ceased. A weaker wine may be made by cutting up the stalks of Rhubarb, smashing the pieces with a pestle, to every 5 lb. weight of stalk adding 1 gallon of cold water, and sugar at the same rate as above given. The methods afterwards pursued are identical with those already given, and as a summer drink this weaker wine can be recommended in preference to that made from the juice alone.

COMMUNICATIONS RECEIVED.—D. M.—C. Naudin.—W. R.—G. F. W.—M. D.—J. Wood (many thanks).—J. Rashleigh (many thanks).—W. Fawcett, Jamaica.—C. V.—Wendland, Hanover.—W. B.—D. & S.—A. H. S.—E. H. K.—J. H. Goodacre (next week).—S. F. L.—R. B. W.—G. F. W.—G. S.—R.—E.—F. N.—F. R.—E. H. C.—W. B.—D. T. F.—J. R.—J. D.—H. M.—D. B.—W. S.—J. B. T.—A. D.—J. C.—J. R.—H. T.—G. Swales.—A. D. W.—W. E.—J. W. O.—G. M.—J. S.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, May 24.

Prices remain much the same, with the exception of Strawberries, which, owing to the improvement in the weather, have reached us in large quantities during the holidays, and have met with a bad market. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, 4-sieve	3	0-6	Peaches, dozen	12	0-21 0
Grapes, per lb.	3	0-5	Pears, per dozen	3	0-8 0
Keat Cobs, 100 lb.	40	0-45 0	Pine-apples, bag, 1b.	1	0-2 0
Lemons, per case	12	0-31 0	—St. Michael each	2	0-5 0
Melons, each	2	0-6 0	Strawberries, lb.	1	6-3 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, p. doz.	6	0-18 0	Mushrooms, punnet	1	0-1 6
Asparagus, Fr., bundle	1	0-5 0	Mustard and Cress,		
— English, 100	12	0-0	— punnet	0	4-0
Beans, Kidney, lb.	2	6-0	Onions, per bushel	9	0-0
Beet, red, per dozen	1	0-2 0	Parsley, per bunch	0	6-0
Carrots, per bunch	0	6-0	Potatoes, per cwt.	4	0-5 0
Cauliflowers, each	0	3-0	— kidney, per cwt.	4	0-5 0
Celery, per bundle	1	6-2 6	Rhubarb, per bundle	0	4-0
Cucumbers, each	0	9-1 0	Shallots, punnet	2	0-2 6
Endive, per dozen	2	0-0	Shallots, per lb.	0	6-0
Green Mint, bunch	1	6-0	Spinach, per bushel	4	0-0
Herbs, per bunch	0	4-0	Sprue, per bundle	1	0-0
Leeks, per bunch	0	6-0	Tomatoes, per lb.	4	0-0
Lettuce, per dozen	1	6-0	Tarois, per bunch	0	6-0

POTATOS.—All old Potatoes lower by 10s. to 20s. per ton. New stuff very plentiful. Kidneys, 15s.; Rounds, 9s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6	0-18 0	Ferns, in var., doz.	4	0-18 0
Azaleas, per dozen	18	0-30 0	Ficus elastica, each	1	6-7 0
Bouvardias, per dozen	9	0-12 0	Foliage plants, vari-		
Calceolarias, dozen	6	0-12 0	ous, each	2	0-10 0
Cinerarias, dozen	6	0-12 0	Euclisias, doz.	0	6-12 0
Coleus, dozen	3	0-6 0	Genistas, dozen	4	0-6 0
Cyclamens, per dozen	9	0-18 0	Heliotropes, dozen	6	0-9 0
Cyperus, per dozen	4	0-12 0	Lily of the Valley,		
Deutzias, per dozen	6	0-12 0	12 pots	12	0-18 0
Dracena terminalis,			Marguerites, doz.	9	0-12 0
per dozen	30	0-40 0	Mignonette, 12 pots	6	0-12 0
— viridis, per doz.	12	0-24 0	Musks, dozen	1	6-3 0
Ericas, various, per			Myrtles, per dozen	6	0-12 0
dozen	9	0-18 0	Palms, in variety,		
— ventricosa, doz.	18	0-30 0	each	2	6-21 0
Eucynymus, in var.,			Pelargoniums, doz.	9	0-15 0
per dozen	6	0-18 0	— scarlet, dozen	4	0-9 0
Evergreens, in var.,			Roses, dozen	12	0-24 0
per dozen	6	0-24 0	Spiræas, dozen	6	0-12 0

BEDDING-OUT PLANTS.

By the box, 2s. to 6s.; or by the dozen, 1s. to 2s. Now coming good.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Anemone, 12 bun.	1	0-4 0	Narcissus, various,		
— fulgens, 12 bun.	2	0-4 0	12 bunches	1	6-3 0
Arum Lilies, 12 blms.	2	0-4 0	— double, 12 bun.	4	0-6 0
Azaleas, 12 sprays	0	6-1 0	Pelargoniums, 12 spr.	0	6-1 0
Bouvardias, per bun.	0	6-1 0	— scarlet, 12 spr.	0	6-0 0
Camellias, 12 blms.	1	0-3 0	Polyanthus, 12 bun.	1	6-3 0
Caranations, 12 blms.	1	0-2 0	Primulas, double, 12		
Cowslips, 12 bun.	1	0-2 0	sprays	0	9-1 0
Cyclamens, 12 blms.	4	0-6 0	Roses, Tea, per doz.	0	6-1 6
Deutzia, 12 bunches	4	0-9 0	— coloured, dozen	2	0-4 0
Eucharis, per dozen	3	0-6 0	— red, per dozen	2	0-4 0
Forget-me-nots, 12			— Safrano, dozen	0	9-1 6
bunches	2	0-4 0	Spiræa, 12 bun.	4	0-6 0
Gardenias, 12 blooms	1	6-4 0	Stephanotis, 12 spr.	2	0-9 0
Heliotropes, 12 spr.	0	6-1 0	Tuberose, 12 blms.	0	9-1 0
Lilium longiflorum,			Tulips, 12 bunches	2	0-4 0
12 blooms	3	0-5 0	Violets, Parme, bun.	2	0-4 0
Lily of Val., 12 bun.	4	0-6 0	Wallflowers, 12 bun.	2	0-4 0
Marguerites, 12 bun.	3	0-6 0	White Lilac, French,		
Mignonette, 12 bun.	3	0-6 0	per bunch	4	6-6 0

*. Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: May 23.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., state that the seed market to-day presented quite a holiday appearance, and nothing of interest took place, transactions being very few. Small orders still drop in for Clover and Grass seeds, the sowing season this year being unusually protracted. As regards values there is no appreciable change; stocks on hand remain in moderate compass. Advices from America report the recent advance in Clover seed as fully maintained, and some speculative purchases have been taking place. Rape seed continues in favour, and higher rates are anticipated. Mustard also sells freely. Blue Peas move off on former terms. Hemp and Canary seed dull. Scarlet Runners are still inquired for.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: May 23.—Good supplies of all kinds of greenstuffs; demand fairly brisk. Old Potato trade still stagnant, best sorts only being in request. Quotations:—Asparagus, 1s. 3d. to 1s. 9d. per bundle; Cauliflowers, 4s. 6d. to 6s. 6d. per tally; Cabbages, 4s. to 6s. 6d. do.; Spinach, 1s. to 1s. 6d. per sieve; Greens, 3s. 6d. to 6s. 6d. per dozen bunches; Turnips, 1s. 9d. to 2s. do.; Carrots, 2s. 3d. to 3s. do.; Mint, 1s. 6d. to 2s. do.; Parsley, 1s. to 1s. 6d. do.; spring Onions, 1s. 6d. to 2s. do.; Turnip Radishes, 6d. to 1s. 3d. do.; Mustard and Cress, 2s. per dozen baskets; Rhubarb, 1s. to 2s. per dozen bundles; Horse-radish, 10d. to 1s. per dozen; Endive, 8d. to 1s. do.; Seakale, 1s. to 1s. 6d. per punnet; Beetroot, 8d. to 1s. per dozen; Cabbage Lettuces, 8d. to 1s. do.; English Onions, 6s. to 7s. per cwt.; foreign, do., 4s. to 5s. 6d. per bag of 110 lb.; Carrots, 90s. to 120s. per ton; English Apples, 9s. to 10s. per bushel; American, do., 20s. to 26s. per barrel.

POTATOS.

STRATFORD: May 22.—Quotations:—Old: Scotch Magnums, 65s. to 80s.; do. Regents, 60s. to 80s.; English Magnums, lightland, 50s. to 70s.; fenlands, 35s. to 50s. per ton. New: rounds, 9s. to 11s.; do., kidneys, 10s. to 12s. per cwt.

THE LINNEAN SOCIETY CENTENARY.—The first act of this interesting ceremonial passed off very successfully on Thursday. After a brief but satisfactory financial statement from the Treasurer, and a similar account of the Linnean collections, and of their history, rendered by the Botanical Secretary, the President, Mr. Carruthers, gave an address in which the history of the Society was sketched, and tribute paid to the illustrious dead. Reference was also made to the founder of the Society, Sir James Smith. At the close a vote of thanks to the President was proposed by Sir John Lubbock, and seconded by Dr. Masters.

Professor Fries' address on the labours of Linnaeus was then read, the elegance of the language testifying to the fidelity of the translation. This address was the more interesting as written by the present occupant of Linnaeus' professorship at Upsal. Sir Joseph Hooker then sketched the botanical career of Robert Brown, bringing into prominence the sagacity, accuracy, and precision of the "Prince of Botanists." Professor Flower followed with a tribute to the life and works of Charles Darwin couched in elegant language. Mr. Thistelton Dyer happily portrayed the leading features of the career of Bentham, after which Professor Mivart proposed a vote of thanks to the speakers, and then came the most interesting part of the proceedings—the presentation of the newly instituted Linnean Medals to Professor Owen and to Sir Joseph Hooker, as representatives of zoology and botany respectively. Mr. Carruthers' address to the two recipients was a well-balanced, judicious, and appropriate performance, and the two medallists, who met with a most gratifying reception on the part of the Fellows, expressed their acknowledgments. The venerable Professor Owen still retains his musical voice, but the emotion he evidently felt forbade the expression of more than a few words of gratitude; and the same may be said of Sir Joseph Hooker, whom Mr. Carruthers aptly described as having trod firmly in the footsteps of Robert Brown. A dinner in the evening, and a *conversazione* on Friday, form the complement to this remarkable ceremonial.

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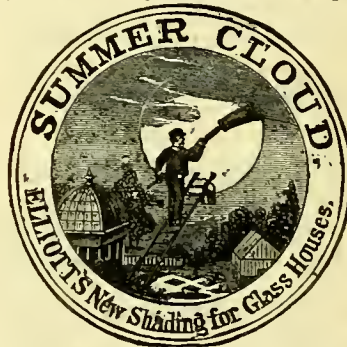
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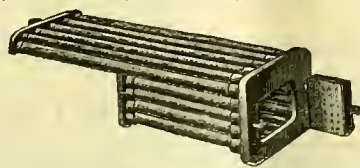
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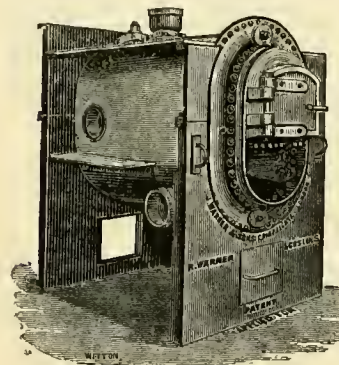
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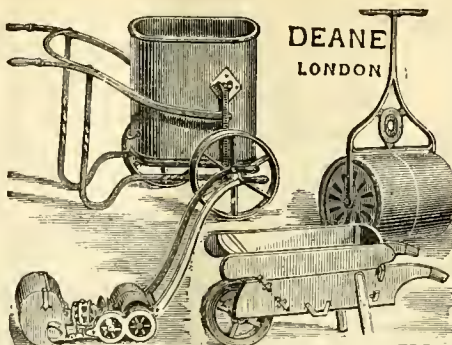
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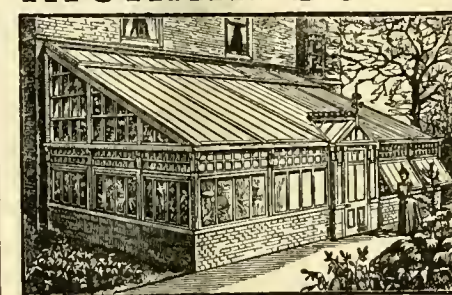
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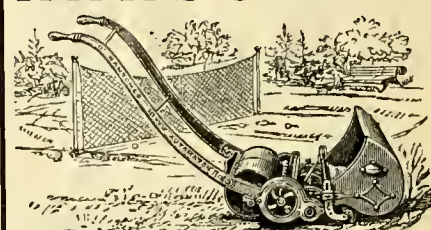
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18x14	20x18	20x18
18x14	22x18	22x18
20x14	24x18	24x18

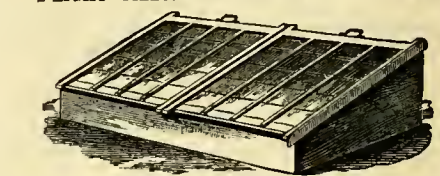
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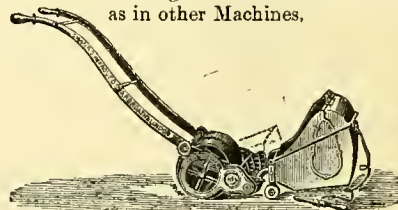
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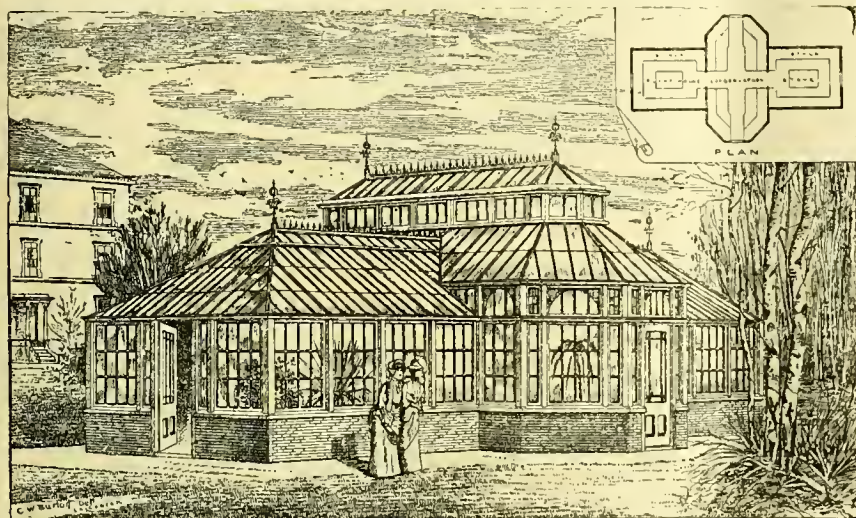


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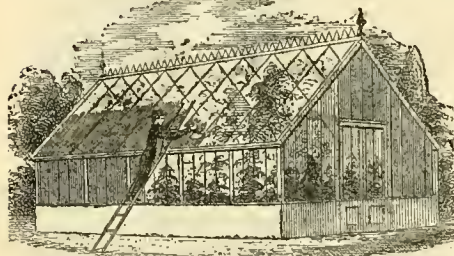
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has been appointed Gardener to H. HARRIS, Esq.,
Steventon Manor, Micheldever, Hants,

Mr. GEO. WYTHES, late Head Gardener to the
Right Hon. Lord HATHERTON, Teddesley Park,
Staffordshire, has been appointed to succeed the
late Mr. WOODBRIDGE at Syon House; and Mr.
F. CLARKE, late Foreman at Teddesley, has suc-
ceeded him at that place.

Mr. THOMAS LUNT, jun., from Messrs.
VEITCH & SONS' nursery, Chelsea, and late
Foreman at Crichel Gardens, Dorset, has been
appointed Gardener to A. STIRLING MAXWELL,
Esq., Keir, Dunblane, Perthshire.

Mr. J. BLADON, late of Strawberry Hill, Ches-
sington, Surrey, has been appointed Head Gar-
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The GARDENERS' CHRONICLE

ESTABLISHED 1841.

No. 2473.

No. 75.—VOL. III. {THIRD
SERIES.}

SATURDAY, JUNE 2, 1888.

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Amateurs.—A Cup or Money will be given, value £5, for 18 varieties (single blossoms).
Nurserymen.—A Cup or Money will be given, value £5, for 16 varieties (three blossoms).
Open.—£2 and £1 for best box or group of Tea and Noisette Roses. Roses must be in the Yard by 9 A.M. June 7.

J. TOWNSEND BOSCAWEN, Steward of H.D.

BEDFORD and BEDFORDSHIRE
HORTICULTURAL SOCIETY.

FIFTH ANNUAL SHOW, at Bedford, JULY 11, 1888.
Special Prizes for Plants, Roses, and Cut Flowers. Open to all England. Entries Close July 3. Schedules and Entry Forms to be obtained of
HENRY TEBBS, Hon. Sec.
Stoneleigh, Bedford.

SHREWSBURY FLORAL FÊTE,
AUGUST 22 and 23, 1888.

For Twenty PLANTS, £25, £20, £15. For GRAPES, £26.
For Collection FRUIT, £10, £5, £3. For VEGETABLES, £50,
including Valuable SPECIAL PRIZES by Messrs. Webb &
Sons, Messrs. Sutton & Co., and Mr. T. Laxton. The
VEITCH MEMORIAL MEDAL and £5 will be awarded for
VEGETABLES at this Show. Full particulars, with Schedules,
post-free on application to the Hon. Secs.,
Messrs. ADNITT and NAUNTON, Shrewsbury.

CARTER'S FLORISTS' FLOWERS. INVINCIBLE.

PRIMULA.—CARTER'S HOLBORN PRIZE,
MIXED. The best in the world. Vide awards. New
Seed, in sealed packets, price 1s. 6d., 2s. 6d., and 3s. 6d. per
packet, post-free.

CINERARIA.—CARTER'S BRILLIANT
PRIZE, MIXED. The best in the world. Vide awards.
In sealed packets, price 1s. 6d., 2s. 6d., and 3s. 6d. per packet,
post-free.

CALCEOLARIA.—CARTER'S VICTORIA
PRIZE, MIXED. The best in the world. Vide awards.
In sealed packets, price 1s. 6d., 2s. 6d., and 3s. 6d. per packet,
post-free.

CARTER'S SEEDSMEN BY ROYAL WARRANTS
to H.M. the Queen and H.R.H. the Prince of Wales.
237 and 238, HIGH HOLBORN, LONDON, W.C.

DUTCH BULBS.—Write for the low-quoted
CATALOGUE, which can be had post-free upon
application to
Mr. P. VAN TIL, Jz., Florist, Hillegom, Haarlem, Holland.

EXTRAORDINARY OFFER.—New
CACTUS DAHLIA, "Henry Patrick." I grow it largely
for cut flowers—pure white. None can equal it. Gained
First-class Certificate, Royal Horticultural Society. Secure it.
Do not lose a season. 12 good plants, 3s.; 100 for 21s., post-free.
6d. each if less than 12 sent.—W. CROSS, Florist, Newark, Notts.

FOR SALE, One splendid TREE FERN,
Cyathea princeps, and two large baskets FERNS,
Particulars of
W. WOODS, Oak Tree House, Woking.

TO DECORATORS AND OTHERS.—
Large PALMS, LANTANAS and KENTIAS, and PAN-
DANUS VEITCHII. Size and price on application to
The GARDENER, Temple, Great Marlow, Bucks.

GEO. CLARKE and CO., are OPEN to
RECEIVE CHOICE CUT FLOWERS in any quantity.
Highest market prices guaranteed. Boxes and Labels sup-
plied. Address
3, Conduit Court, Covent Garden, W.C.

CHOICE FRUIT and FLOWERS.—Highest
Market Prices guaranteed. Empties free.
WISE and RIDES, Covent Garden, W.C.

G. MUNTUN, 2, The Triangle, Bournemouth,
invites communications from Private Growers and
others having Cut Flowers, Choice Fruits, &c., for Disposal.
Highest prices given.

SQUELCH and BARNHAM,
North Row, Covent Garden, W.C., are OPEN TO DIS-
POSE OF any quantity of MUSCATS and BLACK GRAPES,
TOMATOS, CUCUMBERS, FRENCH BEANS, STRAW-
BERRIES, CHOICE FLOWERS, &c. Highest Market Prices
obtained. Account Sales daily; Cheques weekly or as preferred
by Sender. Baskets and Labels supplied. References given.

Surplus Cut Flowers.

HOOPER and CO. (Limited) Receive and
Dispose of any quantity of above at best Market Prices.
Boxes, &c., supplied. Address, Commission Department,
HOOPER and CO. (Limited), Covent Garden, London, W.C.

MESSRS. GREGORY and EVANS,
NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower
Market, Covent Garden, W.C., are open to RECEIVE
CONSIGNMENTS of Choice CUT FLOWERS in any quantity
for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

WANTED, good strong Plants of CARNA-
TION, PINK "Souvenir de la Malmison" and
"Prince of Orange." Please state quantity and price to
T. JACKSON and SON, Nurserymen, Kingston-on-Thames.

WANTED, IMMEDIATELY, 6 large FIG
TREES, in pots. State sizes, varieties, and prices, to
J. L. S., Gardeners' Chronicle Office, 41, Wellington Street,
Strand, W.C.

The Best Present for a Gardener. VINES and VINE CULTURE.

The most complete and exhaustive Treatise on
Grapes and their Culture ever published.

New Edition.
Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.
SUTTON'S FLORISTS' FLOWER SEEDS.
Begonia, Calceolaria, Cineraria, Cyclamen, Gloxinia,
Primula, &c., the finest strains in existence. See SUTTON'S
AMATEURS GUIDE. Sutton's Seeds Genuine only direct
from
SUTTON and SONS, Reading.

A Few Large Healthy
PALMS, 3 to 5 feet high, for immediate
disposal—Lantania borbonica, Scaevola elegans,
Chamærops excelsa, and Phoenix reclinata—from 10s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

CREEPERS FOR WALLS.—By planting
what is suitable, an ugly object may easily be made
beautiful. Most being in pots, can be sent and put out at any
time. Descriptive LIST and Advice Free.—RICHARD SMITH
and CO., Nurserymen and Seed Merchants, Worcester.

SPECIAL TRADE OFFER of AGERATUM
Swanley Blue, 5s.; CALCEOLARIA Golden Gem, with
splendid roots, fine, 5s.; extra hairy, 7s. 6d. DAHLIAS of
sorts, 16s.; GERANIUMS, Scarlet and Silver, 8s. to 12s.;
splendid stuff LOBELIA, 2s. 6d. and 3s. 6d. per 100, cash with
order. BEGONIAS in quantity. Priced LIST free.
B. R. DAVIS, Yeovil Nurseries, Yeovil.

PRIMULA, Double White, 5s. per dozen.
35s. per 100.
Price for quantities on application.
Terms, Cash with Order.

TAYLOR and CO., Nurserymen, Timperley, Cheshire.

CAMELLIAS (Two large) for Sale. Disposing
of same on account of being too large for greenhouse.
D. H. HAGGIE, Seafarth, Sunderland.

Rhodanthe, White and Red Varieties.
Grand stock, in 54 inch pots.

HERBERT TITE, Florist, Hampton-on-
Thames, begs to offer the above to the Trade, at 50s. per
100, put on rail in London. Cash with order from unknown
correspondents.

ADIANTUM CUNEATUM, Maidenhair Ferns,
in thumbs, strong healthy plants, at 10s. per 100. Seed-
lings out of boxes, 7s. per 100, for cash with order. Thousands to
select from.—H. ROSE, Oakfield Nursery, Hampton-on-Thames.

AMERICAN ALOE (Agave americana).—A
very fine specimen for sale, believed to be nearly 100
years old. It is in splendid condition, and measures 5 feet in
height, from the soil to top of centre leaves. For particulars
apply to
SALTMARSH and SON, The Nurseries, Chelmsford, Essex.

To the Trade.
SEEDS of NEW and RARESTOVE, GREEN-
HOUSE and HARDY MEXICAN SHRUBS, TREES,
PALMS, &c., not before offered.—THE SPECIALITY and
NOVELTY SEED CO., Newton-le-Willows, Lancashire.

New Sowing Rape and White Mustard Seed.
H. and F. SHARPE have to offer fine clean
samples of the above-named Seeds, which they will be
pleased to submit, with Lowest Prices, on application.
Seed Growing Establishment, Wisbech.

SIMPLE INSTRUCTIONS by which an
abundance can be insured of delicious MUSHROOMS.
See Seed LIST, Free.

RICHARD SMITH and CO., Seed Merchants and Nursery-
men, Worcester.

GRAPE VINES.—Leading kinds; healthy
young growing stuff for present planting.
WILL TAYLOR, Osborn Nursery, Hampton, Middlesex.

W. H. LASCELLES and CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement on page 679.

SALES BY AUCTION.

A further Portion of the Valuable Collection of ORCHIDS formed by the late John Day, Esq., of Tottenham. MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 6, at half-past 12 o'clock precisely, a further portion of his COLLECTION of ORCHIDS, comprising fine plants of

Cypripedium purpuratum	Aërides Schroderae
" chloroneurum	" expansum Leonis
" Leeanum (Sir Trevor Lawrenca's var.)	" Emeritici
" album	Odontoglossum Ruckerianum
" vernizium	" nebulosum, grand var.
" Haynaldianum	Dendrobium Answorthii, fifty bulbs.
" Schlumieri	
Ceologyne Massangeana	

Miltonia Regnellii superba, Masdevallia ignea, superb var.; some exceptionally grand forms of Odontoglossum Alexandrae, &c. On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7690.)

VALUABLE IMPORTATIONS OF ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 7, at half-past 12 o'clock precisely, by order of Mr. F. Sander, splendid importations of the following valuable ORCHIDS:—

CATASETUM RUNGEROTHII

and varieties. For description of this grand novelty, see *Gardeners' Chronicle*, January 27, 1887.

The plants offered are in extra fine condition, and this opportunity should not be missed by buyers wishing to add this gem to their collections.

LELIA PURPURATA.

Large pieces in fine condition, many of the masses are unusually large, and all have fine healthy foliage, and dormant eyes.

MASDEVALLIA INFRACTA PURPUREA.

See Professor Reichenbach's description of this lovely Orchid, *Gardeners' Chronicle*, October 13, 1883. Plants offered are in the finest condition, well furnished with numerous leaves, and having sound breaks.

CATTLEYA MENDELII.

Just received in splendid order, a fine lot of this grand Cattleya, many large masses with dormant eyes; also a fine lot of Cypripedium Stonei, Odontoglossum Pescatorei, O. triumphans, Epidendrum species, the rare Vanda Hookeriana, Lelia acuminata, Cattleya aurea, in fine condition; Odontoglossum septrum, fine masses of Oncidium lanceans, and Odontoglossum Phalaenopsis, Bifrenaria nodosa, &c. On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7691.)

A splendid Importation of LYCASTE SKINNERI, a few pieces of CATTLEYA SKINNERI, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 7. On view morning of Sale, and Catalogues had.

Wednesday, June 13.

1500 Fine Pieces of ONCIDIUM JONESIANUM, and a collection of 70,000 seeds of NEW PALMS in variety, just brought home from Brazil under the care of Collector.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 13, at half-past 12 o'clock precisely. On view morning of Sale, and Catalogues had.

Wednesday, June 20.

ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 20, at half-past 12 o'clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will SEND LIST as soon as possible.

Valuable Water-colour Drawings of Orchids, Dried FERNS, &c.

MR. J. C. STEVENS has been favoured with instructions from the Executors of the late John Day, Esq., of High Cross, Tottenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., towards the END OF JUNE, the Valuable Collection of WATER-COLOUR DRAWINGS of ORCHIDS, by Durham, contained in 22 bound volumes, together with 44 loose Drawings, and 5 Framed, ditto; also the famous Collection of DRIED FERNS.

Tuesday Next.—Established Orchide.

UNRESERVED SALE of the First Portion of ESTABLISHED ORCHIDS formed by Dr. Duka, of The Glen, Lewisian.

MESSRS. PROTHEROE and MORRIS are favoured with instructions from Dr. Duke to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, June 5, at half-past 12 o'clock precisely, without Reserve, the First Portion of his Collection of ESTABLISHED ORCHIDS, comprising, amongst others, splendid plants of the following:—

Ceologyne Massangeana	Cypripedium Sedeni candidum
" Lowii	" Sanderiana
" tomentosa	Lelia elegans
" Parishii	" amanda
Odontoglossum mulus	" anceps, white, true
" Uro-Skinneri	" Dawsoni
" Edwardi	Miltonia candida, true
" Cervantesi ducorum	" Morelana atro-purpurea
Cattleya Wagneri	" Regnellii purpurea
" gigas	
" Sanderiana, &c.	

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA MENDELII.

A magnificent consignment from a new district. For Sale entirely without reserve.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. G. T. White to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 8, at half-past 12 o'clock precisely, without reserve, a magnificent importation of CATTLEYA MENDELII, from a new district. The Collector writes:—"These plants could be sold as Cattleya Mendelii grandiflora with guarantee, so great is the difference in the size and quality of the flowers from those of the ordinary form."

The whole of the consignment is offered, and no more will be received this season. The plants are in unusually fine condition, with very broad leaves and sound dormant eyes. On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUM GODEFROYE, wonderful Importation, comprising 31 Cases received direct for Unreserved Sale.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 8, at half-past 12 o'clock precisely, a splendid importation of CYPRIPEDIUM GODEFROYE, just to hand, in the best possible condition. The Vendors write that the plants differ from those described, inasmuch as these plants will have two flowers on each stalk, and the present consignment will be found to contain the largest specimens ever imported, one mass being 7 feet in circumference, and several others 6 feet; also a few selected ESTABLISHED ORCHIDS, including Cattleya Wagneri and Oncidium crispum grandiflorum. On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA SANDERIANA.

ODONTOGLOSSUM ALEXANDRAE.

MESSRS. PROTHEROE and MORRIS are instructed by Messrs. Shuttleworth Carder & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY June 8, at half-past 12 o'clock precisely, a very fine importation of CATTLEYA SANDERIANA, extra fine masses, in splendid condition; a grand lot of ODONTOGLOSSUM CRISPUM (Alexandre) of the very best type and in splendid masses; also a small consignment of O. CRISPUM (Alexandre) from an entirely new district, O. GRANDE, and LYCASTE SKINNERI. On view morning of Sale, and Catalogues had.

Orchids in Flower.—Special Sale, June 26.

MESSRS. PROTHEROE and MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive Notice of Entries as soon as possible.

The Downside Collection of Orchids.

PRELIMINARY NOTICE.

HIGHLY IMPORTANT EIGHT DAYS' SALE of the whole of this renowned Collection, including many plants matchless in point of rarity, and the whole remarkable for culture and condition, embracing unquestionably the most valuable and extensive Collection of

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE and MORRIS are favoured with instructions from Wm. Lee, Esq. (who is selling the Estate of Downside, and relinquishing the cultivation of Orchids), to SELL by AUCTION, on the Premises, Downside, Leatherhead, about 1 mile from either of the Leatherhead Railway Stations, On TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 10, 11, 12, and 13, 1888; and also on

TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 24, 25, 26, and 27, 1888.

at half-past 12 o'clock precisely each day,

the whole of this most valuable Collection of

ESTABLISHED ORCHIDS.

Amongst the CATTLEYA TRIANE section (mostly fine specimens) will be found:—

Cattleya Triane Leana, 4 plants of this superb variety.	C. Triane Victoria Regina
" " Osmani, 3 plants.	" " Russelliana
" " Dodgsoni, 3 plants.	" " Vestal
" " Dayana	" " marginata
" " Emperor	" " bellicosa
" " Empress	" " magnifica
" " Emilia	" " Normani
" " Backhouseana	" " gigantea
" " Colemani	" " Williamsi
" " alba	" " Ilacina
" " Orion	" " General Gordon
" " virginialis	" " Riddigore
" " eboracensis	" " Mephistopheles
" " compacta	" " Chelsooi
" " regina	" " beatifica
" " impunctata magna	" " Archduke
	" " Archduchess
	" " bella

and many others not yet named, which will be offered with their portraits painted by Macfarlane, the whole forming probably the grandest collection of fine varieties of the Triane section ever brought together, many of the plants moreover being of the largest size with many strong leads.

Amongst the HYBRID CATTLEYAS will be found:—

Cattleya fustata	Cattleya Domini
" calumata	" Germigny
" Martelli	" Mastersoniae
" exoniensis	

HYBRID LELIAS will include:—

Lelia Amesiana	Lelia bella
" Vetchiana	" flammea
" calistoglossa, a grand plant, with 16 great bulbs and 4 breaks	" Leana
	" Rivieri

The HYBRID DENDROBIUMS will include:—
Dendrobium Ainsworthii
" Leechianum
" splendens
" micans
" euosmum variety leucopetrum
Dendrobium splendissimum grandiflorum, the grandest of all, with 8 bulbs over 2 feet high, and 3 breaks
Dendrobium endocharis
" rhodostoma

(Continued on next column.)

(Continued from previous column.)

The HYBRID CYPRIPEDIUMS will include:—

Cypripedium grande	Cypripedium cardinale
" amadum	" Sedeni, and its fine variety candidulum
" Arthuriannum	" Crossianum
" albo-purpureum	" conchiferum
" calurum	" Dominianum
" garyandum	" Hartwegi
" Morganii	" Leeanum superbum
" Swainsonum	" politum
" Verveanum	" uarmorphyllum
" selligerum majus	" calophyllum
" Harrisianum	" tessellatum porphyreum
" " superbum, the special fine variety of	" aspericiliare
" Veitch	" vexillarium
" Ashburtoniae	" ananthum
" microchilum	" " superbum
" javalo-co-superbians	" Schroderae
" chloroneurum	" Vinicianum

CATTLEYA SECTION.

Cattleya labiata (autumn flowering)	Cattleya Mendelii, many species varieties
" Skinneri	" elegantissima
" " alba	" Selbornensis
" Percivaliana, special varieties	" Morgauiæ
" " alba, rare	" Jamesiana, rare
" " delicatissima	" gigas
" Mossie alba	" imperialis and Sauderiana
" " Reioeckiana	" Hardyana
" " Southgatei	" aurea
" " rubra superba	" Williamsi, of the guttatum section

LELIA SECTION.

Lelia elegans alba	Lelia purpurata Williamsi
" " Leana	" " Warneri
" " Stelzeriana	" " Nellisi
" " Dayana	" anceps Schroderae
" " prasiata	" Sanderiana
" " Houtteana	" Dawsoni
" " Hesperia	" Veitchii
" " Wolstenholmei	" Williamsi
" " Turneri	" Leana
" " purpurata alba and rosea	" Hilliana
" " Russelliana (a magnificent specimen)	" alba (true)
" " Brysiana	" Percivaliana
" " alba lilacina (a splendid variety)	" Barkeri
	" Calvestrina
	" blanda

DENDROBIUM SECTION.

Dendrobium Phalaenopsis	with 8 bulbs over 2 feet long, and 3 growths
" " nobile nobiliss, the well-known large plant,	Dendrobium arachnites

LYCASTE AND CEOLGYNE SECTION.

Ceologyne cristata alba	Ceologyne Massangeana
" " Chatsworth variety	" Dayana
" " Lemoineana	" Lowii
" " Trencham variety	Lycaete Skinneri (fine varieties, true to name)
" " maxima variety	
" All fine plants.	

MASDEVALLIA SECTION

comprises a grand and complete collection of Masdevallias, many of the highest class, and some very rare.

ODONTOGLOSSUM SECTION.

The collection may be viewed any day prior to the Sale, by cards, to be obtained of Messrs. PROTHEROE and MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C. The Catalogue is in hand and will shortly be published. Copies can be obtained on application to the Auctioneers.

PHALAENOPSIS SECTION.

Amongst the Phalaenopsis are two plants of P. Brymeriana, also intermedia, Portei, one of the true variety DAYANA, and several Leucorrhoea and casta.

VANDA, AERIDES, and ANGRECUM SECTION.

A grand assortment of these, all in splendid health.

MISCELLANEOUS.

Maxillaria Sanderiana, five plants (one in flower)	Cymbidium Wallisi, 3 plants
Cypripedium Wallisi, two plants	Saccolabium Heathii
	" Harrisianum or gigant-eum album

Messrs. P. & M. desire to mention that no plants will be sold privately, but that the whole will be submitted to public competition.

The collection may be viewed any day prior to the Sale, by cards, to be obtained of Messrs. PROTHEROE and MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C. The Catalogue is in hand and will shortly be published. Copies can be obtained on application to the Auctioneers.

Cattleya Mendelii.

Just to hand by SS. "Orinoco," in fine masses and good condition.

MESSRS. PROTHEROE and MORRIS are instructed by Messrs. Shuttleworth, Carder & Co., to SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C. The DATE OF SALE WILL BE ANNOUNCED NEXT WEEK.

Langley, Bucks.

ORCHARD and BUILDING LAND, with BRICK EARTH. MESSRS. BUCKLAND and SONS have received instructions to SELL by AUCTION, at the Mart, Tokenhouse Yard, London, E.C., on WEDNESDAY, June 6, 1888, at half-past 12 o'clock precisely, in lots, about 113 acres of most valuable FREEHOLD and COPYHOLD LAND, together with a Residence known as "South End Lodge," Farm Buildings, and Cottages, situate in the parish of Langley, Bucks, intersected by the Great Western Railway and the Grand Junction Canal, and abutting on capital roads. The Residence stands in the midst of Cherry Orchards of good growth and in full bearing, at only a short distance from the Langley and Slough Stations, and easily accessible for carriage by both railway and canal. The Land is also most suitable for Nursery Market Gardens and Seed Trial Grounds, and much of it contains Brick Earth of the best quality. Particulars at the Mart; of Messrs. TAYLOR, HOARE AND BOX, Solicitors, 28, Great James Street, Bedford Row, W.C.; and of the Auctioneers, 23, Hart Street, Bloomsbury Square, W.C., and Windsor.

MESSRS. WESTON AND SON will SELL by AUCTION, at Page's Nursery, 33, Clapham High Street, S.W. (by order of the Proprietor, to clear the ground), on WEDNESDAY and THURSDAY, June 6 and 7, at 1 o'clock each day, extensive and varied STOCK of a GARDENER and FLORIST, 40 dozen Store and Furnishing Palms, 250 dozen Lantanas, Cocos, Seaforthia, Coryphas, 8 feet; Seaforthia elegans, 32 10-foot Ficus, 100 Arums, 200 Lily of the Valley clumps, 200 Lillium auratum, and others; 12 Camellias, 500 Azalea mollis, 200 Azalea indica, 14 Stephanotis, 600 Spiraeas and Palmettae, 2400 assorted Pot Ferns, 100 Hydrangeas, 400 Begonias, 300 Aspidistras, 330 Gladioli in bloom, 500 dozen assorted Geraniums, 15 dozen Marguerites, 11 dozen Valerita, 200 Tomatoes, a large quantity of Bedding-out Plants, 16 Span-roof Stove-houses, 3000-feet runs of Hot-water Fittings, Furnace, Boilers, and Tanks; Brick-built Four-roomed Cottage, Stable, Potting-house, Barn, 2 useful Carts, Covered Van, Four-wheel Phaeton, Horse and Harness, and a quantity of Miscellaneous Effects. On view 2 days prior. Catalogues of the Auctioneers, 3, 5, and 7, Angell Road, Brixton, S.W.; and 252, Brixton Hill, S.W.

Beckenham, Kent.

To NURSEYMEN, FLORISTS, and CUT FLOWER GROWERS.

The VALUABLE GROUND LEASE (57 years unexpired at only £18 per annum) of the Victoria Nurseries, Bromley Road, comprising a substantial Dwelling-house, 10 Large Glass and Forcing Houses, with heating appliances and every possible convenience for carrying on a lucrative Business. Standing in Nursery Grounds of 2 Acres. To be sold, with possession, at the Mart by

MESSRS. EDMUND ROBINS and HINE (of 5, Waterloo Place, Pall Mall), on JUNE 15, by order of Mortgagees.

Particulars of **EDWIN ELLIS, Esq., Solicitor, 23, Birch Lane, E.C.;** or of the Auctioneers.

TO BE SOLD, on advantageous terms, a compact GRASS FIELD of 2 acres, near the main road, Enfield Highway; about 9 miles from London. Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

To Nurserymen and Florists.

TO BE SOLD, the LEASE of a well-established NURSERY, covered with Glass. First-class Jobbing Connection. Good Stabling. W. A. C., Waverley Nursery, near "Eyre Arms," St. John's Wood, N.W.

CAPITAL INVESTMENT.—For Sale, in Guernsey, the WHOLE or HALF SHARE of first-rate VINERIES, in full working order. Good cottage. Charming locality and climate.—A. B. GLATEGUY, Esplanade, Guernsey.

TO BE LET, or SOLD, a small compact NURSERY, in a good neighbourhood. Five Greenhouses. A good Jobbing Business can be done. Water laid on. Apply to J. N. ERIS, House Agent and Appraiser, 120, High Street, Watford, Herts.

Gardeners, Nurserymen, and Others.

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PELAGONIUMS, Show and Decorative, choice named, 4s. 6d. per dozen.

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DAHLIAS, single, named sorts, of all shades of brilliant colours, including "White Queen" and "Paragon" 2s. 6d. per dozen, 18s. per 100, from single pots.

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VIOLA CORNUTA, "Queen of Blues" and "White Virgin," 5s. per 100, 45s. per 1000.

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The FORTY-FIFTH ANNIVERSARY DINNER in aid of the Funds of this Institution, will take place at the "Albion," Aldersgate Street, E.C., on WEDNESDAY, July 4 next, when the Right Hon. JOSEPH CHAMBERLAIN, M.P., will preside. Tickets 21s. each. In order to provide for the comfort and convenience of the Guests no Tickets will be issued after Friday, June 29.—By order, EDW. R. CUTLER, Sec.

50, Parliament Street, S.W.—May 30, 1888.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE COMMITTEE have the pleasure to announce the following Contributions to be added to the Subscription List of the Right Hon. JOSEPH CHAMBERLAIN, M.P., on the occasion of his presiding at the 45th Anniversary Festival, to be held on JULY 4, 1888:—

The Marquis de Castega, Scarsbrick Hall, Ormskirk	£10 10 0
John Munro, Esq., Richmond (annual)	2 2 0
Miss Mitchell, Macrocarpa, Ventnor	10 10 0
George Wills, Gardener, Tetcombe, Holworthy, Devon	10 10 0
Thomas McClure, Gardener, Hartley Grange, Winchester	1 15 6
Charles Ross, Gardener, Welford Park, Newbury	10 10 0
James Harris, Gardener, Wooland House, Blandford	10 10 0
Joshua Fellowes, Esq., Churchfield, West Bromwich (annual)	1 1 0
George Culverwell, Gardener, Newcastle, Ireland	1 1 0
James Burnard, Gardener, Camden Wood, Chislehurst	10 10 0
R. Jordan, Gardener, Llanawny House, Godalming	2 2 0
Joseph Willis, Gardener, Hollowmead, Bishop's Teignton (annual)	1 1 0
J. B. Thomsons, Seedsman, Birmingham (annual)	1 1 0
P. Jacob, Esq., Cheam Park, Cheam (annual)	1 1 0
Richard Hunt, Gardener, Hurst Grange, Twyford (annual)	1 1 0
William Davies, Gardener, The Warren, Hayes Common (annual)	1 1 0
William Wall, Gardener, Birdingbury Hall, Rugby (annual)	1 1 0
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Howard, W., The Nurseries, Southgate, N.	7 16 0	
Davis, J., 6, Kenington Park Road, S.E.	1 1 0	
Williott, J., 60, Upper Park Road, Hampstead		1 1
Bonny, J. E., Hextable Nursery, Swanley		0 5
Forbes, J., Baceleuch Nurseries, Ilwicks, N.B.		0
Swart, W., Hazlemere Lodge, High Wycombe		0 5 0
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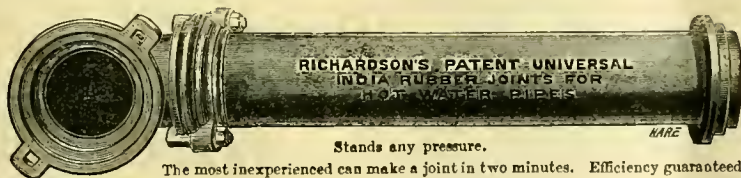
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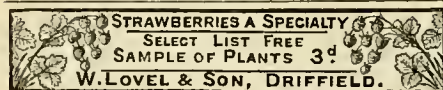
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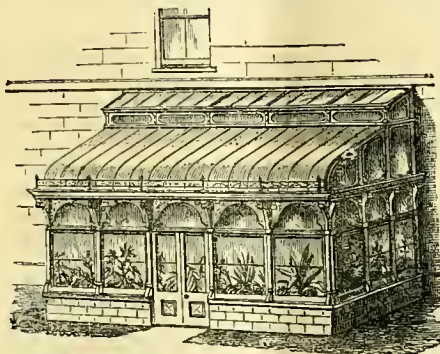
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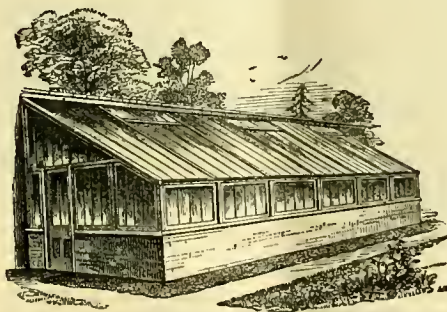
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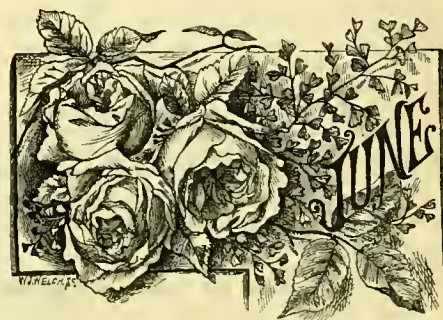
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 2, 1888.

GARDENING IN FLORIDA.

MY arrival in Florida dates from April last, I having just landed when the early Peaches had set their fruits, and later ones were blooming. A year's experience and careful enquiry enables me to send you an impartial account of things just as they are.

This portion of the State of Florida is one of the highest above the sea-level, and is about half-way between the Atlantic Ocean and the Gulf of Mexico; it is therefore healthy, and the climate is pleasant. Strong breezes blow almost continually from the Gulf or the Atlantic.

The greater portion of the land is covered with Pine trees, and is of all degrees of fertility, the price ranging from 8s. an acre a few miles out from towns, to £20 an acre within town limits. It is an excellent fruit district, a greater range of varieties of fruits being grown here than in other portions of the State. Amongst the most commonly seen fruits may be mentioned the Orange in variety, such as the Homasassa, Bahia or Navel, Satsuma, Mandarin, Tangierine, King, and many others; Pears—Le Conte, or Chinese Sand, and Kieffer Pear; Peaches Peen Tau, Honey, and others of native origin: Japan Persimmons (*Diospyros Kaki*) in eight varieties; Figs, Plums in variety, Japanese and native; Quinces, Blackberries, Strawberries in great quantities, Grapes of many American and hybrid varieties, Japan Medlars (*Eriobotrya*), now ripe; Pomegranates, Mulberries, and various kinds of nut trees, such as Pecans, Chestnuts, Walnuts, and Almonds. Sugar-cane, Corn (Maize), and Cotton are extensively planted, as well as Sorghum. This district possesses the best Peach land in the State, the growth of the trees being astonishing and the crops certain and large, not a failure in Peaches having occurred in five years. I have seen a Peach tree, the seed of

which was planted in March, 1886, 8 feet high and 1 inch thick at the surface of the ground, bearing fruit in thirteen months from the time of sowing the seed.

I have now in my possession a seedling Honey Peach. The seed was planted in February last, and the plant is now as large as the one mentioned above, and is bearing ten Peaches. A planter here set out in February, 1885, 200 Peach trees, one year budded, on one acre of land. In 1886 he sold enough fruit from them to pay for the trees and all other expenses connected with them up to that time. In 1887 the crop realised 202 dollars, or over £40 nett. This year the trees are full of fruit, and promise a larger crop than last season. There are in this district Peach trees twenty-five years old in good thrifty condition and bearing large crops every season. Oranges do well after attaining such a size as to shelter each other, the trouble being that the young tender growths of small trees are killed back nearly every winter by the occasional "cool snaps," sometimes reaching 2° of frost, but only lasting two to three nights when the wind is from the north-west.

A grove of 100 Orange trees, in which I am now living, last season (November and December) produced 80,000 Oranges, or an average of 800 per tree, the trees being from ten to fifteen years old. The next crop promises to be considerably lighter, judging from the small amount of bloom.

The Japan Persimmon and Kelsey's Japan Plum are being extensively propagated, and a large demand for the fruit is expected.

The Le Conte Pear is a strong, vigorous grower, and bears very heavy crops. Ten trees, seven years old from the cuttings, standing behind the hundred Orange trees already mentioned, produced last July a crop of 40 bushels of fine Pears, or 4 bushels per tree, and were sold in the town of Waldo at 1 dol. a bushel, but double the money could have been obtained had they been shipped to Northern markets. This is an excellent Pear for stewing, canning, and evaporating (drying), and large groves are being planted for these purposes, as a large demand is anticipated for both home and European consumption. Figs are mostly grown for table use in the houses of the planters, no great efforts having yet been made to grow them on a large scale for drying and shipping purposes.

The Peach is now the fruit grown in greatest quantity after the Orange. The varieties Peen Tau, and Honey Peach, of Chinese or Japanese origin, being most extensively grown for shipment; and as they are the earliest Peaches produced in the United States, good prices are of course obtained—the Peen Tan, being the Peach planted by the gentleman already referred to, who realized by them £40 an acre. Many kinds of native Peaches, both cling and freestones, are also grown, and ripen from July to September, being mostly used for canning and evaporating for home use, very few being shipped to Northern markets, as Peaches from New Jersey at that time of the year completely cut out Florida Peaches, which would not then sell for sufficient money to pay the carriage.

The Kelsey Plum, being a new importation from Japan, has not yet come into general fruiting, so that no reliable statement can yet be given as to its paying well, but great things are expected of it.

Several varieties of Plums of the improved Chickasaw type are grown, and are of fairly good quality.

Blackberries grow in immense quantities all over the country, and are very fine. Any quantity can be had for the picking. Many acres of Strawberries, principally Numan's Seedling and the Hoffman, are grown in this country, hundreds of bushels having already been shipped, at remunerative prices, from an area of 10 miles round.

Grape Vines look very healthy, with fine bunches of bloom. The fruit ripens at the end of May and in June, and is principally sold in local markets at from 5d. to 1s. 8d. per pound.

Sugar-cane grows well, and is usually made into syrup of very fine quality; no facilities were here for sugar-making until the last month; the first

sugar-mill in the State is now almost ready to commence work in South Florida.

The Japan Medlar or Loquat (*Eriobotrya*) is an uncertain cropper, in consequence of the plant blooming during winter, when the light frost often kills the blooms. This fruit cannot therefore be relied upon as a money-making crop in this district. Pomegranates grow like weeds and bear plentifully, but I have not yet heard of anyone planting them extensively, one or two plants only being usually found growing in the Orange and Peach groves. The same remarks apply to Mulberries, which bear fine crops; but there is little sale for the fruit in Florida.

Fruit culture has almost reached such proportions as to justify the erection of canning and evaporating factories, and some of the shrewdest landowners are planting Pears and Peaches, the Le Conte (Pear) and native freestone type (Peach) for these purposes, and good interest on their investments will be realised when their fruit trees come into bearing.

Vegetables.—Potatoes planted early in January are ripe in April, and are a profitable crop. The present crop, now being shipped, is selling in Philadelphia at from 8 to 9 dollars per barrel—32s. to 36s. Cabbages sown in September form heads in February and March. The following is a copy of a return made by a Philadelphia commission agent. The crates here mentioned are 2 feet long, 14 inches deep, and 14 inches wide, and are called barrel crates, they contain from forty to sixty Cabbages of medium sizes, or they will hold eighty small ones. The crates cost 12½ cents each (about 6d.) :—

Sales by ———		Philadelphia, March 19, 1888.			
		Dols. Cents.		Dols. Cents.	
On acc. of 5 crates of Cabbages at...	3	50	17	50	
Via Atlantic Coast Line—					
Freight	4	43			
Cartage	0	50			
Commission	1	75	6	67	
Nett proceeds	10	83			

As these crates contained an average of forty Cabbages in each, the amount realised shows a profit of over 2½d. or 5 cents. per head. I have succeeded in growing good Cauliflowers (a small planting, as I was informed they would not succeed, the result, however, was very satisfactory to me and I intend to grow an acre in the autumn). Some of the native farmers here had never seen a Cauliflower until they saw mine growing.

Asparagus, Turnips (of the Early Flat Dutch and Purple-top White Globe varieties), Rutabagas, Beet, Tomatos, Squashes, Cucumbers, Musk Melons, Pumpkins, Radishes, Pepper (Bull Nose and Sweet Spanish), garden Peas, Onions, Okra, Lettuces, Egg-plants, Sweet Corn, Collards, Carrots, and Beans (French, Snap, Black Wax, Golden Wax, and other varieties), succeed well, and make good crops. Water Melons are very much grown in Florida, and Melons weighing 60 lb. are quite common in the Water Melon season, and some have been produced weighing 100 lb.

The climate is such as an Englishman in ordinary health would thoroughly enjoy, and do a good day's work every day in the year, except during July and August, the hottest months, when it is the rule to rise with the sun, work until 10 A.M., then rest until 3 P.M., and resume work until dusk. Many invalids have to thank the balmy climate of Florida for prolonging their lives, the great charm of this climate being the refreshing breezes blowing almost every day, a calm, still day being the exception.

From 2 to 10 miles away are lakes, where plenty of fish can be obtained, and in the neighbouring Pine woods and low-lying lands are quail, ducks, squirrels, herons, cranes, curlews, and many other birds; so that a profitable day's sport can be enjoyed without much exertion.

I have travelled extensively in Great Britain, and on the Western Continent from Northern New York to the Isthmus of Panama, and consider the climate of Florida to be the most enjoyable I have ever experienced.

Market gardening pays well in Florida, particularly in some seasons, when the Potato or Cabbage crop

falls below the average in the Northern States, and especially when the settler is careful in selecting for his home a district where competing lines run, so as to secure the advantage of reasonable freight rates. There is in addition another advantage an immigrant can enjoy if he be an industrious, pushing man. Many owners in Florida have purchased land and erected good houses for winter residences, coming down from the Northern States for four, five, or six months during the winter, and many pieces of land of from 5 to 20 acres can be taken charge of, and the land cultivated by the caretaker for his sole benefit, the owner retaining the fruit crops, of course, provided he keep all the land planted in Orange and Peach trees properly cultivated and free from weeds. No payment is made by the owner for such cultivation and care-taking, the man put in charge making all he can by planting a good crop of vegetables during the autumn, winter, and spring months. I have often thought how admirably this would suit some of the struggling market gardeners in England. Some I am acquainted with would make a very decent income, and keep the Orange and Peach groves in good order, and be thankful of the opportunity.

In conclusion I would say, I am no land-agent, have no land to sell either for myself or anyone else, but am so satisfied with my investment in Florida land, that I purpose spending the rest of my life in that balmy country. Box 147, Waldo, Alachua County, Florida, U.S.A.

SABAL PALMETTO.

THE engraving (fig. 89) represents a group of trees of the Cabbage Palmetto (*Sabal Palmetto*, Lodd., *Chamærops Palmetto*, Michx.), at Jupiter Inlet, Florida, from a photograph taken in 1886. The character of the trees is well shown in the engraving, and they are described as being found more or less abundantly in "North Carolina, south along the coast to Key Largo, Florida, extending along the Gulf coast to the Apalachicola River; very common, and reaching its greatest development upon the west coast of the Florida peninsula, south of Cedar Keys." In Porcher's *Resources of the Southern Fields and Forests* it is said that from "this noble and characteristic tree is derived the well-known armorial emblem on the escutcheon of the State of South Carolina. It has been carried in the fore front of battle by every regiment in the service of the State from Mexico to Manassas." The Palm is not only an ornamental one, but it is also very useful to the people where it grows; thus the Cabbage or heart is very extensively used as a vegetable, and the juice is said to make a good wine of a similar character to the well-known toddy prepared in India from the Palmyra Palm. The fruits are sweet, and constitute a nourishing food to the Indian and hunter. The young leaves are used for making hats, mats, baskets, &c., and are whitened by brushing them over with a solution of oxalic acid, or exposing them to the fumes of burning sulphur. The full grown leaves are used for thatching.

NEW OR NOTEWORTHY PLANTS.

CATTLEYA LABIATA,

MR. SCOTT'S VARIETY.

THIS comes very near to *Cattleya Nalderiana*. It has the same longish flower and markings on the petals. The markings are, however, far more numerous, and a modern orchidist might regard it as a crime to combine the two. The colour of the flower is like that of *Cattleya Nalderiana*; sepals light rose, bordered with dark purple; petals light rosy, with oblique accumulated markings on the borders, and dark purple stripes in the middle, the median ones all running longitudinally. The lip has much of the ordinary character. This is decidedly a *rarissima avis*, and may make the amateur's heart beat. I had

it from Mr. F. Sander. It was grown by Mr. H. G. Cole, gardener to Mr. C. W. Scott, Woodbank, Dumfries, the lucky possessor. It is of Sanderian origin. *H. G. Rehb. f.*

LÆLIA PURPURATA (Lindl.) WHITEANA, *n. var.*

Mr. R. Brooman White, of Arddaroch, Garelochhead, Dumbartonshire, N.B., purchased some four years ago a freshly imported *Lælia purpurata* at Messrs. Stevens' rooms. It has since wonderfully developed, and bore fifteen blooms this year. The dark purple of the lip is much admired. I cannot fully share the enthusiasm, as I have Mr. Low's much darker variety for ever in my memory. The leading

with a brownish-purple central space, whitish-sulphur-coloured on the anterior sides, and rose on the median zone. The characteristic broken mauve-purple lines are not to be seen. I have to thank Mr. S. Courtauld, Bocking Place, Braintree, Essex, for this grand beauty. *H. G. Rehb. f.*

LÆLIA PURPURATA, Lindl., Mr. BROOMAN WHITE'S VARIETY.

Take the finest inflorescence of *Lælia purpurata* Williamsi (Warner, Williams, and Moore, *Orchid Album*, i., pl. 9, 10), give it longer and narrower sepals (which scarcely show any strong indigitation of the purple nervation), imagine the base of the lip

DOUBLE HARDY WHITE FLOWERS.

DOUBLE white flowers are much in request; one of the reasons for this is owing to their great staying powers as compared with the more evanescent single whites. I subjoin notes of a few I grow for cutting, or dividing, for making wreaths or otherwise, and which will succeed in the smallest town or country garden.

The Double White Gardenia Daffodil—alba-plena odorata.—This is now preparing to expand its blooms, and I only place it first so that those who have it not

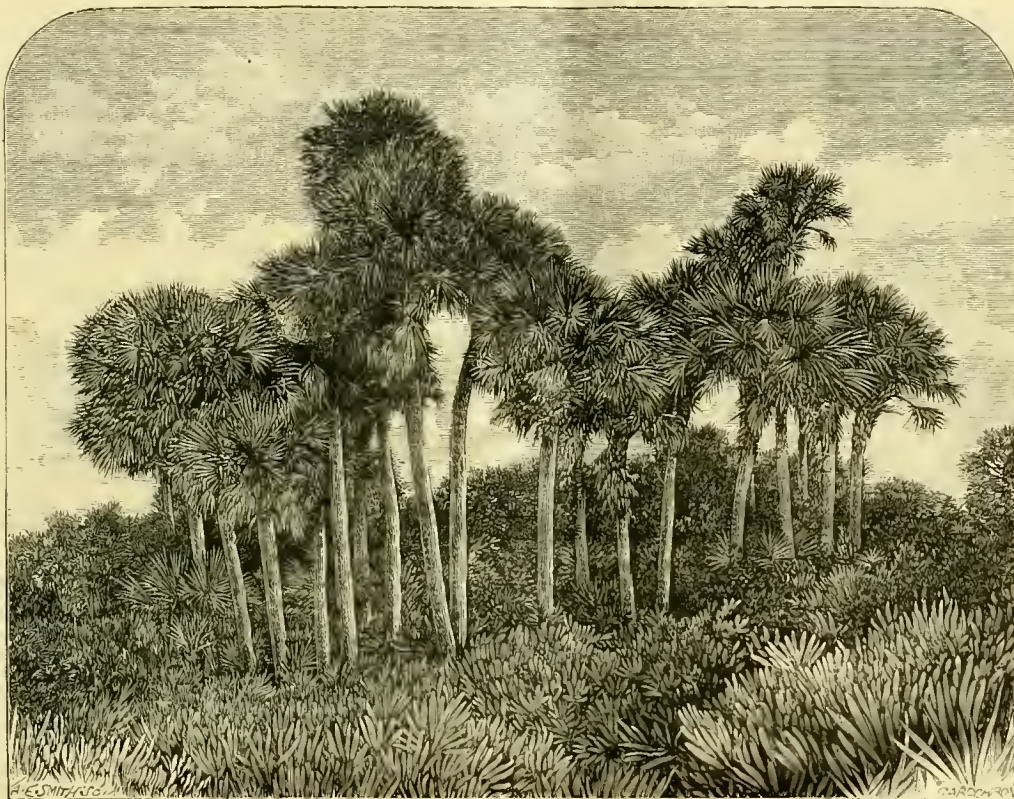


FIG. 89.—SABAL PALMETTO, LODD. (SEE P. 680.)

feature of this is that it has no yellow in the throat or on the lip, but a certain undecided light purple with darker veins. The point of the lip would appear to have been white, as in the var. *prætexta*. I propose to name it after a very ardent collector, who is in the happy moment of earning his first great orchidic reward. Happy state! *H. G. Rehb. f.*

CATTLEYA (LABIATA) MOSSIE, Hook., Mr. S. COURTAULD'S VARIETY.

This is a wonderfully grand thing. The sepals are like those of *Cattleya Mossiae*, Nalder's variety—rose, with dark purple margin. The fine petals have a nearly whitish central mid-area, and much darker radiating, partly confluent lines on the margins. The lip has its orange mid-zone rose-coloured above,

orange-yellow, in lieu of sulphur-coloured, and you have the beautiful variety which has just flowered with Mr. Brooman White, Arddaroch. A gorgeous inflorescence is at hand; it measures 9 inches across the petals, and the lip is 2½ inches wide. *H. G. Rehb. f.*

ASHES AND SALT ON POTATOS.—The *American Cultivator* says it is an excellent plan, as soon as Potatos are well up, to go over the piece and throw a handful of a mixture of salt and ashes on each hill. The preparation is soon washed down into the ground by rains. It repels insects, makes the Potatos fair and smooth, and helps to draw moisture to the Potato during a dry time.

can make a note to add it to their list. Being the double form of *N. poeticus*, and its variety *N. p. ornatus*, the brilliant crimson corona, in the latter instance, makes the blooms very effective. If the water is changed and the base of the stems clipped, they will last three weeks.

Matricaria inodora flore-pleno.—I prefer plants one or two years old, and planted in a fairly rich moist bed or corner of a border. Very old plants in a dry exposed position, give small blooms which are often semi-double.

The colour is pure, and the blooms are curiously laciniated or fimbriated, reminding one of the pompon *Chrysanthemum Marabout*, or fimbriatum. Cuttings readily strike from ripened pieces in autumn, or will root from side shoots pegged down

now: It is a persistent bloomer, and has beautiful deep green Chamomile-like foliage.

Spiraea filipendula fl.-pl.—Speaking of finely-cut Fern-like foliage brings me to the double Dropwort. Once planted there is little danger of losing it, as the fleshy roots bury themselves deeply in the soil, and are thus quite unaffected by drought, heat, or cold. I often wonder it is not oftener used as an edging plant, as the foliage rosettes when not in bloom, especially in winter, would be very effective, and being pinnate and prostrate, would be most useful. The compact corymbs, so like those of the Meadow-sweet, are a soft creamy-white, and are useful to the bouquetist. It can be divided at almost any season, and, cared for or not, it seldom refuses to bloom. Much rarer and somewhat more difficult to manage is *Spiraea palmata*. For contrast, grow them side by side.

Achillea ptarmica fl.-pl. (Double Sneezewort).—The blooms are smaller than those of the *Matricaria*, and somewhat resemble one of the perennial *Chrysanthemums*. Like the foregoing, it takes care of itself when once planted, and throws out white underground stems yearly. I gave it a corner of a border some years ago, and it has remained there since, with only an occasional top-dressing, and the subtraction of a piece occasionally for a friend. I certainly should not like to be without it. The double serrated form comes into bloom later, and is thus desirable also.

Double White *Pyrethrum* and *P. achilleafolium*.—I have tried to form a collection of the best double *Pyrethrums* to be had from various nurserymen; but if I were restricted to one, that one variety should be *Mont Blanc*. Nurserymen have so many demands for these that they have frequently to divide their stock plants—which they can safely do at any time during the month of April—so that it is seldom that a large five years' clump, giving nearly as many hundred blooms, is seen, except in private gardens. Their lasting power, when cut, is almost proverbial. *Virginal* and *Via Lactea* may be added; the latter is a very old form, very hardy, and gives an enormous amount of flowers for cutting. I have a seedling form, a whitish-yellow, with curiously crimped guard petals. To these may be added the stately border perennials, *P. uliginosum* and *P. lacustre*, blooming in the autumn, and with flowers upwards of 3 inches across.

Chrysanthemum speciosum, *C. latifolium*, &c.—These two are, perhaps, the best of the *Marguerites*, and are, perhaps, more frequently seen in greenhouses than in borders. They form beautiful bushes, with the foliage hidden with flowers, and are readily propagated from cuttings. The summer and autumn-flowering *Chrysanthemums* are now becoming so generally utilised for bedding arrangements, and so useful for cutting, that other forms are comparatively dwarfed. At a distance, last autumn, I thought beds of *Madame Desgranges*, *Sour Melanie*, and *Le Petit Marie* were the most effective Mr. Grahame had at Hampton Court Palace Gardens—the height graduating in the order named.

Campanula persicifolia alba fl.-pl.—This is certainly a most useful and easily grown and propagated perennial. However, if too many side plant-growths are allowed, or if the soil be poor, the perfectly-shaped *Camellia*-like blooms are never attained, and it becomes weedy like the double blue form. I am inclined to think there are inferior strains; at all events, my variety is imbricated to the centre, and I seldom see it so elsewhere. It divides readily at any time, and blooms for a lengthened period. *C. latifolia* I do not care so much for; perhaps the next best single would be *C. platycodon* alba, not noticing at present the alpine forms, which are generally very dwarf, and not useful for cutting.

Ranunculus aconitifolius fl.-pl. (Fair Maid of France).—This is one of the hardiest of the *Ranunculi*, and once planted, the claw-like tubers are seldom lost. It propagates with me slowly, but grows vigorously—nearly 3 feet high—producing a profusion of handsome very double white blooms on long stalks. In borders it is well to label it, as

when the foliage dies down it may otherwise get lost.

Hesperis matronalis, fl.-pl. (Double White Rocket).—This old favourite has been rescued from oblivion by the returning love for hardy flowers. The flesh-coloured strain, though more robust, is not so sweet or fragrant, and cannot compare in purity with this, which is not so easy either to retain or propagate; in fact, propagation by suckers, sparsely produced, is, I believe, the only method. Remembering the exigency of your space, I will merely add the name of another favourite, *Saxifraga granulata*, fl.-pl. A special article would be required for *Carnations*, white *Pinks*, and many other beautiful and sweet flowers, that all admire and like to grow. *W. J. Murphy, Clonmel.*

BALCONY GARDENING.

A BALCONY garden well arranged may be made exceedingly ornamental. If the balcony is a large one, and an elaborate system of management be determined upon, fresh plants may be introduced suitable to each season of the year, and the old ones in that case must be removed to make room for their successors. But a good effect may be produced by a much more simple and less costly system—the same plants may, in fact, be retained during the whole year, as in the case of a very attractive balcony garden of which an illustration appeared in *Domestic Floriculture*—a work written some years since, by Mr. F. W. Burbidge. Outside the window in this case, on the floor of the balcony, which is sufficiently wide to afford standing room for a small tub or a large flower-pot, four well grown plants of *Yucca recurva* were planted in ornamental vases. The rest of the ornamentation was exceedingly simple, and yet most attractive, consisting of a drapery of Irish Ivy, which was planted in boxes of soil hidden by foliage, and resting on the floor of the balcony. This fast-growing creeper had been allowed to clamber over the balustrade, from which it hung down several feet, affording a neat apron for the handsome *Yuccas*; and the effect was so good that no change was required in either summer or winter, except in the former season, when a few pots of flowering plants were introduced among the evergreens. There are plenty of other hardy plants that might in such a place be substituted for the *Yuccas*, such as golden variegated *Euonymus*, *Thuias*, *Box*, *Hollies*, and *Retinosporas*. *Japaa Aucubas*, *Conifers*, and many other shrubs, might be pressed into the same service; but whatever hardy plants may be selected for the balcony boxes in winter, to remain all the year or otherwise, let them be good, big, well-grown plants, and those of solid aspect should be neighboured by others more graceful.

Another practical hint is that, if the Ivy is to remain all the year round, some wire should be fastened to the wall, like that on which Vines are trained in a vinery, for the Ivy to take hold of, that it may be secure during strong wind. If it is intended to remove the boxes of Ivy in summer, the creeper must not be allowed to attach itself too pertinaciously to the wall, nor should the boxes of soil in which it is planted be too large, on account of the weight and the difficulty of removing them.

A large balcony with a window giving access to it forms a favourable site for more extended operations, and may be filled in succession with plants adapted to every season of the year. It may be fitted up with boxes, vases, flower-pots, hanging baskets, and even with a rockery, but the labour and attention necessary for keeping such an elaborate little garden in exquisite order must never be withheld. Frequent pruning and training will be necessary, and daily syringing in hot weather. In the dog days, which are dust-days in balcony gardens, watering should be done twice a-day overhead through a fine rose—once in the morning early, before the sun is strong, and again at night. In such gardens the house wall should be trellised and planted with suitable creepers, —Ivy, especially the handsome variegated sorts, *Wis-*

taria sineosis, or *Virginian creeper*. The former are, unfortunately, slow of growth, and should therefore be grown elsewhere and brought to the spot in their tubs or boxes, trained to their own supports. Veitch's *Ampelopsis* (*A. tricuspidata*) is perhaps the best town creeper, and it has in recent years widely invaded the domain of the older *Virginian creeper*, it being less coarse in habit. It forms a cheerful drapery for walls and balustrades in summer, changing in autumn into crimson and rich brown. These permanent creepers should be planted in the area below the balcony, when a little rich soil must be prepared for them, and manure added from time to time; or, failing accommodation below, they must be grown in tubs or other receptacles upon the balcony, and these must be well drained with broken crocks at bottom, and hidden with foliage. Other balcony climbers are various sorts of *Clematis*, *Honeysuckles*, *Jasmines*, *Cotoneaster microphylla*, which has beautiful fine foliage and red berries. For climbing *Roses*, plant *Gloire de Dijon*, *Ayrshire Roses*, *Rose polyantha* and others, if they grow well in the locality. *Lophospermum scandens* and *Eremocarpus scaber* may be added to this list. Annual trailing plants to be recommended are the pretty yellow *Tropaeolum peregrinum* and *Convolvulus*, with so many others, new and old, that we are tempted to refer readers on this point, and in regard to any creepers named here, but not known to them, to the nurseries where they may be seen. *H. E.*

ORCHID NOTES AND GLEANINGS.

MR. TAUTZ'S ORCHIDS.

AT Stanley House Shepherd's Bush, F. G. Tautz, Esq., had a nice lot of Orchids in flower when we visited the collection recently. *Cypripediums* were of course the most noticeable feature, and there were several excellent rare plants in flower. Several new hybrids are going on well, and all around tiny seedlings in all stages of development may be noted. The seed is allowed to germinate in the moss in a pot in which another larger plant is growing, and sometimes the seedlings are to be seen growing on the roots of the other plants. One of the most attractive plants is a *Cypripedium Lawrenceanum atro-rubrum*, very vigorous and very richly coloured, especially on the dorsal sepal; and another is *C. selligerum majus*, which was bearing three flowers. *C. tomentosa* is pale cinnamon, with brown line markings on the lip, and a yellow staminode. A very grand plant is a hybrid between *C. Lowi* and *C. Hookeri*, called *pophrosplum*, with very fine colours, and plainly partaking of both parents; it has rather long stiff sepals, tipped with rose and spotted at the base with dark brown spots on a ground of brownish-green; the dorsal sepal short, with reflexed margins, delicate green in colour, with the nerves of a darker green; lip dull brown, almost like that of *C. Hookeri*, the male parent. There was a *majus* variety of *C. Hookeri* which is worthy of note, with short broad lateral sepals, greenish-brown, tipped with rosy-lilac, with margined with the same colour, spotted at the base with small brown spots; with a dorsal sepal, green fading to white at the margin; lip brown. *C. Cooksoni* (*C. barbatum* × *C. Lawrenceanum*) retains the dorsal sepal and lip of the latter, with the laterals of *barbatum* distinctly spotted—a pretty combination. *C. Dayanum superbum* is attractive on account of its foliage as well as of its fine flowers; the leaves are delicately—not heavily—variegated; the flowers are of great size, measuring about 6 inches in length; the long narrow acute dorsal sepal is white, closely veined with bright green; the petals being greenish-brown tinged with pale pink; the lip has a deep pouch with sharp lobes, and is a dead palish brown. *C. Argus* is not an uncommon species, but mention should be made of it on account of the fine colour of the flower; it is one of the liveliest coloured of the *Cypripediums*, the almost white sepal and petals displaying to advantage the red-brown and

green of the lip. *C. Hartwegii* is a good form; the dorsal sepal and also the basal one are of a transparent white marble, and netted with red-brown; the petals narrow, and rose-coloured; the lip is suddenly bent forward about the middle, and rests, as it were, in the pouch of the two basal sepals; it is yellow, with red-brown sides and shading. *C. Druryi* was represented by a good plant, and deserves a place in all collections, owing to the peculiarity of its colouring; it is yellowish throughout, with a broad deep purple-brown line down the centre of the petals and the dorsal sepal. *C. Mastersianum*, a new hybrid, was also in flower. This was described in the report of the Royal Horticultural Society's show at p. 471. It is a handsome flower, and distinct.

The above is only a selection. What might not be said of a collection of the 200 varieties and species of *Cypripedium* which are to be seen at Studley House! and in such fine health, too, that Mr. Cowley deserves full credit for the way in which he manages these, and, indeed, all the plants at Mr. Tautz's place. Other good and interesting plants were numerous, but only a few can now be named. There was a fine form of *Odontoglossum Harryanum* with three flowers, *Cattleya Schroderæ*, *Dendrobium Farmeri aureum*, golden colour all over; *D. Veitchianum*, an old species, but rarely seen, the flowers of which are greenish-yellow, with red-brown lines on the lip; *Lycaste gigantea*, brown and yellow, very strange; *Cattleya Lawrenceana concolor*, paler than the original form; also the rare *Schomburgkia tibicincta*, with rose ground colour, brown tips to the segments, and brown markings; *Odontoglossums*, *Masdevallias*, *Cattleyas*, *Miltonia vexillaria*, in grand form, were also in fine condition.

One of the latest of Mr. Tautz's acquisitions is *Trichopilia crispata* var. *splendens*, well named; it is a rich dark port-wine colour throughout, slightly bronzed in places. In *T. crispata* the sepals and petals are pale brown, but in the plant under consideration they are of the fine intense colour just named. There is also *T. c. marginata*, lip rose with a white margin, the perianth segments brown and white.

CULTIVATION OF *ÆRIDES*.

In a state of Nature these plants luxuriate upon trees, mostly near the margins of or in the vicinity of streams; in such situations they receive, through their aerial roots, which grow to a great length, whatever moisture arises from evaporation, &c., from the heavy dews which envelope them; a portion of these roots hang free in the air, whilst others cling to the stems and branches of the trees, and in such positions they also enjoy the heavy rains that fall during their time of active growth, which is also their flowering season. *Ærides* grow nearly all the year round, but in a much less degree when the rainy season is over, as at this time they depend entirely upon the dew, and whatever moisture may arise from beneath to help to support them. They require a slight period of rest, but as they have no fleshy bulbs to maintain them during severe drought, Nature has provided for them in a choice of situations, whilst the shade obtained from the forest trees materially assists in keeping them in vigorous health, although in very few instances are they found wild in such fine condition as they are to be seen in our Orchid-houses. Under cultivation they thrive in a warm and moist house during the summer months. The temperature, however, must be reduced during the winter, and the foliage kept dry. They are fine objects, grown in baskets and suspended from the roof, in which position the roots derive the full benefit of the moisture with which the atmosphere should be charged; they, however, will thrive equally well in pots, living sphagnum moss being the best material for them, with good drainage, as they require frequent waterings during summer, whilst in winter the moss should be kept in a nice moist condition.

The leaves of *Ærides* should never be allowed to shrivel, as this causes the lower ones to turn yellow and fall away, leaving a naked unsightly stem;

neither should they be subjected to the full sun during the hottest part of the day, but a shading of very thin material will be found sufficient to break the sun's rays from them. "*Orchid Album*," April.

PERISTERIA ELATA.

This plant is easy to cultivate, but it requires a good season of growth, and after its bulbs are well matured in autumn, thorough rest is necessary; this may be maintained until it begins to show its flower-spikes, which occurs in the early spring months. During the period of active growth an ample supply of water to its roots is essential, in order to enable it to develop large bulbs, but after growth is completed it requires a very small quantity only—indeed, just sufficient to prevent it from shrivelling being all that is necessary. As it requires strong heat when growing, and coming as it does from the low-lying hot districts about Panama, the temperature of the East India-house is the best suited for it during the whole year. It also requires to be well exposed to sun and light, but the foliage must not be allowed to scorch, for such treatment is injurious to all plants, as it impedes their growth and renders them unsightly. The best compost for this plant is good rich turfy loam and leaf-mould, with a good supply of thoroughly decomposed manure mixed with it. The drainage must be good, with some fibrous peat above it, which will keep it in good working order. The pot should be filled to within an inch of the rim, and the bulbs placed on the top of the soil, first spreading out their roots and just covering them with a little of the compost; carefully water it for some time, and the roots will soon penetrate the soil, as they are produced freely. "*Orchid Album*," April.

LÆLIA ANCEPS SCOTTIANA.

This plant requires precisely the same treatment as the species; that is to say, it should be placed at the coldest end of the Cattleya-house, near the glass, shading it but very slightly, this being the great secret in the cultivation of these Mexican *Lælias*, as unless they are well exposed to sun and light they will neither produce robust bulbs nor flower freely. During its growing season an abundant supply of water is necessary to the well-being of this plant, and in warm weather, when it is making its young bulbs, it should be syringed twice daily (morning and afternoon) in order to induce it to root freely. It requires a high temperature during spring and summer; in its native country this plant, whilst making its growth, is subjected to strong heat and heavy rains, which keep the bulbs wet throughout the night, so that the greatest amount of moisture should be spread about in the afternoon, after the house is closed. When growth is finished just sufficient water to keep it from shrivelling will be ample, until the spikes attain the height of about 1 foot, when more water will be requisite to enable them to produce fine flowers. *Lælia anceps* and its varieties will thrive either in baskets or in pots; they should have good fibrous peat and living sphagnum moss to grow in, whilst the best time to repot them is just when they begin to grow and make new roots. "*Orchid Album*," April.

THE BULB GARDEN.

THE DOUBLE POET'S NARCISSUS.

Facts which throw a light upon the production of double flowers by the common wild Daffodil have given rise to much discussion during the last few years; and we also have had a good many loose and doubtful statements concerning the doubling of the Poet's Narcissus. It has been now and then asserted by the owners of certain gardens that *Narcissus poeticus* will not continue to produce single flowers there, and that after a few years they all turn double. In reply to this, Mr. Peter Barr assured us, four or five years ago, that the doubles of this species belong to one variety of it, and that this variety is the one described by the writers of the beginning of this

century as *N. patellaris*. When this statement was made by Mr. Barr, I for one disputed it. At that time I had double and single *Narcissus* growing abundantly and promiscuously in my garden, and they seemed to pass from one form to the other at their own caprice. But having made up my mind to investigate the matter I lost no time in doing so. By far the commonest form of single Poet's *Narcissus* in English gardens is that known as *N. recurvus*; figured and described in Sweet's *English Flower Garden* series ii., t. 188. I distributed several hundred bulbs of this form amongst various gardens which had claimed the power of producing double flowers of the species, and invited the owners to double the flowers of the bulbs sent. I also began carefully to watch specimens in my own garden, and to study the differences between the varieties known as *patellaris* and *recurvus*. The result is that after an investigation extending over four or five seasons I am convinced that Mr. Barr is right, and that all the double Poet's *Narcissus* belong to the variety *patellaris* unless some other double variety has been produced very recently.

There have long been in cultivation many varieties of Poet's *Narcissus*, and I know that within a few years the single variety most in favour, because of its earliness and its elegance of form, is one called *ornatus*. I am not going to speak of this or of any other variety except the two which have been for many years, perhaps for centuries, grown side by side in old gardens, one single, the other double—the single being *N. recurvus*, and the double *N. patellaris*. No double form of *N. recurvus* has ever, as far as I know, been produced; and though the single form of *N. patellaris* is grown sparingly, it seems to have so strong a disposition to become double in cultivation that, like the large double yellow Daffodil, the single form of it is hardly known. Curiously enough, however, *N. patellaris* is the wild *N. poeticus* of English botany. Other varieties may have been naturalised in England recently, but in all the old recorded habitats *N. patellaris* is the only known form. In some of these places single, semi-double, and double flowers are found mixed up in the same clumps, but when transferred to gardens the tendency of all these bulbs seems to be to produce double flowers.

The chief difference between the varieties *patellaris* and *recurvus* consists in the leaf. The latter, called in English the drooping-leaved *Narcissus* (Sweet's *English Flower Garden*, part ii., t. 188), has leaves which grow upright for two-thirds of their length, and then turn over at a sharp angle and droop; the leaves of *patellaris* have a spreading habit, and rarely droop. This distinction is obvious at first sight, but when the flowers of *patellaris* remain single they may easily be distinguished from those of *recurvus*. In the former the outline of the crown is more regular, the purple rim is bounded by an inner rim of white: the petals have less tendency to double up lengthways, the spathe is larger and longer, and the pedicel is generally bent at an acute angle, so that the flower is turned downwards. In the semi-double forms the white rim within the purple rim remains visible, but in the very double forms the divisions of the corona are often nearly suppressed; this suppression, however, is not constant, and varies with season and soil. Haworth thought that the presence or absence of the purple edge in the double flower was an indication of a different origin, but I believe that this is not the case, and that the double *poeticus* which he describes has no existence as distinct from the double *patellaris*. It may seem curious that amongst so many varieties as are known to exist in the species *N. poeticus*, only one should produce double flowers, but I have done what I can to collect specimens and evidence, and I have never yet met with any other. *C. Wolley Dod, Edge Hall, Malpas.*

[In the less double forms some of the stamens within the cup become petaloid, while in the fully double varieties the cup is absent, the stamens increased in number, all petaloid, and the perianth segments also increased in number. Eo.]

THE TULIP.

The Royal National Tulip Society have fixed June 9 as the date of the exhibition this year, but it would appear that the flower in the early districts will be over by that date—ours are now (May 26) in full flower in the open air without protection. There is an excellent prize list, and the committee ask for new subscribers and exhibitors, as the ranks of both, they say, "have been sadly thinned of late years by deaths." Our Tulips have all flowered very well this year, and the markings are, I think, better than usual; but after what I saw in Holland this year, we shall get larger flowers and better growth if the bulbs are planted almost as deep again as we have been accustomed to plant them. Considering that we do not give the bed any protection whatever, the cleanness of growth and stainless purity of the blooms are remarkable. Of course there has been no heavy rainfall to play havoc with them. *J. Douglas.*

THE POUCH OF THE CALCEOLARIA.

I HAPPENED to have a plant of the yellow variety of *Calceolaria*, with maroon speckles, on my table; on it I found a so-called monstrous form of flower; it was all yellow, and both its segments were exactly alike, and both small—in fact, it resembled a miniature open money-purse. On each side, between the two equal segments, was a rudiment of a petal. On one side of the ovary were two distinct stamens, and on the opposite side the usual one stamen, with its filaments double the thickness of each of the other two. It appeared to be made up of a connate pair; the sepals were four, one of their divisions being bifid. This monstrous flower appears to represent an ancestral form, in which two opposite petals were suppressed, and the remaining two of equal size and form. The stamens in the cultivated form with enlarged pouch are two, and would appear to represent two connate pairs.

What can be the object of one of the petals having become developed into a pouch, which was afterwards taken up by horticulturists and increased by selection to its present enormous size, so much so that the flower is nearly all pouch? In the bud the pouch is small, and is doubled over the smaller upper petal so as to completely protect the organs of reproduction from inclemencies of weather, &c., and this may have been originally the purpose this enlarged petal subserved. Then when the flower became ripe for expansion, the pouch-form petal dropped downwards to escape the stamens and stigma, which lie under the edge of the small hood-like upper petal. This pouch would then, perhaps, form a convenient landing-place for insects.

Now, the question naturally arises, had insects anything to do with the development of this form of flower, beyond, perhaps, carrying pollen from one plant to another?—that is, not in the sense of modifying progressively its form, but in the sense of perpetuating a particular form which had arisen independently of insect agency. The interior of the pouch shows no trace of nectar organs. I thought perhaps the interior of the hood might secrete this material as an attraction to insects; but there also I could discover no trace of nectar. The stigma only slightly projects beyond the anthers, and the pollen is so close to it, that self-fertilisation would be quite possible even if the wind only shook the flower, or by small insects, such as aphides, creeping over the stamens and pistils; and it is interesting to note that, when the flower is ripe and fully expanded, the corolla, with its stamens, drops off bodily with the greatest ease, and in so doing the expanded anthers, which previously embraced the pistil, brush by the stigma, and can scarcely help dusting it with pollen, more especially during sunshine, and if shaken off by the wind.

There can, however, be hardly any doubt, from experiments made by many, that cross-fertilisation gives a more vigorous progeny, and therefore it is not improbable that pollen may have been carried

from flower to flower independently of nectar-searching insects.

From the examination of the monster flower before mentioned, one might perhaps form some idea of the past history of the *Calceolaria* flower, back to a certain stage, thus:—At some particular period it would appear to have consisted of four sepals, four petals, four stamens, and probably also four carpels. Then two opposite petals became suppressed, and the two remaining ones assumed a pouch-like and symmetrical form, the four stamens becoming two connate pairs, and the four carpels also connate pairs, as they are probably at present. Later on, one of the pouch-like petals, being the outer one in the bud, developed more than the other, and acted as a protecting envelope, its pouch becoming also larger. Horticulturists then took up some specimens in which the pouch was still further exaggerated, and by selection made the enormous pouch of the modern *Calceolaria*, which is the main feature of the flower.

I may here note that in the plants under observation the leaves, which are in pairs and opposite, are mostly of unequal size, and not exactly symmetrical. Therefore the inequality of the two remaining petals may not impossibly be a feature partially inherited from the leaves. This, however, would require verification from a large number of plants. *E. Bonavia, M.D.*

OLD AND NEW PASTURE.

THE annual report of the proceedings of the Sussex Association for the Improvement of Agriculture, which is doing a good national work, has just been published and issued by Professor Jamieson, F.I.C., chemist of the Association.

EFFECTS OF DROUGHT.

The year 1887 was of a very exceptional character, and has earned the title of "the year of drought," in a retrospect of not less than twenty-three years. How much the country, and also the individual, suffers by a bad season is well brought out by the experimental grass-plots of the Association; and the average character of season 1886, followed closely by the exceptional character of 1887, provides a good opportunity of showing what a season of drought represents on new and old pasture.

The following table contrasts the crops of hay of 1886 with those of 1887, taking the average of seventeen differently manured plots per acre:—

New Pasture.		Old Pasture.	
1886.	1887.	1886.	1887.
Average season.	Very dry season.	Average season.	Very dry season.
Cwt.	Cwt.	Cwt.	Cwt.
58	35	59	33

Thus it appears that the drought caused a decrease in crop of 39 per cent. on the new pasture, and of 43 per cent. on the old pasture.

EFFECT OF LIME ON OLD AND NEW PASTURE.

The quantity of lime applied in the experiments was 2 tons per acre, and the results obtained on the whole showed from the averages that the general effect, both on the old and the new pasture, was first to increase the produce of hay, and then to act in the opposite direction. Professor Jamieson says, it might have been expected that the first effect of so strong a substance as lime would be rather to hurt the crops, and that better results would be experienced later on. But it is the reverse action that has happened, and the following explanation is suggested:—That in the first year the plants are cleaned, as it were—freed, that is to say—from parasitic influences, both vegetable and animal, and hence the grass is enabled to grow more vigorously for a time. As the lime descends, however, till it touches the more tender rootlets of the grass, it may act on the soft cellular tissue of these tender root-fibrils, and exert

on them either the hardening or decomposing action which lime is known to have.

The report goes on to deal with the questions of ploughing up old pasture; the relative effect of different manures on new and on old pasture; and the effects of draining pasture-land, with other treatments of seeding and sheep-grazing.

ARAUCARIA CUNNINGHAMI GLAUC.

THE "Moreton Bay Pine," in its green form, is one of the handsomest of trees for conservatory decoration, but beautiful as it is, it is surpassed in this particular by the glaucous variety. A fine specimen of this variety may be seen growing in the Temperate-house at Kew, where it recently produced its cones, which were exhibited recently at one of the meetings of the Royal Horticultural Society, and from one of which the accompanying illustration (fig. 90) has, with the permission of the Director, been engraved. The cone is a pigmy compared to that of *A. imbricata*, *A. Bidwilli*, and others; and it so much resembles a Teazel in general appearance, that we were not surprised to overhear some visitors so calling it—a circumstance which seems to indicate the desirability of conspicuous labels. The tree forms vast forests along the Brisbane River, individual trees growing to the height of 100—130 feet; hence it is very valuable as a timber tree. What follows we cite from Messrs. Veitch's *Manual*. The trunk is "generally divested of branches to the greater part of its height, and with the foliage clustered at the extremities of the branches. The leaves on the sterile branches are needle-like, obscurely 4-angled, straight, rigid, and sharply pointed; on the fertile branches they are shorter, stouter, and closely appressed. The young plants cultivated in England have a pyramidal habit less formal than that of the other *Araucarias*; the upper branches are ascending, those below horizontal, and the foliage bright green."

FLORISTS' FLOWERS.

AURICULAS.

WITH the bloom in pots, as well as out-of-doors, the season has been long-continued; even now (May 25) we have a few blooms of the late-flowering alpine in the rock garden. I write at this time to urge the importance of attending to the plants during the months of June and July. We report about half the number of our collection in May or early in June, and the other half when the seeds have been saved in July or August. Auriculas will not bear neglect at any time, and will soon show by their appearance whether they are objects of interest to their owner or not; but in this respect they are not different from any other class of flowers or fruits. It is the attentive careful cultivator who loves his plants who is successful. They will not now occupy much of the time of the cultivator, but the little attention they do require must be given at the right time. After repotting, the plants must not be exposed to drying winds, but be covered with the glass lights, well tilted at the back and shaded when the sun shines upon them. It is better to place the frames on the north side of a wall, or fence, to protect them from the sun during the hottest part of the day. They should now be making their summer growth, and a check from want of water or scorching sunshine would be injurious.

Small seedling plants, the produce of seeds sown in the spring, should be grown on steadily without any check, and as they increase in size must be potted on into larger sizes, as they require more space for development; they will flower in large 60's. Amateurs and others who attempt the work of seedling raising must not expect to raise first-class varieties without the exercise of much patience, the green-edged class being perhaps the most difficult of all in which to expect improved forms. In

each case it is best to save seeds from the very best forms in each class, and the plants selected as seed-bearers should have good constitutions. The edged varieties of Auriculas will also in many cases produce selfs. I may say, without exaggeration, that there have been hundreds of selfs amongst the seedlings I have raised, but none of them have been worth growing again. The only way to get good selfs is to raise seedlings from the best selfs by cross breeding, and it will be found by experience that it is as difficult to get an improved self as it is to improve on the grey and white-edged forms.

Whether one may be successful or not, there is always much pleasure in anticipation; and experience to be of any value must be obtained by following up the practical details of the work, carefully watching and noting the results. I find the alpine Auriculas succeed quite as well planted out-of-doors here as they do in pots, and very beautiful they are, especially when planted in the rock garden, and they stand well under hot sunshine—much better, in fact, than the common Primrose does. I tried two clumps of them, a dozen plants or so in each; they

this the vigour of the plants and the size of the blooms will be increased, although it must not be forgotten that increased size does not always mean good form, large size and coarseness sometimes going together.

Seedlings out-of-doors are very strong, and look as if we might expect a better display than usual, their marked vigour being accounted for by the plants being put out as early as July, so that they had ample time to establish themselves before winter began. Named varieties or seedlings, propagated in the usual way about the first week in August, were planted out early in October, but they have made but little growth since, and are now starting into flower, which will be of poor quality, because the plants were not established sufficiently early. These plants will make a better display next year if they are allowed to remain where they are. They are now planted in deeply-trenched and well-manured soil, and when layered will form a mass of plants a foot or more in diameter. In October thin out all the layers except about five round each stool: let these remain to form the basis of the plant next

start into growth, go on with vigour, and without any after check. Amongst thousands of plants I do not see a blank space. It would seem that the best time to plant all tubers and bulbs is just before they start into growth, for if they remain in the ground for any length of time before growth commences, and the soil is very cold and full of moisture, decay will sometimes take place, and some may get crippled, if not killed outright. This is the natural inference to be drawn from the results obtained with both the French and Scotch strains of the Ranunculus. The Anemones are also making excellent growth this year, but they were planted with the Tulips in November, about the end of that month. J. Douglas, Great Gearies.

THE BULB GARDENS OF HAARLEM.

(Continued from p. 622.)

MESSRS. C. G. VAN TUDEROEN, JUN., SWANNENBURG. — This firm cultivate large quantities of Hayacinths, Tulips, Narcissi, and other bulbs; but in addition to this they have been, during the last few years, engaged in collecting choice hardy, bulbous, and other plants, and are now the possessors of a very choice collection. They have three nurseries in different districts, but that at Swannenburg is set apart for, and seems specially adapted to, the growing of Lilies, and many other hardy bulbs.

Closely made hurdles are employed to protect the plants from winds and spring frosts; two parallel rows of these, about 6 feet high, are set up so as to enclose two beds of about 4 feet in width, with a narrow alley between them. The ends are also enclosed with hurdles, except that a space is left in the middle as an entrance, and over which is hung a mat. The hurdles are kept upright by means of stout posts, and to render them more durable they are dressed with a coarse kind of varnish. The top is left open to the weather, but it is very easy to throw some shading over it if it be necessary. The Lilliums of course were not in flower, but many of them had started, and some had made considerable growth. *L. Thunbergianum* was very plentiful, and as there is now great variety in this species a large well grown bed of it will be very attractive. *L. Hansonii* was the most forward, the spikes promising to be very strong, although the wind was high and the weather cold. The leaves of this Lily are of a beautiful light green, and not in the least injured—the stems had grown to a height of 30 inches. A fine lot of *L. cordifolium* planted out in frames was growing very vigorously. Is this different from *L. giganteum*? I notice that Messrs. Barr in their catalogue group the two varieties together as *L. cordifolium giganteum*. The *Botanical Magazine* describes them as distinct species. *L. cordifolium* is figured at t. 6337, and is from a specimen 'grown in the open air at Kew. Native of Japan. Dr. Wallich's Indian *giganteum* is figured and described at t. 4673, from specimens grown in Messrs. Cunningham's nursery at Comely Bank, Edinburgh. As *L. cordifolium* had been known to botanists for more than 150 years, it would claim precedence. The best lot of *Teophilaea* I saw in Holland, was in this nursery, and in three varieties, viz., *T. cyanocroceus*, *T. violacea*, and *T. Leichtlinii*, all very beautiful and quite distinct from each other,—they were also planted out in frames, where they seem to do very well.

In the beds protected by hurdles, amongst other hardy plants in flower, the rarer species of Muscari were conspicuous; *M. azureum ligulatum*, deep blue, had been in flower since January. *M. commutatum*, a dwarf plant, with pretty spikes of dark blue flowers; *M. Heldreichii*, distinct and pretty blue flowers, with a white mouth; *M. flavum*, long bells of pure yellow; *M. paradoxum*, a very distinct plant, with broad leaves, and long spikes of rich blue flowers. *M. Szovitsianum* was very pretty, and nicely in flower, the plant dwarf, with blue flowers. I noticed in flower a small Muscari-like plant, under the name of *Bellevallia leucophæa*.

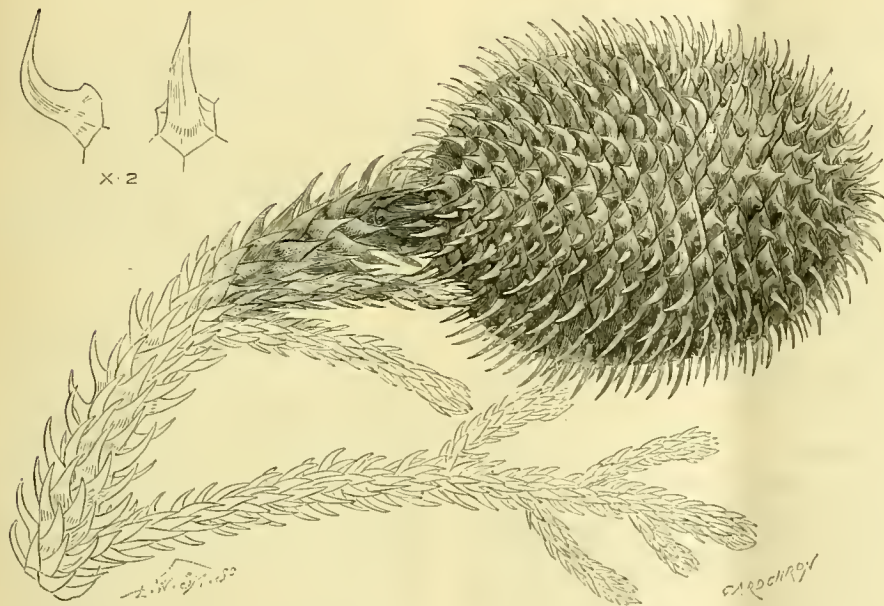


FIG. 90.—CONE OF *ARAUCARIA CUNNINGHAMII GLAUCA* (MORETON BAY PINE). (SEE P. 684.)

were near each other, in the same soil, except that one clump was more shaded than the other by the projecting rocks, and those exposed to the sun have flowered best and grown stronger than the others. Neither of them suffered for want of water during the summer months.

THE CARNATION AND PICOTEE.

The appearance of our plants shows that they are just two weeks later than usual; but if fine weather continue we may expect the plants to make up for lost time. We are busy placing sticks to the stems, now rapidly rising, and while this work goes on a pepper-box filled with tobacco powder is at the hands of the workman to dust any plants with on which greenfly are observed. Insect pests seem to be spreading very rapidly in the garden, the continued east wind having checked vegetation, but it has not the same effect on the increase of insects. The plants should always stand in a position out-of-doors well exposed to the sun, the colour then seems to develop even before the flower-buds burst. Now is a good time to surface-dress the plants if this be thought necessary, by placing on the surface some stimulating manures mixed with loam; by doing

year. All that is required is to cover the space between the plants with some rich top-dressing. Such plants are well established before the winter, as they are not severed from the parent plant, are seldom injured by the most inclement winter weather, and they make a grand display at flowering time. Seedlings are now growing away nicely, having been pricked out from the seed-pots into boxes. We are thus careful with them, as seeds are not easily obtained, and the plants are much safer in boxes; the seeds also germinate more freely in pots, if these be placed in frames over a little bottom-heat. These seedlings are planted out in the Ranunculus and Tulip beds, when the roots of these plants have been lifted.

THE RANUNCULUS.

I have been very successful with my beds of these plants during the last few years, and they are again looking first-rate. I can only attribute this to late planting. In each of my successful years they have been planted quite a month or more later than the old growers recommended, or than I planted them myself at one period. The time was the end of March, and the tubers seemed then to

There is also a very good collection of species of Tulips, and one of the most handsome is *T. Kaufmanniana*; it has immensely large flowers, as grown here, of a creamy colour, with a deep yellow centre, and in some cases a ring of lilac red was formed above the yellow; *T. lanata*, brilliant red and black centre, was just opening, the petals being spread out flat. *T. Kaufmanniana* has been raised from seed, and is a variable species; *T. Greigi* has not been raised from seeds, although good seeds are freely produced.

Fritillarias of various species were mostly in flower, and were very interesting; *F. inodora* is a dark-flowered, handsome form of the Crown Imperial, neither its leaf nor flowers having any scent; *F. bucharica* forms nice plants a foot high, furnished with racemes of pretty white flowers; *F. tulipifolia* is a pretty, not uncommon species; *F. Thunbergii*, white, was cultivated mostly in pots plunged in the soil, it succeeding best in that way. I also observed (w) very lovely, yellow species growing very freely; *F. pudica* was nicely in flower, the plants 3 or 4 inches high, and flowers of a rich deep yellow, and fragrant; *F. armena* is a taller plant, the flowers also of pure golden-yellow colour, but the true *F. armena* has dark purple flowers. There is a yellow form, which, I believe, was first found by Mr. Maw near Smyrna; both forms are figured in the *Botanical Magazine*, t. 6365.

The species of *Erythronium* were very complete. These are very beautiful garden plants in the early spring. I like the yellow-flowered *E. americanum*, which, although it has been growing freely on our rock garden for many years, I have not seen a flower on it, and here, in the rich, deep, sandy soil, it produced a mass of flowers. It is not a new plant in England, and was grown and flowered by Messrs. Loddiges early in the century. The finest thing in the collection was a mass of *E. sibiricum*, whose large purplish flowers with white centres were fully 3 inches across; *E. Nuttallianum*, clear yellow; the well known *E. giganteum* or *E. grandiflorum* was very handsome, with as many as five of its large handsome creamy-white, yellow-centred flowers.

Alliums are not universally esteemed, but they are favoured by Messrs. Tubergen; the species mostly grown are Siberian and Central Asian introductions, and are hardy enough. I noted *A. karataviense* as having broad handsome leaves, with a margin of red; it was coming into flower, and the large heads of rosy-white flowers would be very pretty. *A. Rosenbachianum* is a giant amongst them. It produces broad leaves, and the flower-heads are supported on stems 4 feet high.

Amaryllis Hallii is a new hardy species with rose-coloured flowers slightly pencilled with blue. It flowers like the *Belladonna Lily*—in autumn—when the leaves have died down. There is a fine collection of species of the *Crocus*, and also of hardy Orchids. *Goodyera pubescens* looked beautiful in leaf, after being exposed all the winter.

Trilliums seemed to delight in the sandy soil, or else in the shelter and shade of the aforesaid hurdles; *T. sessile album* had larger white flowers than I have seen on the old purple type form; *T. discolor atratum*, variety with maroon-coloured flowers, is an improvement on the old type with small greenish-yellow flowers; *T. atro-purpureum* is reddish-purple; *T. grandiflorum majus* is the best of the species, and its masses of white flowers were very beautiful.

Colchicums were represented by the old and rather interesting *C. crociflorum*. The flowers are white with bluish stripes. The pretty, little *C. luteum* was passing out of bloom.

A mass of the orchidaceous plant, *Calypso borealis*, was interesting and pretty. It has one solitary cordate, entire, slightly obtuse leaf lying on the ground, and the rose [purple] coloured flower is borne on a scape 3 inches high.

The early flowering Irids are charming plants for the spring garden, and grow most freely here. Foremost amongst them were the forms of *I. reticulata*, the Snake's-head Iris, *I. tuberosa*, a free flowerer, is a contrast to it, with its lurid green and black flowers.

The Scorpion Iris, *I. alata*, had flowered in frames; its lilac-blue flowers are very pretty. *I. arenaria* is a dwarf rock plant, producing its greenish-yellow flowers in May; *I. canescens* has primrose-yellow coloured flowers, and *I. orchoides* is a very distinct species, producing its yellow-coloured flowers from the axils of the leaves.

There are very large beds of *Ixia*, and I am told that some of the new varieties have very large flowers; but they have all suffered considerably this year from frost.

Anemone fulgens made a fine display. The variety *Aldboroughensis* has the largest, best formed flowers. *Lachenalia* are grown in cold frames, but they have not done so well this year, owing to the long-continued frosts. Quantities of interesting plants that flower in the winter and early spring are grown in pots, and plunged over the rims in these cold frames. The winter-flowering Iris, *Tecophilaea*, hardy Orchises, &c., show off their beauties to advantage under this method of culture.

Amongst other flowering plants *Corydalis Kolpakowakiana* was very pretty, with its finely cut leaves and numerous spikes of pale pink flowers; this is another Central Asian plant recently introduced.

THE GLASS-HOUSES.

The few heated houses were well filled with choice plants, Orchids, &c., and amongst them I noticed a very pretty winter-flowering *Begonia* named *Gloire de Sceaux*, which, I was informed, is a perpetual bloomer. I was also greatly pleased to see flowering very freely a very pretty plant I have failed to flower myself, viz., *Tropaeolum azureum*. It has been flowered quite recently at Kew under the care of Mr. Watson. The tubers are potted in August, and the pots are plunged in a cold frame for about three months. During winter the plant is grown in a warm greenhouse. In the same house with it *T. brachyceras* was in flower; add to these varieties, *T. tricolor*, with its scarlet, green, and black flowers, and we have three excellent climbing plants which should have an honoured place in every garden. The above remarks will show how full of interesting plants some of these little-known bulb gardens are. *J. D.*

EXHIBITION OF TULIPS AT HAARLEM.

Since the spring of 1885 there has been annually opened in May, at the nurseries of E. H. Krelage & Son, Kleinen Montweg, Haarlem, Holland, a splendid show of late Tulips. This season four large beds of such Tulips have been planted, which probably will be in bloom at the beginning of this month. When in flower the beds are covered by two spacious tents, covering an area of about 7000 square feet.

This show has never before been surpassed in Holland, and is probably unique. Amateurs in general, and of Tulips especially, should pay a visit to the show, which will be worth even coming over from England to see. In the nursery grounds at the Kleinen Montweg is found a large collection of the best varieties of all the different classes of late Tulips, and amongst these are excellent one-coloured breeders of Flemish origin, called *baguettes* by the French. This collection, doubtless, is unrivalled for variety and for brilliancy of colour. Here are represented all colours possible, from pale porcelain to the darkest violet, from soft rose to the most brilliant red, from light brown to the darkest black, which exist in the vegetable kingdom. These Tulips have very large well formed flowers, which are placed on fine strong stems. If once these sorts could be multiplied so as to be sold in quantity they would form an unrivalled addition to our list of spring bedding plants and give to our gardens an attractive feature at a moment when striking colours are so much wanted. Moreover, when these sorts "break" there may be expected from them a lot of first-rate Tulips. The black and the darkest red shaded in this collection are really remarkable, and are likely to prove of great horticultural value. *E. H. K.* [A number of these *baguettes* are before us, and very fine flowers they are for the purpose indicated. *Ed.*]

MELON HOUSE AT SEFTON LODGE.

[SEE SUPPLEMENTARY SHEET.]

The Melon-house represented in our Supplement is, says Mr. James Taylor, the gardener at Sefton, 40 feet by 9 feet, and runs from north-east to south-west. It is a span-roof structure, with a pit on either side about 2 feet in depth and 3 feet wide, which, before planting the Melons out, is filled with stable-mannure, a small ridge of soil and manure being then placed on the surface, and when the temperature has fallen to 95° the plants are put in, taking great care that the collar of the plant is well raised, so that the loss of the plants by decay at that point is averted as much as possible. The system I usually adopt with my early crop is to place them 18 inches apart in a row, and when they have attained a length of 5 feet, the points of the leaders are nipped out, and the laterals which push from the main stem are allowed sufficiently to develop, and to fill the trellis without crowding. For the mid-season and late supply the plants are placed 2½ feet apart, and the fruit is allowed to form on the lateral shoots after these have been once pinched, by this means restricting the growth, and preventing the crowding that would occur were the fruits formed far from the main stem. I consider a crop of three or four fruits sufficient for each plant, the fruit then ripening whilst the plant is in full vigour. Each Melon weighs usually from 5 lb. to 8 lb. The leaves are remarkable for size, texture, and firmness, and as a rule no trace of red-spider is to be seen. The plants are kept well syringed with tepid water; and the kinds I find answer best are *La Favorite*, *William Tillery*, and *Eastnor Castle*; the latter is a good one for early forcing, as it sets so freely.

Melon growing is carried on in this district under somewhat unfavourable circumstances, loam not being obtainable, the light chalky soil of the parings from the roadsides having to be employed in place of it. Notwithstanding, I manage to gather excellent crops of fine fruit, as may be seen from the view presented.

PLANTS AND THEIR CULTURE.

IMPATIENS.—Besides the ordinary garden Balsam, several other members of this genus are largely grown during the summer months, none being better than *I. Sultani*, and the white-flowered *I. flaccida alba*. They are both of extremely simple culture, a light, rich soil, without shade, and a temperature of about 60°, suiting them well; but after the plants have attained to a medium size they may be placed in a lower temperature, where, without making much new growth, they will continue flowering for a long time. A good plan of getting up a stock of these plants quickly, is to put several cuttings in a small pot, place them in a moderately close moist pit or frame, when, with ordinary attention to shading and watering, they will be nicely rooted in about ten days; in a few days more they will have filled the pots with roots when they should be at once potted, using the soil before recommended, and pots of the size that is deemed most useful. The plants are of free branching habit, and seldom require any pinching of the shoots, nor are they subject to insects, if allowed a light airy position, with an occasional syringing whilst growing. *I. Hawkerii* is a beautiful plant of recent introduction, with large red and carmine coloured flowers; it is a somewhat stronger grower than either *Sultani* or *flaccida alba*, and small single plants look the best. *I. Jerdoniae* is a similar plant, but having yellowish-white and red flowers—it is a very pretty species, but does better in a trifle more heat; the same may be said of *I. Hookeriana*, which flowers during the autumn and winter months. But to do this plant properly, it should be well grown during summer; and as the autumn approaches, a light position with a temperature of about 65° answers best. If kept in a low temperature, the flower-buds are apt to drop. All the varieties mentioned are easily kept over the winter as cuttings.

Hardwood New Holland Plants.—*Eriostemons*, *Pultenaeas*, *Oxylobiums*, *Grevilleas*, *Tremandras*, *Leschenaultias*, *Gastrolobiums*, *Dillwynias*, *Darwinias*, *Aotus gracillima*, and other Australian subjects, should be attended to as they go out of flower, by being slightly cut back, or otherwise trimmed into shape, repotting those which require it, using good fibrous lumpy peat, with plenty of

silver-sand in it. A few pieces of white sandstone is also beneficial. After being repotted, and while they are making their growth, a somewhat closer and moister atmosphere should be afforded them; and remembering that the amount of flower next year will depend on the growth made. Although advising a closer treatment, this does not mean anything approaching to those conditions as applied to stove or soft-wooded plants, and if such were maintained, even if the plants escaped the ravages of mildew, probably the growths would be so soft that good flowering would be an impossibility. These plants above all things must have plenty of light and air, and the less shading is used the better for the plants. And as regards moisture in the air of the house, the foliage of the plants should be allowed to get dry for a considerable portion of the twenty-four hours. It is on bright afternoons, and, as the season advances in early morning, that syringing of these plants is best done; there is then time for the foliage to dry before nightfall. A chink of air should be left on at the top ventilators during the night. To keep the plants quite clean seldom anything is required beyond thorough syringing during the summer months. This should be done daily, and in the case of large plants with the hose or garden engine. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

SHO-TROPICAL BEDDING.—Generally speaking, there are few private gardens where this is carried out on a large scale, owing, probably to the erroneous belief that it is costly, and that unusual skill is required to attain good results, which is certainly not the case. There are now so many plants in gardens well adapted for the purpose of sub-tropical bedding, and which may be raised from seed annually, that its cost needs not enter into the question, but it will be found more a matter of climate than anything else. All beds and borders for these plants should be well drained, and placed in the most sheltered spots the garden will afford. In planting single beds avoid overcrowding, or planting too many species in one bed merely for the sake of variety—both are faults which should be guarded against. Pleasing and effective beds may be obtained by planting a single species only, carpeting the surface with some dwarf-growing subject, such as *Alternanthera* or *Mesembryanthemum*, with an edging of *Lobelia* or *Pyrethrum*. Do not plant out any of these tender species before the middle of the month, and harden them off gradually for this purpose.

Roses.—Examine these plants for insects, and take means to eradicate such forthwith. Those growing against south walls are at this season very liable to be infested with aphids, and it will be found a good plan to syringe them late in the evening with weak tobacco-water in the proportion of 1 pint of concentrated tobacco-juice to 4 gallons of soft water. Keep a sharp look-out also for the Rose maggot, or much damage may be done in a very short space of time; the young larvæ may easily be detected by the web they spin in the young leaves; crushing these curled leaves between the finger and thumb will kill the maggot. Pinch off not needed wood buds on H.P.'s, and leaving only one to a shoot if large flowers are wanted for special purposes. It will also be advantageous to mulch old beds with farmyard manure, and water afterwards if the weather should be dry.

Hardy Annuals.—These should be thinned out at once wherever necessary, leaving from three to six plants to a square foot, accordingly as the plants grow small or large; the lesser number will be ample for such plants as *Candytuft*, *Clarkia*, *Collinsia*, *Bartonia aurea*, &c., i.e., when they are large enough and safe from the attacks of slugs. When overcrowded, plants and flowers do not become so large as they would otherwise, and the flowering season is usually of short duration. Earth-up lightly, and put sticks to sweet Peas.

Lilium auratum.—For flowering in open beds and borders imported bulbs that were started in pots in frames a few weeks ago should now be planted out, and as soon as sufficiently high they should be tied to make them secure.

Double-flowered *Pyrethrums.*—If not already done these ought to be staked and tied without further delay. Wherever they are much grown for cutting purposes special attention should be given to them at this time of the year; and old-established beds will be greatly benefitted by being watered with weak liquid-manure, the labour that this entails being

well repaid by the larger blooms. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

PINES.—During this month, generally more fruits will turn in than are required at a given time, and if some of the plants on which the fruits are now half coloured be removed, pots and all, to ainery from which the Grapes are being cut, their ripening will be much retarded; the colour of the fruit will be improved, while the flavour will be considerably better than if allowed to remain in the moist atmosphere necessary at this season of the year for the proper swelling up of the fruits. Prior to the removal of the plants all the suckers which are sufficiently large should be detached from the plants and potted for stock. The house or pit in which plants are ripening should receive a larger amount of air than it would be judicious to afford to plants swelling their fruits, and less moisture in the atmosphere than heretofore recommended; although the plants must not be allowed to become so dry at the root as was recommended last month, else premature ripening will result. The soil at the roots must be kept moist, but not wet.

Successions.—The second batch of plants, which were recommended to be started to throw up at the end of March or beginning of April in the calendar for February, will now be swelling rapidly; these will require liberal supplies of weak manure in the water every time water is afforded, and let each plant be examined twice a week, and if it be dry let a thorough watering be given. It not unfrequently happens that the plunging material at the bottom of the bed where hot-water pipes are used gets very dry from long-continued firing, and becomes congenial to the roots of the plants, which are mainly at the bottom of the pots. I have frequently in such instances watered the beds with water at a temperature of 85°; afterwards, when the thermometer reached 80° in the morning with sun-heat, admitting a little air, and increasing the amount until the glass stood at 85°, at which it may be kept till shutting up time. Damp the surface of the beds and paths the first thing in the morning; at mid-day the paths should be sprinkled, and at shutting-up time the plants should receive a gentle dewing overhead, and all available surfaces be liberally damped with a watering-can and rose. In syringing, avoid as much as possible the lodgment of water in the crowns. The temperature may be allowed to run up to 95° for a time after the pinery is closed, and 75° maintained as a night temperature; when the nights are mild and warm a little air should be left on the top ventilators after 6 p.m., allowing them to remain so during the night.

The younger succession plants should be kept 5° lower than fruiters. A slight shade during the hottest part of the day should be afforded to all plants in active growth; keep the plan steadily moist at the root, and supply ample atmospheric moisture, and on the paths only, damping down, &c., as recommended above for older plants. See that the heating apparatus is comparatively cool by the time the sun attains any power over the temperature, or more air will have to be afforded, which would lead to loss of moisture. The treatment of suckers is similar to that for growing stock—only a little more bottom-heat should be given to induce the plants to root freely. See that young stock are not allowed to become dry at the root. When the sucker pots get fairly filled with roots it is better to pot the plants on than run the risk of a check, with the result that they would start prematurely and be worthless. *W. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

CHERRIES.—The bloom in most districts of the country being now set on Morello, Kentish, May Duke, and other early varieties, the trees should have a thorough syringing. Examine the trees for black aphids, and if it be detected on them syringe the affected parts with tobacco-water or some approved insecticide. If the borders on examination should prove to be dry a thorough watering should be afforded them, putting on a slight mulching soon afterwards. The foliage of the May Duke Cherries is apt at this time of the year to turn very yellow, and when such is the case, a very simple remedy is to sprinkle the surface of the soil round about the roots,

and to some distance from the stem with fresh soot, which should be pricked in and the soil sufficiently watered to carry the soot downwards. One application is usually sufficient to bring the foliage back to a healthy green, but a second application will do no harm, should it be deemed necessary.

Trees growing on walls should have the leading shoots nailed in, and all young wood not required for laying in must be pinched to form fruiting spurs; cordon trained trees should likewise have their young shoots pinched back, leaving untouched the leading shoots if the trees have not reached their full limits. The branches of Morello Cherry trees, grown on the pyramid and bush forms, very often die off in a mysterious manner just about the period of the fruit stoning; to obviate this I find it is a good plan to pinch all young growths at the fifth or sixth leaf. Since adopting this practice we have lost but few branches compared with our losses in previous years when we left them unpinched.

Gooseberry Caterpillar.—This pest has appeared on the bushes in spite of every precaution, but so far the attack is fortunately confined to a few bushes only. Various remedies are recommended for destroying them, Hellebore powder being one of the number; but as that is a poison, it is not a safe one to employ. Here we are using dry wood-ashes on some of the trees, and tobacco-ash on others, the trees being thoroughly damped with the syringe before the ashes are applied. Tobacco-ash is apparently the better of the two, for as soon as it touches the caterpillars they loosen their hold of the leaves and branches and fall to the ground, when, upon being dusted over again, they curl up and die. The tobacco-ash must not be confounded with tobacco dust as sold for insecticide purposes. This was sent me to experiment with, to test its value as a manure, and it occurred to me that it might be useful for destroying caterpillars on Gooseberry trees, and so far it is certainly the best remedy that I have had experience with. All protecting material in the shape of canvas, Frigo Domo, &c., being now no longer wanted on the trees, should be dried and stored away. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

TOMATOS.—These should now have plenty of air and be gradually hardened off in readiness for planting out, when it may be safely done. If they have been managed in accordance with previous directions the pots will be full of roots, and the plants showing flower, and careful attention must be afforded them until planted out, not letting them get starved from want of water. In the southern parts of the kingdom they succeed well if planted in the open quarters of the garden and trained to stakes or hurdles, but in cold parts a warm wall is necessary to ripen their fruit properly. It is usual when planting them to dig in a quantity of rotten manure immediately under the roots, and in warm places this is a good plan, but if the garden be cool and moist the manure so employed is apt to encourage very strong growth, which is not favourable to fruitfulness, and it is therefore best to plant in poor soil and assist them with liquid manure when the fruit is formed; the main shoots should be trained 18 inches apart, and growth encouraged as much as possible but pinching off most of the lateral shoots as soon as they appear.

Thinning young Crops.—This operation is best done in showery weather, if possible, the plants being more easily drawn out at that time, and those remaining get quickly re-established, but the advantage of early thinning cannot be too strongly urged. A striking instance of its benefits occurred near this place last summer—in a field of Carrots, one third of which was thinned as soon as possible and gave a good crop of fair-sized roots, and the remaining portion was thinned eighteen days later, when the weather was much warmer, and the result was that scarcely any good roots were obtained from this portion of the field, although in other respects it was treated just like the other portion. Carrots should be left about 6 inches apart in the rows, Parsnips 9 inches, and Onions 4 inches, where only moderately-sized roots are required, but if large roots are wanted they should be left at double those distances.

Seeds.—Sow more French Beans, Scarlet Runners, Broad Beans, Marrowfat Peas, White Cos Lettuce, and Spinach, and if young Radishes are in request throughout the season a quantity of seed should be sown every week, choosing a cool and moist position, and the beds should be well supplied with water in dry weather. *W. H. Divers, Kilton Hall, Stamford.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

WEDNESDAY, JUNE 6 { Evening Promenade and Floral Fête in Aid of Gardeners' Orphan Fund, in Flower Market, Covent Garden, 9 to 12 P.M.
Linnean Society.

SHOWS.

WEDNESDAY, JUNE 6 { Reading.
Ancient Society of York Florists.
Bath and West of England, at Monmouth (five days).

SALES.

TUESDAY, JUNE 5 { First Portion of the Collection of Orchids formed by Dr. Duke, of The Glen, Lewisham, at Protheroe & Morris' Rooms.
WEDNESDAY, JUNE 6 { A Further Portion of the Collection of Orchids, formed by the late Joba Day, Esq., of Tottenham, at Stevens' Rooms.
THURSDAY, JUNE 7 { Importation of Orchids, from Mr. F. Sander, at Stevens' Rooms.
FRIDAY, JUNE 8 { Imported Orchids, at Protheroe & Morris' Rooms.

The Linnean Society. THIS Society, which celebrated its first centenary last week, as we briefly recorded at the time, has not had the chequered existence which is so marked a feature in many such institutions; it has had its ups and downs, no doubt, but on the whole its progress has been uniformly prosperous. No sooner was the burden of debt removed than its progress became more marked, so that now, in addition to the possession of a splendid library of natural history, which is annually increasing, it can afford to spend £1400 a-year in the publication and illustration of scientific memoirs. The history of the Society may soon be told. On the death of the great Swedish naturalist his widow determined to sell her husband's books and collections. At the instigation of Sir JOSEPH BANKS, Sir JAMES EDWARD SMITH purchased the whole in 1784, and four years later established the Linnean Society. The story that a Swedish man-of-war gave chase to the English ship that was carrying off the treasures, with a view to retain them for Sweden, turns out to be a myth. The Linnean Society thus established numbered among its first members GOODENOUGH, afterwards Bishop of Carlisle; MARSHAM, the entomologist; DRYANDER, a pupil of LINNÆUS; SWAINSON, BECKWITH, and JAMES DICKSON, a seedsman and herbalist of Covent Garden; so that thus early an association with horticulture was established which has never been broken, as most of the eminent horticulturists have been and are Fellows of the Linnean.

On the death of SMITH the Linnean collections were purchased by the Society from his executors, and for the purpose of meeting this expenditure a subscription was raised, and the remainder defrayed by the issue of bonds, which constituted a heavy charge on the resources of the Society for many years and crippled its development. Happily this debt has long since been wiped off.

Originally the proceedings of the Society were staid and formal to a degree, not to say conservative. Sir JAMES SMITH naturally considered the Linnean system as preferable to the natural system, although, as was well remarked at the Centenary, LINNÆUS full well knew that his artificial system was only a means to an end, the end being the establishment of a philosophical or truly natural arrangement, and of which he gave a sketch, but towards the elaboration of which he was only able to arrange the materials. We cannot here even sketch the history of the Society; but we cannot refrain from alluding to one of its Presidents, ROBERT BROWN. Sir JOSEPH HOOKER's eulogy of the great botanist will shortly be made public, in the meantime the career of BROWN may serve as a useful reminder to those one-sided naturalists who, from necessity or choice, are specially addicted to one branch only of their science, that the broadest views are not gained, and the highest eminence not attained by lop-sided procedure. Sometimes we find botanists given up to counting stamens and pistils, like SMITH and some of his contemporaries. In modern times we find botanists ignoring the discrimination of species and their classification as things beneath their notice, and devoting all their attention to protoplasm and the minute structure of the plant. ROBERT BROWN was much too great a man to act thus. A study of his works reveals the profound investigator in each and every department of the science, so far as the means and material resources then at his command permitted. BROWN was as cautious as he was sagacious; his manner was not agreeable, so that when the genial and courteous Professor BELL succeeded to the Presidential chair, the Fellows experienced something of a sense of relief, and the meetings, if no less decorous, were certainly not so dull. Evening dress was no longer required of the Fellows, or even the President, but had fallen gradually into disuse, like the wigs of former times. Discussion and criticism of the papers read, instead of being tabooed, were welcomed, to the great enlivenment of the meetings, and the considerable advance of science. After BELL came BENTHAM, than whom none ever had the interests of the Society more at heart, or worked more indefatigably for it. The series of addresses he gave in his capacity of President rank among the most important publications in philosophical natural history. It was during his Presidency in 1858 that the paper which was the forerunner of the *Origin of Species*, by CHARLES DARWIN, was read, at the same time that a memoir on the same subject, and containing almost identically similar conclusions, was read from ALFRED WALLACE.

BENTHAM himself was converted to the new faith slowly, LYELL and HOOKER were not more hasty in their reception of the new views; but, surely if slowly, the descent of species from pre-existing forms, and their gradual modification became the acknowledged truth from which few if any now dissent, and perhaps none of the generation of naturalists that has grown up since 1858. In what precise lines the descent has occurred, and what have been the prime causes of the modifications everywhere witnessed, are matters still more or less in dispute. By a succession of elaborate papers containing the results of actual observation and experiment, DARWIN effectually silenced those who looked upon him as a mere visionary theorist. Since that time the Linnean Society, though by no means officially bound to support or diffuse this, that, or the other view, but only pledged to the search after and the promulgation of the truth,

so far as it is possible to arrive at it, has been a powerful means in disseminating and diffusing the vast body of new facts that have been brought to light as a direct consequence of the Darwinian theory. These have in a quarter of a century revolutionised natural history, and given to it an impulse which rivals in extent and far surpasses in variety that produced by LINNÆUS himself. The Darwinian views, indeed, are the proper sequel and complement to those of LINNÆUS.

The addresses delivered at this memorable centenary will shortly be published, so that we need not now allude further to them; but in drawing these brief notes to a conclusion we cannot help noting that the connection between botany and medicine was once as close as that between botany and horticulture. It has been deemed wise and proper to separate the two former. May the example of LINNÆUS, of ROBERT BROWN, the two HOOKERS, of BENTHAM and of DARWIN—all of whom markedly availed themselves of the resources of horticulture, ever suffice to keep firm the ties of reciprocal utility which ties botany and horticulture together in a common bond.

ROYAL HORTICULTURAL SOCIETY.—An Honorary Fellowship has been accorded by the Royal Horticultural Society to Mr. JOHN NEWTON, Gardener at the Inner Temple, London, in recognition of the services rendered by him on the occasion of the recent show in the Temple Gardens.

COMING SHOWS.—The next four shows will be of much interest to horticulturists, and we believe that special efforts are being made by the Society to obtain a larger number of exhibitors. On June 12 is a show of Rhododendrons, hardy Azaleas, flowering shrubs, Ranunculus, Anemones, Iris; on June 26, one of Begonias, Gloxinias, Pelargoniums, cut Clematises, Peonies, Roses, Pinks; on July 10, one of Roses, Lilies, Strawberries; and on July 24, the Carnation and Picotee Show, and zonal Pelargoniums will be shown.

GARDENERS' ORPHAN FUND.—In aid of the funds of the above movement it is intended to hold a floral fête and promenade in the wholesale flower market, kindly lent for the occasion by his Grace the Duke of BEDFORD, K.G., on the evening of Wednesday, June 6 next, between the hours of 9 and 12 P.M. Her Royal Highness the Duchess of Teck has graciously given her permission for her name to be announced as a patroness of the fête. The wholesale flower market, the entrance to which is in Wellington Street, will present, with the immense quantity of flowers arranged by the growers, an unique and beautiful sight, unapproached by anything of the kind in the world, great need of praise being due to the growers themselves for their promised assistance in staging their goods earlier than usual on this evening. The gratifying success attending the movement reported from time to time in these columns enables the first election of candidates (six) to be held on Friday, July 13 next, at the Cannon Street Hotel. A meeting of the committee was held at the "Caledonian" Hotel, Adelphi, W.C., on the 25th ult., Mr. GEORGE DEAL presiding, there being as usual a good attendance of members. The minutes of the previous meeting having been duly signed, a letter was read from the widow of the late Mr. JOHN WOODBRIDGE, from the first an active member of the committee, in reply to a vote of condolence and sympathy sent to her on his decease. The Hon. Secretary, Mr. A. F. BANNON reported that a balance of £772 16s. 5d. was at the bank, and it was unanimously resolved that a further amount of £500 of stock in Consols be purchased, making a sum of £1000 so invested. The Secretary also reported that the total sum promised up to date as donations was £1195 8s., of which sum £1093 5s. had been paid; and of subscriptions, £398 12s., £244 2s. having



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MELON HOUSE, SEFTON LODGE, NEWMARKET.

been received. Those who have promised subscriptions need to be reminded that the first election of children to the Fund takes place on July 13, and that no one will be entitled to vote whose subscription remains unpaid. During the past month the names of twenty-two new subscribers have been received; donations amounting to £26 13s., and subscriptions, 11s. Mr. J. SMITH, Mentmore Gardens, handed in the sum of £7, the proceeds of a concert given at Mentmore on behalf of the Fund. The sum of £7 16s. was announced from Mr. W. HOWARD, Southgate, collected by him at the Temple Show. Heartily votes of thanks were passed to Messrs. SMITH and HOWARD. The sub-committee appointed to prepare the voting paper presented the same, which was unanimously approved. A letter was read from C. H. T. PRICE, Esq., Kenley, Surrey, on behalf of ALBERT EDWARD WEST, the son of his late gardener, and the youngest of a family of four children, informing the committee that since the nomination of A. E. WEST his widowed mother had died, and that the child was destitute. The Secretary announced that a list of subscribers to date had been prepared, and any person desirous of having a copy for election purposes should apply to him. A circular of invitation to the dinner on the day of election was read and approved; the same to be forwarded to subscribers with the voting paper.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We have pleasure in calling the attention of our readers to the fact that the forty-fifth anniversary festival will take place on Wednesday, July 4, upon which occasion the Right Hon. JOSEPH CHAMBERLAIN, M.P., has kindly consented to preside. It is hoped that the amount of subscriptions obtained will enable the Institution to grant pensions to the fifteen unsuccessful candidates of 1887, and also to add some others to the list of its pensioners.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.—Mr. BRUCE FINDLAY, Secretary of the above Society, informs us that the annual horticultural exhibition at Manchester has again proved a great success, about 50,000 persons visiting the show during the week, and the increase this year from 2 guinea and 1 guinea subscribers amounts to £2750.

"REICHENBACHIA."—With the present number the first volume of this sumptuous publication is brought to a conclusion. A review of the volume as a whole does but enhance our admiration of the artistic beauty and fidelity to Nature of these plates, while the interests of the botanist are served by Professor REICHENBACH's text, and those of cultivators by the judgment and experience of Messrs. SANDEN. The following are the species figured in the last number:—

Odontoglossum crispum var. *Kinlesideanum*, t. 45.—In this curious variety the side petals are irregularly striped and flamed with red, and present a similarity in appearance to the lip, which is, however, less striped. The variety occurred in an importation of *O. crispum* made by Messrs. SANDEN. It is a pelorioid form, which possibly may be of hybrid origio.

Cattleya Trianae Schroderiana, t. 46.—Sepals narrow, petals very broad, body white flushed with rose, lip with an orange throat and a broad anterior magenta blotch.

Epidendrum vitellinum, t. 47.—The large-flowered type of this beautiful orange-coloured variety comes from Mexico—the smaller-flowered form from Guatemala. It may be termed an alpine Orchid, seeing that its home is on cloud-capped mountains amidst continual mists, hence, says Mr. SANDEN, it must be treated strictly as a cool-house Orchid. Messrs. SANDEN, moreover, always find that in moist localities, such as the West of England and Scotland, *E. vitellinum* is grown to perfection with the least trouble. It flowers in June.

Laelia anceps var. *Stella* and var. *Barkeriana*, t. 48.—On this plate are shown the oldest and one

of the newest varieties of this species, as well as the darkest and the lightest flowered.

"FLORE FORESTIERE DE LA COCHIN CHINE."—M. PIERRE's magnificent publication on the forest flora of Cochin China has progressed as far as the 160th plate. It is a work in folio, with lithographic illustrations of the species and a French text. The arrangements of the stamens in the *Garcinias*, as here shown, is very interesting, while the economic value of the trees is great. A final plate is given of *Anamirta cocculus* which furnishes the seed known as *Cocculus indicus*. M. PIERRE repeats the tradition (quite false we believe) that the berries of this plant are used in the manufacture of beer in England. Fine plates are also given of the Teashrub, *Thea chinensis*, Sims, and of some of its varieties. M. PIERRE makes five varieties—*Bohea*, *viridis*, *pubescens*, *cantonensis*, and *assamica*. Of the hybrid variety, M. PIERRE has no personal knowledge. As is the case with plants generally, certain varieties of Tea are suited to special soils, localities, and conditions. *Thea sasanqua* and *T. hongkongensis* are also figured. *T. Dormoyana* and *T. Piquetiana* are recommended for cultivation as ornamental plants. The number concludes with some illustrations of the fine genus *Elaeocarpus*, which is well represented in Cochin China.

ADONIS VERNALIS.—Mr. WARE sends us a curiosity in the shape of a dense tuft of green leaves, which he says—and we believe him implicitly—is, or was, a flower of *Adonis vernalis*. Here is what he says about it:—

"I herewith send you a something, I do not know what. It is a peculiar double form of *Adonis vernalis* which was a fortnight ago a beautiful golden-yellow, with a green centre; the green centre has continued to grow, and the yellow petals have been dropping at the same ratio as the green has grown in the centre: there are just a few left at the back of the flower for you to see. I have several plants of it all in the same way."

The centre of the flower is occupied by the pistils; in the ordinary course of things these pistils in the *Adonis* are very numerous, and arranged spirally along the sides of that part of the plant that runs through the centre of the flower, and to which its several parts are attached. These pistils, again, are, it is universally admitted, modifications of leaves. What has happened, then, in this case is that the pistils have developed in the form of leaves, and that the flower-stem has lengthened and produced numerous additional leaves instead of ceasing to grow, as it usually does. What has started this second growth we do not know, but it is easy to guess that a little water at a particular stage of growth with a little more sun-heat may have set the plant growing again, when under ordinary circumstances it should be devoting itself to the ripening of the seed.

TWIN-FLOWERED HYACINTH.—In turning over the pages of that interesting old volume, the *Hortus Floridus* of CRISPIN PASSE (1614), and which formed the subject of so much commentary in these columns last year, we came across, on t. II of the first part, a figure and description of a Hyacinth in which the two bracts at the base of the flower-stalk were enlarged, and of a leafy character, as happens in SHAYLOCK's variety of *Galanthus*. From the axil of one of these bracts, and in some instances from that of both, proceeded a flower-stalk. At the same place is mentioned a Hyacinth which produces flowers at first of a green colour, but which subsequently become blue, and finally white, while from the centre proceeds a second imperfect flower (median proliferation).

VICTORIAN FRUIT FOR THE ENGLISH MARKET.—The *Mildura Irrigationist*, April 18, says:—"Mr. J. LANG, the well known Harcourt fruit-grower, has succeeded in placing Victorian fruit on the London market with very satisfactory results. At the present time the Victorian market price for the class of Apples exported is about 6s. per case; but as they

are varieties which will keep well, Mr. LANG, had he not been exporting, would not sell them for about three months, when from 8s. to 9s. per case could be obtained. The cost of transit from the orchard to the steamer is 11s. per ton, and the freight from Melbourne to the consignees £4 10s. per ton, or twenty-eight cases, which occupy 40 cubic feet in the cooling chamber provided in the steamers. The total cost from orchard to the seller in London is, therefore, a fraction over 3s. 7d. per case, or 1½d. per pound. This figure is applicable when there are no agents or intermediate charges; but the average cost is somewhat higher in relation to the consignments of Mr. B. G. BERRY. As this is the first year that Mr. LANG has exported any considerable quantity of fruit, he is not in a position to state what profits will be realised in connection with the retail trade. He is perfectly satisfied, however, with the inducements offered by the London merchants. The prices obtained in the London market during the past two years for sound Australian-grown fruit have been:—For Apples, from 2d. to 6d. each; and for Pears, from 2d. to 1s. 6d. each; or from £1 5s. to £1 10s. for the former, and an average of from £1 10s. to £2 per case for the latter fruit, which leave an excellent margin of profit."

M. H. CORREVON.—In acknowledgment of his eminent services in raising and cultivating rare species of the plants of Switzerland, this Genevan botanist has been named Corresponding Member of the horticultural societies of Antwerp and of Tuscany.

MR. B. S. WILLIAMS' NURSERY.—The Orchids at this nursery are now in beautiful flower, and we hope next week to give an account in detail of what there is of chief interest amongst them.

BEDFORD AND BEDFORDSHIRE HORTICULTURAL SOCIETY.—The fifth annual show of this Society will be held at Bedford on July 11, when special prizes of considerable amount will be awarded in open competition for plants, roses, and cut flowers.

LATE FLOWERING FRUIT TREES.—A valued correspondent, who has kept a record for several years, informs us that his observations do not corroborate the generally accepted idea that late flowering varieties are more certain bearers than medium or early flowering varieties. "As a rule, very late flowering varieties of, say, Apples or Pears, are not of a robust habit; nor are they, taken one year with another, of an extra prolific nature. Few, or none, produce first-rate fruit, that is, having fruit of a large size, handsome in shape, first-rate in flavour, and of a high quality. Very early flowering varieties are not quite so indifferent. Medium (early or late as the case may be) varieties comprise, generally, all our best and most prolific varieties. Neither are varieties of Apples raised in colder or warmer climates proved to be equally productive and profitable with those of undoubted British origin. I am not," says our correspondent, "aware of a single type of Apple introduced from abroad, but what we have a better one of the same type raised in Britain. This remarkable fact first came under my notice when examining the Apples exhibited at the Congress at Chiswick, in 1883, and at Edinburgh, in 1885; and afterwards, more strongly, when reading the 'Reports' of both. Of course, these remarks about the superiority of home raised varieties of Apples do not apply to Pears, Plums, and Cherries, &c., although of all of them some of the leading varieties are British. I have the Report for 1887, of the American Pomological Society, before me, in which is a very interesting account of an experiment which has been made in the States, and the Dominion of Canada, by introducing a large number of the best varieties of Russian fruits—Apples, Pears, Plums, and Cherries—and the result is by no means encouraging. Between 400 and 500 varieties of Apples, about seventy of Pears, and many varieties of Plums and

Cherries, have been introduced from Russia to the United States, and so far as several years' experience goes, there does not appear to be much, if any, improvement among that host of varieties over those that were previously cultivated in the States. Still, the experiment is so far satisfactory, that it will set the question at rest—at least, for a time, in North America. I see and read most of the pomological 'Reports' and other literature, from every quarter of the world, especially that bearing on fruit that is hardy in this country, and it does not appear that fruit cultivation in the open air is any more certain, on an average of seasons, elsewhere than it is in Britain. Growers grumble at low prices and bad climate, or weather, &c., all the world over; but skill and energy succeed, under ordinary circumstances, in spite of it all."

NEW CAMELLIAS.—In Europe the Camellia has lost its place as a front rank plant, so rapidly does fashion change; but in Japan and China—the home of the plant—some extraordinary novelties are said to have been raised in recent years. Mention is made of a half-double variety of a deep purple shade which approaches almost to black, but which is rarely to be met with; another is a very double white flower with an almost golden suffusion; of this there are very few in commerce. The third novelty is of the form and colour of *C. alba fimbriata*, with flowers more than 7 inches in diameter; the fourth is a white flower with bands and stripes of another colour—a very interesting object, but which is rarely seen in perfect beauty. This variety has the property of bearing shoots which produce "sporting" flowers of orange-red, and sometimes pink. Besides these there are varieties of *C. sasanqua* in commerce—a white and a rose coloured. The flowers are double, and of the Anemone-flowered type. Both varieties flower in October. *Hamburger Garten und Blumen Zeitung*.

"FERTILITY MANURE."—We have tested this cleanly, not unpleasant smelling chemical manure, on plants in pots—viz., Cliveas, Dutch bulbs, *Cytisus*, *Pelargonium*, &c.—and in the open border, with equally good results. It is found better to apply it as a weak solution, that has been well stirred and then allowed to stand (twenty-four hours) until the water has become quite clear before using it. Employed in this way its distribution is more regularly performed, and there is no risk of injury to the foliage and stems of the plants which it is desired to benefit. The growth of foliage is not unduly developed, but an intenser shade of green is brought out by its use.

AN UNCOMMON ARRANGEMENT OF PLANTS.—In the *Garten und Blumen Zeitung* for May is an article descriptive of the Royal George Garden, at Hanover. Attention is drawn to a tasteful arrangement of plants of *Begonia rex* variety and *Rhodanthe Manglesii* in a group which has met with general approval, and under suitable conditions can be recommended. The rosy-yellow heads of bloom on slender tall stalks of the *Rhodanthe* are very effective when seen against the shield-like deep green leaves of the former. The plants are presumably growing in pots. In another part of this garden the groups of deciduous shrubs are rendered gay after their flowering season is over by sinking pots of various plants into the soil amongst the bushes, such as *Callistemon lanceolatus*, *Hedychium Gardnerianum*, *Metrosideros lophantha*, and *Erythrina Crista-Galli*.

FLOWERS IN SEASON.—Mr. T. S. WARE sends us a quantity of large-flowered hybrids of the common Cornflower 3 inches across the disc, and with stout tall flower-stalks. The colours vary from rose-pink, purple, and blue to white. He likewise sends a number of terrestrial Orchids, viz., *Ophrys myodes*, the only British representative of the genus; *O. lutea*, *O. scolopax*, white and brown; *O. Bertolini*, and *O. speculum*, being South European. *O. myodes* has

a chocolate-brown lip and green petals and sepals, and is an insignificant flower. *Orchis fusca*, British, was a nice spike of rosy-lilac and brown flowers; *O. undulatifolia* and *O. provincialis*, the former with pink, and the latter with pale yellow flowers, are natives of the South of Europe. *Cypripedium calceolus*, yellow and brown, and *C. macranthum*, red-purple, complete the list of Orchids. Mr. WARE states that these terrestrial forms grow very well in loamy or marly soil, the more tender species being benefited by a little shelter in early spring. Other flowers sent were *Brodiaea Howelli*, white and blue campanulate flowers in umbels; and the lovely dark blue flowered *Ixiolirion brachyanthum*, the former from California, the latter Thibetan, and which differs from *I. tartaricum* by its shorter bulbs, earlier flowering, and deeper colour. We have also received a plant of *Silene pusilla* from Messrs. J. BACKHOUSE & SON, York. In our issue for July 9 last year, p. 44, an illustration of this extremely pretty plant is given. The flowers are very freely produced on short stalks, and are pure satiny-white, and the plant is hardy; it makes a welcome addition to rockeries, being very dwarf, attaining only about 1½ inch.

SIR ROBERT LODER, BART.—The death is announced of Sir R. LODER, Bart., rather suddenly, at Beach House, Worthing. The deceased Baronet was the only surviving son of GILES LODER, Esq., of Wilsford House, Salisbury, and he is succeeded in the baronetcy by his eldest son, Mr. EDMOND LODER, who is High Sheriff of Northamptonshire, and a member of the Council of the Royal Horticultural Society.

MARKET GARDENING NEAR PENZANCE.—The *Cornish Telegraph* of Thursday, May 30, contained the following interesting particulars:—On Monday, between 1 and 2 cwt. of Grapes were cut by Mr. THOMAS, of Ridgovean, Gulval, near Penzance, for the London and other markets. Mr. THOMAS had also no less than twenty-eight large glass-houses for growing Tomatos. Last year Mr. THOMAS cut and disposed of no less than 8 tons of Grapes from his vineries, and some of the fruit realised as much as 8s. per pound. At Penion Mr. R. THOMAS is busily engaged in Cucumber growing having fourteen long houses stocked with plants. The Potato crop is rather backward for the time of the year, but appearances indicate a remunerative yield on the whole.

A BOTANICAL JOURNAL.—An illustration of the change which has come over the study of botanical science in this country of late years is afforded by the appearance of the first part of a new journal entitled *Annals of Botany*. This is edited by Professor BALFOUR, of Oxford; Dr. VINES, of Cambridge; and Professor FARLOW, of Harvard, Mass. Systematic botany pure and simple is to find no place in these *Annals*, if we may judge from the contents of the first part. Physiological botany in its morphological aspect seems likely to be well represented, and Professor WARD's paper on the "Histology and Physiology of the Fruits and Seeds of *Rhamnus*" will remind readers of a former generation of DECAISNE's monograph on Madder—no slight compliment to Professor WARD.

CULTIVATION OF FRUIT TREES.—The *Indian Agriculturist* states that the Quetta authorities are on a fair road to make that promising place one of the best cantonments in India. They have now turned their attention to the cultivation of fruit trees; and the Ranikhet and Simla nurseries have recently supplied a large number of English fruit trees.

PUBLICATIONS RECEIVED.—*The Principles of Agricultural Practice*. By J. WRIGHTSON, M.R.A.C., F.C.S., &c. (London: CHAPMAN & HALL, Limited, 11, Henrietta Street, Covent Garden, W.C.).—*The Co-operative Wholesale Societies, Limited, Annual for 1888*. (Manchester: Balloon Street.)

HORTICULTURE AT THE GLASGOW EXHIBITION.

THIS exhibition is unquestionably a great one, and excels that of Edinburgh in most respects. The grounds in which it is held form part of the beautiful West End Park of Glasgow, which were already well and skilfully furnished, and required very little in the way of planting for embellishment, which the local nurserymen have not availed themselves of as far as they might have done. Messrs. Austin & McAslan, Glasgow; Messrs. Methven & Sons, Edinburgh; and Messrs. Little & Ballantyne, Carlisle, have the most important exhibits of trees and shrubs. The collection of the first-named firm comprises a fine selection of *Rhododendrons*, *Hollies*, standards and bushes, *Conifers*, *Sweet Bays*, &c., grouped with excellent taste on a large square grass plot in front of the greenhouse set up for exhibition by Messrs. McKenzie & Moncur. This group will shortly form an attractive feature in the grounds, as *Rhododendron* plants bristling with flower-buds form a very considerable proportion of the material composing it. The two last-named firms exhibit their contributions on the borders respectively to the right and left of the main entrance to the buildings. Both have obviously studied the requirements of the position they occupy from the decorative point of view, rather than the well-known riches of their respective nurseries. The borders being close to the foot of the walls, they have each attempted, and successfully, too, to tone down the plainness of the extended lines of the latter by planting noble specimens of pyramidal *Hollies*, *Conifers*, *Aucubas*, *Rhododendrons*, &c. Messrs. Roger McClelland & Co., Newry, Ireland; Mr. Andrew, Kilmarnock; and Messrs. Samson, of the same place, exhibit characteristic groups in different parts of the grounds.

Of hothouse builders' productions there are five exhibitors. Messrs. Boyd & Sons, of Paisley, occupy the nearest position to the main entrance with a wooden conservatory, very handsome, architecturally. The side borders of the house are planted out with the view of showing the intended arrangement internally, and virgin cork screens are employed all round to exclude both the hot-water pipes and the balloon ventilators from view. The exhibit attracts much attention on account of its novel—I had almost written mediæval—character. At first sight it suggests the idea that it is a revival of some almost forgotten style, but when examined in detail the conviction that it is admirably adapted for the purposes of a conservatory is at once seen. It is well finished in regard to painting and glazing. The furnishing of *Camellias*, *Palms*, *Azaleas*, *Clematis*, and *Ferns*, &c., is done by Mr. Storrie, of Partick, in good style.

A little way off stands the neat conservatory of Messrs. McKenzie & Moncur, of Edinburgh and Glasgow. It is of wood and iron, the roof curvilinear, on lattice girders, supporting an angular lantern, the whole having a light and elegant appearance. It is furnished with a collection of attractive greenhouse plants, and some fair samples of *Odontoglossum Alexandræ*, by Messrs. Austin & McAslan.

Messrs. Lowe & Sons, of Gilmore Park, Edinburgh, and Cornbrook, Manchester, have a very handsome architectural conservatory in wood, similar in character to the one they exhibited at the Edinburgh Exhibition two years ago, but with an improvement in the proportion gained by a little more extension being given to the wings. The ventilating gear is a special feature, it being on the firm's universal joint principle, by which the ventilators in every angle of the most complicated house can be opened or shut by one lever or wheel. Frames of various kinds, boilers, and garden seats form part of the exhibit of the firm.

Messrs. Gardiner, Bellevue, Edinburgh, and Peel & Sons, also of Edinburgh, have samples of their greenhouses for the million, which are marvels of cheapness.

Of rustic seats, arbours, tables, and vases, there

are some fine samples exhibited by Messrs. Smith & Todd, of Stretford, near Manchester, and Mr. Henry Casar, of Knutsford.

Near the main entrance stands a small greenhouse, built by Mr. Paterson, of Pollokshields, which, while well illustrating the work of that builder in providing small houses for amateurs, serves also as a fire-engine station. The engine occupies the centre of the house, and a stage well filled with flowering plants surrounds it. There would be economical as well as other obvious advantages in the adoption of glass and wood or iron in building fire stations, where the situation admitted of light sufficient to enable the men to devote their leisure successfully to the culture of flowers.

Immediately within the main entrance to the exhibition from the grounds is a very fine oriel screen of wood and glass erected by Messrs. Boyd & Sons. The details of the structure and design are similar to those of the conservatory already noticed, and the inner bay formed by it provides space and shelter for an interesting collection of greenhouse and stove decorative plants exhibited by Messrs. J. & R. Thyne, Glasgow. The collection will necessarily be of a varying kind from time to time, as the renewal of flowering and the changing of foliage plants will have to be frequently effected.

Under the great dome, to which the main entrance immediately leads, is a raised circular platform of great breadth, the centre of which is to a considerable extent occupied by a chain of semi-circular fountains, interrupted by rockwork clothed with Ferns. Within this fringe of water and rock a noble group of plants arises, a lofty specimen of *Aracaria excelsa* towering high above all. The base of the group contained, among other notable plants, a grand example of *Rhododendron Dalhouseianum* in full flower. The whole of the plants in this group are from the Botanic Gardens, Glasgow, as are also some fine plants of *Rhaphis flabelliformis*, *Dacrydium cupressoides*, standard Bays, and *Bucklandia populina*, which decorate the angles at the extreme of the area of the dome. From the same source are a number of well-developed Palms, tree Ferns, and other plants, which decorate the orchestra and the angles around the pedestals of the larger statues, and about the several entrances, and also an *Agave americana*, throwing up a flower-stem of such strength as to augur a very fine inflorescence; the stem is at present about 3 feet high. S.

A NEW RANGE OF GLASS-HOUSES AT BYRKLEY, BURTON-ON-TRENT.

THE illustration (fig. 91, p. 693) shows a new range of glasshouses now being erected for Hamar Bass, Esq., at Byrkley, Burton-on-Trent, by Messrs. Forster & Pearson, of Beeston, Nottingham. A new kitchen garden is being formed there of considerable extent, and which is situated on one of the highest parts of the old Needwood Forest, with a slight slope towards the south and west. The subsoil is stiff clay, which has added considerably to the expense of preparing the ground. The main range of houses is 330 feet in length, and consists of a central plant-house, 40 feet by 30 feet, and 22 feet high; four vineries, each 34 feet by 16 feet 9 inches; two Peach-houses, each 31 feet 9 inches by 12 feet; two Rose-houses, 31 feet 9 inches by 12 feet; two greenhouses, 28 feet by 18½ feet; and two stove or Orchid-houses, 28 feet by 18½ feet. At the back of the range is a cool Orchid-house, 30 feet by 12 feet; a fernery, and all the conveniences usually found in a well-appointed establishment. As the ground falls very much at the left-hand end of range, the space under some of the houses has been utilised for Mushroom growing, root stores, and other purposes. There are two ranges of half-span pits—as shown in the illustration—each 100 feet long, which will be provided with sufficient means of heating for all purposes. The whole of the houses will be heated by three of Messrs. Foster & Pearson's Chilwell Nursery boilers made in the improved form with steel tubes.

HOME CORRESPONDENCE.

LADY DOWNE'S GRAPE.—The bunch of the above Grape that I forwarded by rail is an average sample of those grown by Mr. Speed, at Penrhyn for many years past. The Downe's were inarched over twenty years ago on to some old Hamburghs of nearly double that age. These Vines although advanced in years annually produce and finish a heavy crop of superb, serviceable fruit that is cut from the Vines about the beginning of the year and bottled in the usual way, but Mr. Speed not only grows them "extra," but succeeds in keeping them very late in the season as fresh and as when cut from the Vine, with very little if any deterioration in flavour, which is a feat worth recording. Penrhyn is situated within a few miles of the sea coast, and consequently enjoys somewhat saline atmosphere that may help to account for their extra good preservation. Where such as these can be grown and preserved there will be little need of the extra hard forcing to meet the demands of the early London season; and as these Grapes are grand travellers it materially adds to their value, and is a consideration in these cutting days of economy. J. H. Goodacre. [The Grapes were admirably preserved, being of fine flavour, and appearance, with berries as large as fine Gros Colmars. The bunch was in shape like an ordinary Lady Downe's. Ed.]

SCENT ON SOLOMONS SEAL.—For the information of Mr. D. T. Fish and others (see p. 373) I will relate "my experience." Two years ago I brought home from the garden of a friend a clump of this variety, and, dividing it, the strongest crowns were put into pots, and forced in my greenhouse, while the remainder was planted outside in the flower garden. The result was, that those inside had a very strong scent like that of bitter almonds, sufficiently so to be detected by any person on entering the greenhouse, and those outside were but slightly scented, and then only was the scent perceptible when at a short distance. The reason is obvious: the limited area of the greenhouse favours the concentration of the perfume, but in the garden it "wastes its fragrance on the desert air." N. Norfolk.

VARIEGATED VINE LEAVES.—We have here a case of one shoot sporting on a Vine, similar to that of your correspondent "W. P." (p. 690). But in our case the fruit formed on the affected shoot never reaches perfection. The Vine in question is Madresfield Court. The sport appeared three years since, the leaves becoming green and white and appearing simultaneously with the other shoots, but the growth being weakly the bunch which shows annually, only lives to reach the blooming stage and then dies gradually away. The foliage in its early stages is handsome in appearance, the variegation being very clearly marked. I look upon the growth as a freak which will after a time die out. Curiously, too, a Horse Chestnut in the garden here does the same thing every year; it is a young growth from the crown of a tree which had its head cut off at 12 feet from the ground. S.

GARDENER ASSOCIATES, R.H.S.—Mr. Fish (at p. 620) has ably stated his views as to lowering the subscriptions for fellowship so as to admit "practical" gardeners with a vote. It seems to me that your editorial note at the bottom of his letter goes to the root of the matter—the question is one of finance. I do not think the Society could carry out its work fully if it depended for funds on lower subscriptions than one guinea. It must be remembered that each Fellow involves cost now, and that when the Society with more funds becomes more active, this cost will be increased. I believe that the cost for each Fellow for *Proceedings*, notices, &c., will amount to something like 4s. or 5s. a head, so that if the subscriptions were reduced in many cases to 10s. 6d., there would not be much left for general charges. The Council by admitting Associates to the shows, and by placing a "practical" gardener on the Council, have, I think, met the wish that all classes of gardening interests should be represented. "Practical" gardeners have always formed an important part of the Floral and Fruit Committees. A fair number of "practical" gardeners have already become guinea Fellows, and I hope that more will do so; but I think the Society must trust mainly for support from those who get most advantage from its work—the owners of gardens, who learn by the judgments of its committees what are the best novelties in the way of flowers, fruit, and vegetables to introduce into their gardens, and

that if they can only be made to realise what they owe to the Society, they will help it by becoming guinea Fellows if they live far in the country; and if they live near enough London to be able to attend the very interesting "fortnightly" meetings and shows held in the London Scottish Drill Hall, they will often subscribe two guineas for the sake of the extra tickets. Forty-nine owners of gardens within a walk from here have now joined. Other districts please copy. George F. Wilson.

RAILWAY RATES AND SALESMEN'S COMMISSION.—"Spade," in your previous issues, does not take up the cause of home growers. Why should they "find their hopes baseless?" It is the home producer who keeps alive the railway system of this country by the use of both luggage and passenger trains. If there is a favour to be granted, who, pray, should be first considered—the foreigner—a casual customer, who can and often does do without you, or the home grower—a daily customer, who cannot, and is compelled to come to you? A circular recently issued by the Railway Companies' Association says:—"A comparison of profit on imported and home traffic shows the former to be the least paying, and the directors think it right" to warn or threaten the many ports of a probable change if the Bill passes in its present shape. This certainly savours of a threat to those ports, if they do not put their shoulders to the wheel and help the railways to retain their right to subsidise the foreigner. As to commission, referred to on p. 628, I submitted to the growers two propositions, viz., a commission of 5 per cent. nett, and one of 10 per cent., the latter to include market tolls, portage, guarantee, and use of empties. The latter is the old style, to which South Hants growers purpose sticking. J. B. Thomas.

PHLOX NELSONI.—This white-flowered plant is charming for the spring garden, and we grow it largely. I plant it in large patches alternately with *Aubrietia græca*, and the two go well together. The way to grow these two hardy plants successfully is to take cuttings of the young growths as soon as they get a few inches long, and insert them in good sandy soil in a frame, without any bottom-heat, water thoroughly, and shade heavily for a few days, afterwards gradually removing the shading in the afternoon in order to let the sun temperature in the frame rise by sun-heat to about 75°, giving a gentle syringing at the same time. I have grown them in this way into nice little plants by the end of June. When well rooted they should be planted out in rather a shady border, where they will grow away and make nice plants for putting out after the summer bedders are taken out of the beds. They will flower the first year, and are proof against every sort of weather. G. Merritt.

CAN IT BE TRUE?—The note on p. 625 reminds me of another curiosity of American literature. A citizen of Eustis, Florida, is said to have a combination tree in his garden, consisting of a Lemon, Peach, Pear, Grape fruit, Persimmon, Orange, and Guava, all grafted on one stock, and all in bloom. One would think no Editor, either in America or anywhere else, would admit such an absurd statement unless as a joke. J. W. O.

VIGOUR AS INFLUENCING SEX.—With reference to the Hazel catkin which I lately forwarded to you, and which has since been under the consideration of the Scientific Committee of the Royal Horticultural Society on two recent occasions, I note, in the report of the last meeting, published in the *Gardeners' Chronicle*, p. 566, that Mr. Henslow concluded that "the prolific state of the male catkin, and the presence of female ones (developed from the base of the male), corroborates the conclusion arrived at by Mr. Meehan, of Philadelphia, who observed in various deciduous trees that the female flowers were always associated with a relatively greater degree of vigour; or, conversely, that an increased vigour produced female flowers, when, normally, nothing but male would have appeared," and he might have added, that under a still greater degree of vigour or activity the axis of these female catkins might have been prolonged into ordinary growth. My own observations on deciduous trees, and, indeed, plants in general, have for long enabled me to endorse the view so ably corroborated by facts produced by Mr. Meehan, that the sexes in flowers are relatively determined by degrees of nourishment; that a greater degree is essential to the formation of female than for male. And being free, so to speak, of this belief at the time I discovered the prolific

catkin, I may state that my faith was considerably shaken after critical examination of the catkin. When I first saw it, I reasoned, in my old faith, that out of weakness (male) had come strength (female), the result of an excess of nourishment. But could this be possible under the circumstances? The spikelets or branches were, some male, some female, and one, at least, which was fully half an inch long, was pistilliferous at the apex, and stamiferous below, while the strong central axis of the proliferous catkin was wholly male. I carefully scrutinised the apex of the latter for female flowers, but found none. I need scarcely say that I had fully expected to find them there. It is, I think, of rare occurrence that the branches of any kind of inflorescence are, individually, as strong as the axis, and it is not my experience that the tips of either male or female catkins of any family are ever, normally, as strong and well developed as the basal or medial portions. If the number of anthers or ovules of, for instance, coniferous tree catkins is variable—say from two to three—the larger number will be found developed on the basal or medial scales. *Geo. Syme.*

THE GREEN-WINGED ORCHIS (O. MORIO).—Just now many of the Kentish hillsides, downs, and fields are rendered highly ornamental by the vast numbers of this Orchid which are scattered about, but particularly where the ground is naturally dry, and the soil of a rich loamy texture. The prevailing colour of the flowers is a deep rich purple (mulberry colour), although light pinky forms are not uncommon, and, indeed, this latter is by far the most ornamental. Half-a-dozen of these Orchids planted closely together in a flower-pot are very attractive, and if kept in a cool sitting-room remain in good form for a considerable length of time. The flowers, particularly in the early morning, are sweetly scented, something between Musk and Almond; but this is not recognisable in all specimens. It is an Orchid of low and humble growth, rarely exceeding 6 inches in height, the flower-spike alone being half that length, while the leaves are of a pale unspotted green. As a cut flower it lasts well, half-a-dozen specimens of unusual size and brilliant colouring having enlivened my sitting-room for several days past. *A. D. Webster.*

STEPHANOTIS FLORIBUNDA.—The merits of this stove climber are too well known to need any description from me; but what I wish to say is, that I find by letting the young growths hang down in a natural manner, instead of tying them up neatly like a faggot, the growths not only get more light and air, and consequently flower a great deal better, but they have a very graceful effect; and when once tried I think few gardeners will again adopt the other method. *G. Merritt, Kimpton Hoe.*

ROSES DEVONIENSIS AND CLIMBING DEVONIENSIS.—Your correspondent, "Wild Rose," is, I think, in error, on p. 590 in describing climbing Devoniensis as a bud sport from Devoniensis. I have not the number by me, but if "Wild Rose" will look over the *Garden*, vol. i., p. 433, he will find the history of their origin, which is, I think, as follows:—A Mr. Forster, seeing a plant of Smith's Noisette with a ripe seed-pod on it, bought the plant and sowed the seed; two seedlings were raised—one Devoniensis, the other climbing Devoniensis, both of which were sold to the late Mr. Pince, of Exeter, and many others have considered the climber as a strong growing bud-sport. Mr. F. W. Burbidge gives a note on them in his *Propagation and Improvement of Cultivated Plants*, and he very kindly sent me the above reference to their history. *George S. Wailor, The Nurseries, Beverley.* [It is said that Rose Devoniensis was raised from seed by Mr. Foster in 1838, one parent being Smith's (Smith's Yellow), a Noisette of a yellow tint, and also that it was brought to Plymouth from the West of France. There may be some grounds for each statement, but in the absence of precise information on the subject we are inclined to suppose, with Mr. Rivers, Canon Hole, Mr. W. Paul, and others, that the climbing Devoniensis is a "sport" from the other. It was not till a much later period that we find climbing Devoniensis in our gardens, and this militates against the alleged fact of their both having sprung from the same seed-pod. Ed.]

SQUIRRELS.—No one admires the squirrel more than I do—the merry, active little fellow! One meets him far in the woods, springing from bough to bough and tree to tree, having it all his own way,

and occasionally one sees him in the pasture fields in the autumn gathering Mushrooms; and later on he gets more daring, and comes into the garden, helping himself freely to the finest and fattest Filberts, trotting off to the woods, where the winter store is laid by. But notwithstanding our comical little fellow being amusing in his habits, one is obliged to say that he is no friend to the gardener and forester. Some of the large Spruce trees here were unmercifully eaten by the squirrels last winter and spring; positively in many cases a wheelbarrowful of young shoots of last year's growth was lying under the tree. Curiously enough the squirrels seemed to prefer large and mature trees, but for what reason I know not. Mr. Webster may lay it to the cross-bills, but here I believe the damage is due to squirrels. Some twenty-five years ago I began forming a pinetum, and I have had to regret the loss of many a leader from squirrels. On my table lays an account of the excursion to Balmoral of the members of the Arboricultural Society—a Society to which, by-the-by, every landed proprietor and forester in Great Britain should belong—and there I see that the Pine woods have suffered in many cases through squirrels. In my young days there was not a squirrel on the banks of the Dee from its source to the sea, and even so far north as Gordon Castle; now a man is obliged to be kept to shoot them. But further south the population of the country is more than a match for them, or we should find our finest Fir woods spoiled by their interference. I should be curious to know if the squirrel is plentiful in Norway, and how it affects the Pine woods in that country. *J. Rust, Eridge Castle.*

THE SLIPPER OF THE CYPRIPIEDUM.—I have often thought that this slipper, being so specialised a petal, ought, by the rule of modification with a purpose, to be of some importance to the plant, in its sexual relations to other similar plants. One day, in going over the Orchid-houses of the Victoria and Paradise Nurseries with Mr. Williams, I remarked to him, that the Cypripedium slipper must be of some important use to the plant in connection with cross-fertilisation by insects. He cut open a slipper of *C. barbatum*, and on examining it, he observed, "Probably you are right, as the hairs on the inside appear to secrete something which may be nectar." I took the flower home, and examined it carefully with a magnifying glass. I found that the inner surface of the sole of the slipper is studded with minute transparent hairs, on the tip of each of which was a minute drop of transparent secretion. I could not detect any sweetness in it, but that may be because the amount was too small. Now, supposing this secretion to be nectar, or something of which insects are fond, the structure of the slipper becomes apparent. Its form and peculiarities are evidently intended to facilitate cross-fertilisation. The toe-part of the slipper is a prominent place for a flying insect to settle upon. It would creep over or tumble over the foremost edge into the pouch. The inner surface of the toe part has no nectar-hairs, and so the insect would go up the surface of the sole, consuming the nectar it might find on the tips of the hairs. Let us now see by what route the insect could most readily get out of this pouch. The side edges are sharply incurved, and in some Cypripedia the foremost edge is also incurved, so that the intruder could not readily get out by the sides. At the heel of the slipper there are two openings on each side of the column; the latter consists of a fleshy stigma, bent downwards, an anther on each side, and a sterile one in the form of a bilobed shield, which hides the sexual organs. Each anther is so placed that an insect—say, a small hairy beetle or similar insect—could not easily emerge by the side openings without brushing off one of the sticky anthers, and carrying it to the next flower. The stigma is so placed that an insect with an anther on its back could hardly come up the tunnel formed by the sides and sole of the slipper without brushing against its sticky surface, and leaving there the anther it may have carried away from a former flower. The bases of the two side petals are furnished with hairs, which further restrict the opening, and force the insect to pass out closer to the anther. The upper sepal, with its white and purple stripes, appears to act as a sign-board to catch the insect's eye, the rest of the flower being of a brownish-green colour, and not very conspicuous. It may not be impossible that an insect alighting on the pouch would, by tickling it with its feet, instantly cause some secretion to be exuded from the tips of the nectar hairs through that strange telegraphic or

nervous communication, of which there are many examples in the vegetable world, and possibly the gland-like brown dots on the surface of the pouch may have some such functions. But of this I know nothing. I am not aware that this interesting structure of the Cypripedium slipper with reference to cross-fertilisation by insects has been dealt with before. Anyhow, it appears a case worthy of being studied by travellers in Cypripedium countries. This curious flower must have, in its native country, some curious insect which would act as a carrier of its pollen, and which may have been modified also to suit the needs of the Cypripedium. *E. Bonavia, M.D.* [See *Mueller's Fertilisation of Flowers*, English edition (1883), p. 539, where the process of fertilisation by bees and the use of the pouch in connection therewith is described. See also the account of the "Fertilisation of Coryanthes," in *Gardeners' Chronicle*, May 6, 1882, p. 562. En.]

FRUIT PROSPECTS.—Judged by present appearances the coming fruit crop promises well. During my recent journeys I have seen Pear trees white with abundant bloom, and this is noticeable generally; and within my own knowledge many young Pear tree plantations around here, which, speaking generally, have not borne previously, are at this moment so full of flower as to scarcely leave a sign of a green leaf. An aged standard, Gansel's Bergamot, I have in my own garden, which has never given more than a score or so of bunches of bloom for more than a decade, and which is generally a shy bloomer, so grown, is also at this time equally abundantly flowered. Though I have had two good Plum seasons—last year and the previous one—yet the present season promises to exceed them both, and with all kinds it is alike. I have never before seen the Plum known by the name of French Gage bloom nearly so well, and the blooms are already set. Greenfly seems already very abundant amongst these embryo fruits. Cherries are equally prolific of flowers, Morellos being charming to look upon. Apples are mostly promising well, especially Wellington, Striped Beaufia, Alfriston, Alexander, and Ilawthornden. Fig trees have embryo Figs, or fruits, at every joint, which hereabouts is most unusual. Apricots suffered severely from the very cold cutting winds which prevailed during the whole time they were in bloom. Filberts seem to promise well. Bush fruits and Raspberries give great promise. Strawberries are likely to suffer unless warm rains come quickly to their aid. *William Earley, Essex.*

—There is an old saying, that you should never prophesy unless you know, but I think it will be pretty safe to predict a full crop of most kinds of hardy fruit, for Cherries and Plums are new set, and surely they will escape frost after this of sufficient severity to do them much injury. Pears are having a good time of it in unfolding their blossoms, of which they have great wealth. Apples, too, are swelling their buds fast, and before this is in print they will be open, as with the strong sunshine and warmth we are at last favoured with, they will come on with a rush, and must swell fast when they once are set. It is to be hoped, that the embryo fruits will escape maggot, with which they are so often affected when growth is slow, as then the pernicious insects have every chance of curling the foliage and spinning their webs, which hold the leaves as with a knot. Bush fruits are showing well, but Strawberries are not over-strong, as the weather was too hot and dry last year for them to make very strong crowns. Apricots are almost a failure, but Peaches and Nectarines are plentiful where the trees are on favourable aspects, but the leaves are showing some blister. *J. S.*

DOES IVY CAUSE INJURY TO TREES?—I beg to make a few remarks from my experience as to the Ivy being in any way injurious to trees. I do not consider it the least so, unless it gets quite up in the head of tall trees. I have, perhaps, hundreds with it up the stems and right up the branches in many of them, but being, as a rule, pollard trees, it gets cut off when the tree is lopped, which would be about every six or seven years; but a year ago this winter I had a number of them of different heights, pollards and timber too, covered from the bottom all up the trunk as high as 40 feet in some of them; this, when the trees were shrouded, I had cut, about 6 to 7 feet from the ground (this was where my walk was) right through to the stem, and pulled quite clean off from top to bottom to where cut; they then looked very clean after removal, but it was a very hard job to get it off, it was so very closely grown, and with the branches it was still more difficult to do it. In other

cases I had it cut close to the ground and treated the same. The trees are as healthy as if they never had been covered, and some of it now remaining, as I stated, spreads a yard from the tree. If allowed to get

off, it matters nothing, only the unsightliness and litter; as in time it will let go its hold and fall off. I have three Lombardy Poplars in one of my gardens about 60 feet high, as near as I could judge; one is

distance, and it was cut off as some part of it died through being broken; but the base of this is 7 to 8 inches diameter at the ground. On the former one it spreads out about 4 feet from the stem, and hangs down in length about 6; and the other one had none growing on it at one time, and the great difference that some would perhaps think there would be in the trees is not perceivable, so that one can suppose it is not detrimental. These three trees are just about the same in height and in healthiness, and the Ivy has been growing on them about forty years, as it was planted when I was a boy. In this case the Ivy is burst in many places, as it would be by a fast-growing tree. On those I had stripped of it, it is going up them again at a rapid rate, and doubtless it will be left to do so till the time for the wood to be again cut. I should, if I had any to stop from going up the trees, cut it at any height I wished, and let it remain, or pull it off, as I felt disposed. It is a good thing up a building to keep it dry, providing the wet does not trickle down from the top, as then it would soak into the building and damage it. On an overhung house, when well kept, it keeps it dry from driving rains, and looks very nice, especially in the winter. I am myself an admirer of it, as well as a grower. J. S. C.

— This question may be answered in the affirmative in the case of park and garden trees when the growth of Ivy is very heavy, and has the effect of smothering the annual growths in its embraces, and when it so fills up the centre of the head that sun and air are both shut out in a large degree. Ivy on young trees of whatever species is always injurious, for the above reasons, and also because of the exhaustion of the soil caused by its greedy roots. Old trees and those of large size are not injured by Ivy; in fact, Ivy will often add much beauty to the aspect of a tree in the period of decay. The trees which I have found to suffer most from a garment of Ivy are Conifers and Holly, Laurel, and the like; and many instances have come under my notice where Larch and Spruce Firs of 70–80 feet in height have succumbed to a heavy load of Ivy. Under good forest management Ivy is sedulously cut away from all trees of less than fifty years old, the forester doubtless acting on the knowledge that Ivy has an injurious effect in curtailing growth by clasping the stem and robbing the soil of matters which should go towards forming timber. It is questionable if trees which have had their covering of Ivy cut off at the ground have been killed by the loss of this protecting covering, but rather that the trees were killed by the living Ivy. The trees would show signs of decrepitude really brought about by the Ivy, and the removal of the latter came too late to be of any service. F. M.

HARDY FRUIT PROSPECTS IN IRELAND.—During my experience of something over ten years in this country, I have never before seen the prospect of all kinds of hardy fruit so bright. Plums, Pears, and Cherries have been for the past fortnight a sheet of bloom, and are now in most cases fairly set. Currants, both black and red, especially the latter, are very good; Gooseberries, too, are equally abundant, but quite ten days later than last year. Apples promise well; some are now in full bloom, others are just unfolding their flowers. At present everything has the promise of a good fruit season; in fact, the best that I have seen on this side of the Channel, and equal to any I ever remember to have seen in England. No doubt the almost tropical summer of 1887 ripened the wood thoroughly. H. Taylor, Heywood Gardens, Queen's Co.

THE WAGGON TAX.—Exemptions to the incidence of the proposed wagon and wheel tax grow apace, as the Chancellor of the Exchequer now has intimated that the vans of market gardeners who are also nurserymen and florists would be exempt, if used entirely in the conveyance of the produce of the land. Of course it is now obvious that all market-garden vehicles otherwise subject to the tax will be exempt as agricultural vehicles—rather a big exemption around London and other large towns, and one of which those engaged in other useful and not less essential occupations not agricultural may well complain. It must not be assumed, however, that every vehicle employed by market growers will be exempted, because the cartage of coal or coke, pots, and similar essentials, with many other things indispensable to gardening, in its various branches, may not be regarded as agricultural by the ever suspicious inland revenue officials, and would soon become intolerable were all such vehicle proprietors to be subject to perpetual

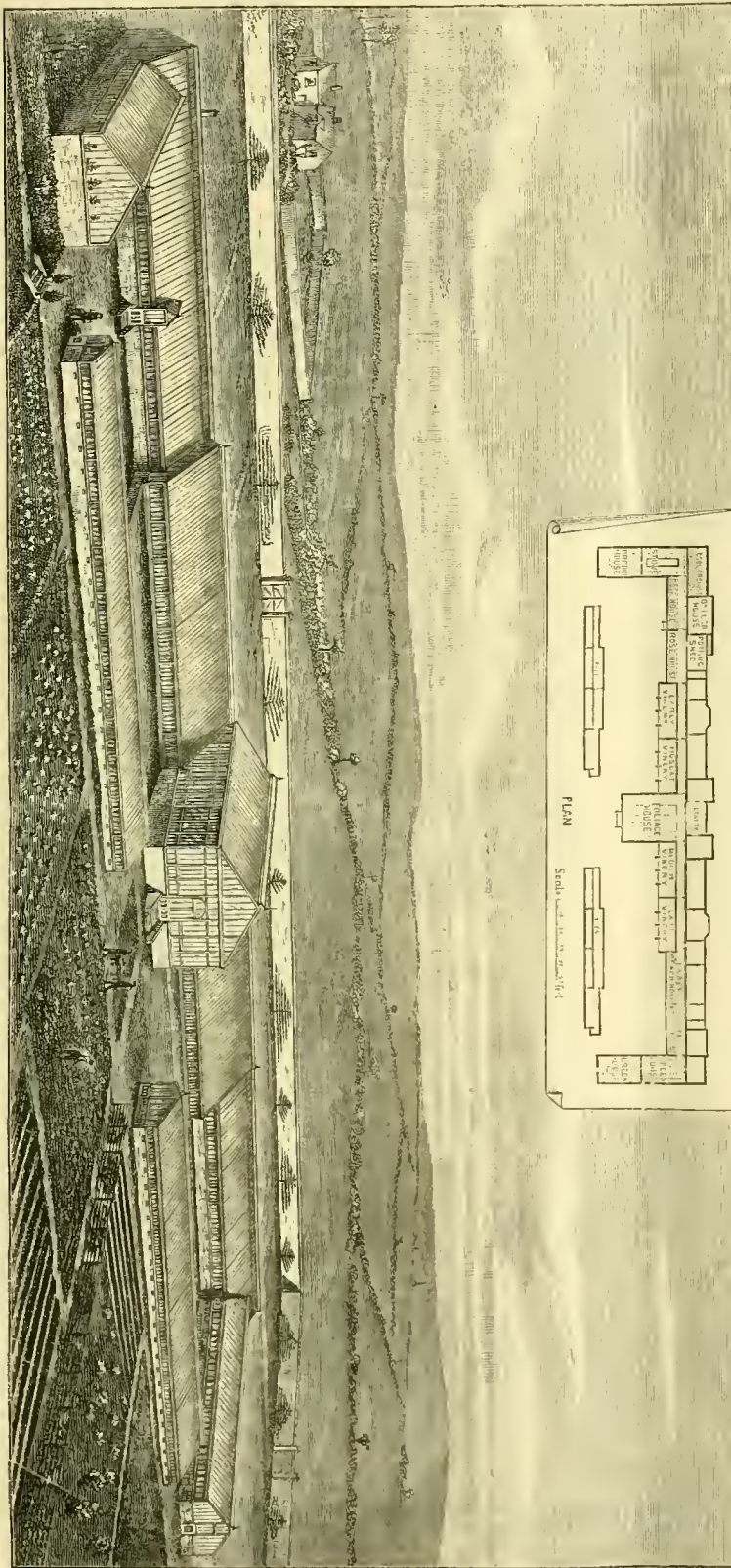


FIG. 91.—NEW RANGE OF GLASS-HOUSES ERECTED AT WYKELEY GARDENS, HERTFORD-ON-TRENT. (SEE P. 691.)

up into the head of a tall tree it will then, I believe, outgrow and smother them; but in the case of a tree being covered I should cut it through at any point of height I thought fit, and as to its being left on, or pulled

covered with it for about 40 feet up, and the stem of it at the base is 10 inches diameter; and another was covered nearly as much, but the tree having burst the Ivy, the wind blew it down for a considerable

espionage. The fact that the further consideration of the Waggon Tax Bill was deferred until after the Whitsun holidays leads to the hope that it may yet be withdrawn. It seems to have proved unexpectedly objectionable, and has created an amount of antagonism which cannot be disregarded. Satisfactory as it may be to market gardeners to find themselves thus exempt, honourable men cannot but feel that such exemption is very unfair to other trades. The position of the nurseryman who is not a market gardener is not defined, but he will doubtless claim exemption also. *Spade*.

ARACARIAS AT DROPMORE.—During a recent visit to Dropmore, where the heavy rains have proved of immense service to the trees and shrubs, I noticed that Aracarias had suffered appreciably from the effects of the last season's drought, with the exception of the grand male specimen, which remains the noblest of its kind in the country. Acting, doubtless, upon what were held at the time to be correct rules by Mr. Frost, a clump of fine trees was planted on mounds in one part of the grounds, here the trees suffered considerably, the lower branches having either died wholly or in part, so that the trees bear a very rusty aspect. The result seems to establish the fact, that planting on the flat, is best for Aracarias where the soil has only a moderate degree of moisture. The tree above referred to—a really magnificent specimen—and one which should be seen only after all the others have been examined, is also planted on a mound, but still is close beside a large pond, where no doubt its roots receive considerable nutriment. As it was, however, Mr. Herrin, who is materially improving the general aspect of the gardens, found it needful last summer to make a large trench of soil round the tree, and have liberal quantities of water poured on to the roots. With respect to the fine Douglas Fir, and to a second fine specimen in another part of the grounds, and the harm done to other fine specimens elsewhere, the inference seems to be that it is undesirable to plant it largely, as the wood is so very brittle, heavy snow storms doing them incalculable mischief, whilst most other Coniferae escape. *A. D.*

SPIKES OF STOCKS.—A schedule of prizes which has just come to hand has a class for four Ten-week Stocks, single spikes. In another part of the schedule is found another class—six Ten-week Stocks. Now what is meant by a spike of a Stock? I find that at country shows whole plants, including of course the central spike and side branches of flowers, are exhibited as spikes, in some cases only the centre flower stem is exhibited. There is therefore no uniformity of practice as to showing spikes of Stocks. Now it would be reasonable to suppose that what is required in the schedule above referred to is a single spike or flowering stem in the first case, and an entire plant in the latter. At the same time it is probable that plants carrying all their flowers are intended in both. It is one of those knotty points that often occasion a good deal of feeling where disqualification takes place, and I have always adopted the practice, where there is no positive restriction to the contrary, of giving the best prizes to the best examples of Stocks. At the same time there are judges who act upon rigid rules of interpretation who would no doubt say that my action is altogether wrong. The present method of exhibiting Stocks is a barbarous one. The invariable practice is to wash the soil from the roots of the plants, and stick them into bottles of water, but in a close tent they soon begin to fade, and look wretched things in an hour or two. Some exhibitors do not even place their plants in water, and they droop when laid upon the exhibition table. If the prizes were offered for Stocks grown in pots, a much more satisfactory result would follow. I mean grown in pots, not plants lifted from the open ground two or three days before, and placed in pots merely for the show day. *R. Dean*.

VICOMTESSE HERICART DE THURY STRAWBERRY.—I have often seen this fine early Strawberry doing so well at Heckfield under quick forcing, that I have wondered not to have found it in every garden similarly employed. Still for first forcing it is perhaps less generally employed than is the old Keen's Seedling. But having read of the assumption by Mr. Wildsmith, that either air or soil specially favoured the variety at Heckfield, I was very much interested on entering during the spring one of the large Strawberry-houses at Crosby gardens, Hounslow, where Mr. Thompson grows fruit for the Messrs. W. & E. Wells, to

find fully 1000 plants of the Vicomtesse in bloom and in fruit, and looking almost as well as the Heckfield plants usually do, in spite of the fact that last summer's drought rendered the getting of strong runners exceedingly difficult. All the plants were in rather small 32's, and very dwarf indeed in appearance. The length of leaf and flower-stems of the Vicomtesse and President in another house was most marked. The soil, though made very firm, is not very rich, for it is found better to use stimulants the moment the flowers have set, in preference to having it bodily rich before potting. Usually Clay's Fertiliser is employed, a little of the manure being occasionally sprinkled over the surface of the soil; but this year, for the first time, a new manure, called the Combination Fertiliser, and Jensen's fish manure, are being used, and their effects will thus have a fair and interesting test. Any little moss on the surface is soon destroyed by the manure. When the bloom is set well, it is thinned down to some twelve or fifteen fruits to each plant, and tied up as erect as possible with some two or three short sticks for supports. One-half of the foliage is also removed, so that the plants may thus get all possible air. Too much foliage retains moisture, and is thus apt to generate mildew. This Mr. Thompson regards as the only enemy in Strawberry forcing, and is best battled against by making the pipes as hot as possible, and then filling the house with a dense sulphurous vapour, by washing the pipes with sulphur mixture. The Strawberry-houses at Hounslow are some 100 feet long, and have open trellis-stages on either side, whilst a single-row shelf runs through the length of each house overhead. The plants stand in rows of five, cross-wise on either side, 1 foot apart, so that, inclusive of the top shelf, there are really some 1200 in each house. Other houses contain President and Sir Charles Napier. Sir J. Paxton is with some growers a favourite, but the softness of the fruits seems to promote mildew to an unusual degree, whilst they are less adapted for packing. When I looked in, some time since, the best fruits of Vicomtesse Héricart de Thury were just showing colour. There is no necessity to force earlier than from the middle of April onwards, and when whole houses are fruiting at once, it is obvious that many thousands of plants are needed to continue the supply of fruits until July, for in market work it does not answer to make a start and then collapse. Later these Strawberry-houses are filled with Tomato and Cucumber plants, grown on a ridge of soil on either side, laid on wood or stone slabs. In other houses, Peaches as large as Walnuts were a splendid crop, and Madresfield Court Grape will be worth seeing. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

TUESDAY, MAY 22.—Present: D. Morris, Esq., in the chair; and Messrs. G. Murray, G. F. Wilson, F.R.S., J. O'Brien, W. G. Smith, Boulger, A. D. Michael, R. McLachlan, F.R.S., Professor Church, Dr. Lowe, and Dr. Masters, F.R.S.

Lily Disease.—Mr. George Murray reported that the specimens sent were too much decayed to examine satisfactorily. Probably the appearance was due to fungus, *Peronospora* or *Ovularia*, or both.

Monstrous Cattleya.—Mr. Ridley sent a report on the Cattleya exhibited by Mr. Smee at the last meeting:—"This Cattleya is a good example of petalody. The bract subtending the flower is replaced by a petal. The dorsal sepal is lip-coloured, as are the laterals, but in a less degree. The left petal is also lip-coloured, and has the same shape as the lip. The right petal is adnate to the column, and lip-coloured; at about three-quarters of its length from the base it bears an anther cap on its edge—of course, abnormal and abortive. The lip is tolerably normal, but not lobed. The column seems to have entirely lost the staminal whorl; clinandrium and anther being absent. The rostellum and stigma are present."

Jaborandi.—Mr. Morris reported that the specimen exhibited by Mr. Lynch at the last meeting was the true plant, *Pilocarpus pennatifolius*, which yields the medicinal substance above-named.

Fertilisation of the Scarlet Runner.—With regard to Mr. Burbridge's remark at the last meeting, that "the Scarlet Runner does not set its fruit in South

America, but in this country it fruits freely, owing to the bees, which bore through the base of the flower," Mr. Henslow observed, in a note communicated to the Committee, that this was an error, as no flower is benefited by the perforations made by insects from without. The bees fertilise them, however, in the legitimate way; but in their absence the Scarlet Runner can scarcely fertilise itself. The French Bean, on the other hand, is quite self-fertile, as horticulturists can force it in winter. The reader is referred to Mr. Henslow's article on the "Fertilisation and Perforation of the Scarlet Runner," in the *Gardeners' Chronicle*, November 2, 1878, p. 561, fig. 97.

Shoots of Spruce Fir Injured, &c.—Referring to the specimens exhibited on the last occasion Professor Boulger suggested that the injury might have been occasioned by hail. The general consensus of opinion, however, was that the damage was, as previously stated, effected by squirrels. Mr. McLachlan alluded to the death of large Hollies in consequence of the "ringing" of the bark by rabbits. Similar injuries were detailed as caused by deer.

Self-coloured Tulip.—A pale primrose-coloured Tulip, shown by Mr. Walker, was referred to Mr. Baker for report. It had occurred among a bed of *T. Gesneriana*, of which it is, in the opinion of Mr. Baker, only a seedling form.

Catacnum.—A specimen was referred for name, and considered to be *C. viride* (*Monacanthus*).

Scilla Bulbs, &c.—Dr. Lowe showed elongated bulbs of *S. campanulata*, which were referred to Dr. Masters for examination and report.

Iris.—Dr. Lowe also showed a yellow flowered Iris he had originally received from the late Rev. Harpur-Crewe, and which was referred to Mr. Baker for examination. Mr. Baker reports it to be *I. lutescens*.

Tetramerous Pear.—Professor Boulger showed flowers of a Pear in which the parts were in fours.

Notched Lilac Leaves.—Mr. Boulger also showed some leaves of Lilac which, owing to close adhesion one to the other, had developed a little notch or rather lobe, on one side of the obstruction.

Spilix ocellata.—Mr. Roupell sent a specimen of this moth in illustration of "mimicry," the dull colour of the upper wings approximating to that of the dead leaves of the Apple, on whose branches it rested. This view did not find favour with the entomologists present.

Beetle attacking Mangels.—Hon. and Rev. J. T. Boscawen sent specimens of a beetle which attacks Mangels. Referred to Mr. McLachlan.

Himalayan Primula.—Rev. C. Wolley Dod sent a specimen with the following communication:—"In the winter (January, 1886) I received amongst many others from Dr. King a packet marked *Primula reticulata*. This produced in April, 1886, a fine crop of *P. sikkimensis*. When these were removed, there came up in the spring, 1887, a small crop of very delicate seedlings, all with distinctly cordate leaves, and very different from *sikkimensis*. I sent a few away. Those I kept have nearly all been cleared off by the 'leather jackets.' I enclose the largest left. I cannot make it fit any species described in the *Flora of British India*. The calyx does not seem to fit *reticulata*. It is three weeks earlier than *P. sikkimensis* under the same conditions. *C. Wolley Dod, Edge Hall, May 21.*" The specimen was referred to Kew for comparison, and has been determined as *P. glabra*.

Cynomorium coccineum.—Mr. Morris showed a fine specimen of this curious parasitic plant from Gozo, whence it had been received from the Governor of Malta, Sir Lintorn Simmons. This is the fungus *melitensis* of old writers, and was formerly considered as an astringent; so highly was it valued that the plant was placed under the protection of a special guard.

Canker of Maréchal Niel Rose.—Mr. Froud, gr. to G. N. Marten, Esq., sent a portion of the stem of this Rose cut at 6 inches below the soil. The plant was covered with buds which failed to open, and on examination the stem was found cankered. The specimen revealed traces of old injury rather than of present mischief, the appearances being possibly due to the attacks of fungus. Mr. Morris remarked that Maréchal Niel was the best Rose for the tropics, where it is not subject to canker.

Double-spotted Richardia.—Mr. H. Tull exhibited a specimen of *Richardia rathipica* with a double spathe—a common occurrence.

Dendrobium Flower on the New Growth.—The same exhibitor sent a specimen of this not very uncommon occurrence, which is analogous to the midsummer shoots of the Apple.

Conifers.—Dr. Masters showed specimens of

Juniperus flaccida, a very elegant species from the highlands of Mexico; also fine cones of *Araucaria Bidwillii* and *Pinus pinea*, received from M. Naudin, Villa Thuret, Antibes.

FLOWERS FROM KEW.

Specimens were exhibited of the following:—

Iris Korolkowi.—A species received from Herr Max Leichtlin in 1885, and now flowering for the first time at Kew. It seems to be a variable plant, as the figure in the *Garten-Flora* differs in colour from the one exhibited, in which the falls were of a pale lilac or grey-colour, with narrow lines of purple, and with a deep purple-fringed blotch at the base. The grey standards are also lined with purple veins.

Ferula (Narthex asafetida).—A handsome but atrociously smelling Umbellifer, with boldly cut glabrous foliage and umbels of yellow flowers like those of the Parsnip. It is interesting as being the source of the drug *asafetida*.

Saxifraga Kolnatiensis.—A Siberian species of dwarf habit, with leaves like those of the Aizoon section and flowers not unlike those of "London Pride."

Allium Suwarrowi.—A species with globose many-flowered umbels; flowers about half an inch across, segments spreading, narrow oblong, rich violet; stamens of the same length and colour.

A. Jesdianum.—A species with globose, many-flowered umbels, individual flowers nearly three-quarters of an inch in diameter; segments linear-oblong, spreading, ultimately bent downwards, pale lilac; stamens erect, whitish, longer than the perianth segments.

BATH FLORAL FETE.

MAY 16.—This exhibition, which was held as usual in the Sydney Gardens, had some fine features; indeed, it was considered one of the best held in Bath for several years. The weather was favourable, and a numerous company was in attendance.

Orchids were an excellent feature. The best six plants came from the Rev. E. Handley, Bath, a remarkably good lot, consisting of *Vanda suavis*, *Cattleya Skinneri*, with forty-five well-coloured flowers; *Cattleya Mendelii*, *Miltonia vexillaria*, *Lælia purpurata*, and a very fine piece of *Cypripedium Lawrenceanum*. There was no other competitor. He also had the only single specimen, a superb *Lælia purpurata*, with five fine heads of bloom. He was also 1st with four specimens, staging *Vanda suavis*, *Lælia purpurea*, with six flower-heads; *Cypripedium caudatum*, finely bloomed; and *Cattleya Mendelii*. The name of the exhibitor of the 2nd prize lot did not transpire.

The best single in the amateurs' division was a superb piece of *Aërides Fieldingi*, with two massive branched spikes, from Mrs. Gouldsworth, Trowbridge, the Rev. E. Handley being 2nd, with an example of *Lælia purpurata*, even finer than his previous ones, this having six flower-heads, carrying about twenty-five fine blossoms. Mr. Handley also had the best group of Orchids, small plants of good varieties, mingled with Palms, Ferns, &c., edged with the striped basket grass and *Isolepis tenella*; 2nd; R. B. Cator, Esq., Bath.

Stove and Greenhouse Plants.—The best twelve specimens came from Mr. James Cypher, nurseryman, Cheltenham, and included a very fine piece of *Pimelea spectabilis*, over 6 feet through; *P. Hendersoni*, *Erica affinis*, *E. Cavendishiana*, *E. ventricosa magnifica*, *Darwinia tulipifera*, *Aphelaxis macrantha purpurea*, *Anthurium Scherzerianum* Wardii, and also A. Cypheri, and *Azalea Duc de Nassau*; 2nd, Mr. Mould, gr. to E. Bryant, Esq., Bath.

Mr. C. Gardiner, Bath, had the best nine specimens, the leading ones being *Clerodendron Balfourianum*, *Anthurium Scherzerianum*, *Ixora Williamsi*, *Erica Cavendishiana*, and *Aphelaxis macrantha purpurea*; 2nd, Mr. H. Jones, gr. to C. Doherty, Esq., Bath.

The best specimen stove and greenhouse plant was *Pimelea spectabilis*, from Mr. Cypher; Mr. C. Gardiner coming next, with *Anthurium Scherzerianum*.

The best new or rare plant was *Cypripedium Sandermanum*, from the Rev. E. Handley; Mrs. Gouldsworth coming next, with a good variety of *Cattleya Mendelii*, named *superbum*.

Azaleas.—Some very fine plants are always grown in or near Bath, and Mr. W. Long, gr. to C.

Gardiner, Esq., must be congratulated upon his well grown and flowered specimens. His group of twelve comprised—Iveryana, Duc de Nassau, Souvenir de Prince Albert, Stanleyana, Roi Leopold, Mr. Turner, Charmier, Stella, Criterion, and Model. Mr. J. Cypher had the best nine, and they were in the form of large bushes, the leading varieties being Extraneil, Charles de Buck, Roi d'Hollande, Jackson's Grand Crimson, and Cedo Nulli. Mr. S. G. Francis, gr. to Captain B. Smith, Bath, had the best six, Jean van Geert, Roi d'Hollande, Souvenir de Prince Albert, and Duc de Nassau, being the leading plants. Mr. E. Bryant was a good 2nd.

Roses in Pots.—A very good collection of six plants came from the Rev. E. Handley—the varieties Edward Morren, Madame Lacharme, Madame Thérèse Levet, Souvenir d'une Ami, Merveille de Lyon, and Earl of Pembroke. Mr. R. B. Cator was 2nd. The Rev. E. Handley also had the best group arranged in the form of a circle; Mr. R. B. Cator being again 2nd.

Pelargoniums.—Some remarkably good plants of these were staged, combining excellent growth with sterling heads of bloom. The nine plants from Mr. G. Tucker, gr. to W. P. Clarke, Trowbridge, included Triomphe de St. Maude, Lady Isabel, Rob Roy, Alfred Kingston, and Digby Grand. Mr. C. Doherty was 2nd. They were also shown in sixes.

Other flowering plants comprised some excellent Calceolarias from Mr. Cole, gr. to S. Treadwell, Esq., Bath; and he was also 1st with some excellent Cinerarias. Mr. W. Robertson, gr. to Lord Justice Lopes, Westbury, was a good 2nd, with Cinerarias; and Mr. W. Burbridge, Comberley, with Calceolarias. Heaths were in good form from Messrs. Cypher and Bryant, the former being 1st with six, and also with a single specimen.

Foliage Plants.—Mr. J. Cypher was 1st, with a valuable and effective group of fifteen, comprising *Kentia balmoreana*, *K. Fosteriana*, *K. australis*, *Cycas circinalis*, *C. undulatus* and *C. revoluta*, *Encephalartos villosus*, *Pritchardia pisifera*, *Phormium tenax variegata*, *Crotons Disraeli* and *Sunset*, &c.; 2nd, Mr. J. Curry, gr. to Colonel Pepper, Salisbury. They were also shown in groups of nine and as single specimens.

Exotic Ferns were staged in groups of twenty plants, Major W. P. Clarke being 1st, with a very bright lot, which included a capital piece of *Athyrium Gorringianum tricolor*, a plant slow to grow, but highly effective from its distinct marking. Mr. E. Bryant was 2nd. Groups of nine and single specimens were also shown.

Cut Flowers.—Roses appropriately led the way. Mr. R. B. Cator had the best twelve, showing some good blooms, the Rev. E. Handley being 2nd. Tulips and Pansies were fairly good. The best twenty-four varieties of cut flowers came from Mr. W. Fidler, gr. to Baron C. de Tayll, Chipping Sodbury—a very fine lot; Mr. G. Hoste, gr. to Lewis Fry, Esq., M.D., Bristol, being a very good 2nd. Epergnes and bouquets were also well done.

Fruit.—The best dish of thirty fruits of Strawberries came from Mrs. Gouldsworth, and probably Messrs. Veitch & Sons were never before seen in better form. Strawberries were also shown in groups of six pots. Some well preserved Apples and Pears competed in classes set apart for them.

Vegetables were remarkably well shown in collections of nine and six varieties, and prizes were also offered for Cucumbers, Mushrooms, French Beans, Peas, Potatoes, Asparagus, &c.

Wild Flowers.—Collections of these, botanically arranged, are always a good feature at Bath, and they were seen in excellent character on this occasion. Each stand must consist of twenty-four species, collected within 12 miles of Bath. This is a much more interesting method than that of merely bunching up the flowers in the form of a bouquet, and decidedly better from an educational point of view.

Miscellaneous Exhibits.—A charming group of Japanese Maples, Orchids, flowering plants, &c., was set up by Messrs. R. Veitch & Sons, nurserymen, Exeter; and from Messrs. G. Cooling & Son, nurserymen, Bath, came a fine group of plants, also Roses in pots, cut blooms of the same, &c. A First-class Certificate of Merit was awarded to *Rosa himalaica*, a large well-formed single white type, apparently closely allied to *R. Brunoniiana*, shown by Messrs. Cooling & Son. A stand of blooms of excellent fancy Polyanthus was sent from the Zoological Gardens, Clifton.

LONDON AGRICULTURAL SEED TRADE ASSOCIATION.

ON Monday evening last, at the Holborn Restaurant, High Holborn, the annual dinner of this Association was given. The chair was occupied by Mr. Arnold Moss (of the firm of Messrs. Jacob Wrench & Sons, King William Street, City), Mr. F. Bryant, vice-chairman. There was a large attendance, including Mr. N. Sherwood, Mr. Peter Veitch (Exeter), Mr. C. Bates, Mr. W. J. Nutting, Mr. W. Richards, Mr. W. G. Pearson, Mr. F. J. Rust, Mr. J. Kay, Mr. Lovegrove, Mr. G. Marcuse, Mr. Paton, Mr. F. Sharpe, Mr. J. S. Watkins, Mr. Cutler, Mr. David Allester (Secretary), and other gentlemen.

After dinner the Chairman proposed "The Queen," which was drunk, and "God save the Queen" was sung; and having proposed the "Prince and Princess of Wales, and the rest of the Royal Family," which was enthusiastically drunk, and the other customary toasts, he gave the toast of the evening, "Prosperity to the London Agricultural Seed Trade Association." He said he would not detain them very long by going into full details, but he would ask them to consider whether it was possible to put the Society upon a better basis than it was at the present time. That was a matter which they would have to decide. He thought there was room for improvement. What they really wanted was more members, both London and country, and he sincerely trusted that as time rolled on its members would rapidly increase in numbers. There were, he regretted to say, a great many London and country seed merchants and agriculturists who were not aware of the existence of the Association. Let them, therefore, put their shoulder to the wheel and endeavour to make it known and to secure members. The Society was now in its tenth year, and had done, and was still doing, great good, he was glad to say, to those connected with agriculture. Everything in his power to promote the Society's welfare he would willingly do. There was one gentleman's face which was conspicuous by its absence. He referred to Mr. David Syme. This gentleman had written to say that he would like to have been present, but his health would not allow him to come. That gentleman, as they well knew, worked diligently for the Association, and he would have been pleased to see him present that evening to speak upon a subject which he knew more about than he (the Chairman) did. Again, he would urge them to use their utmost endeavours to secure members, especially country gentlemen. It had just been mentioned to him that a better title, it was thought, for the Association would be "The London and Provincial Agricultural Seed Trade Association." He thought so, too, and would bear the suggestion in mind.

Mr. W. J. Nutting proposed "The Agricultural and Commercial Interests" in appropriate terms, to which Mr. Hugh Aiton replied. Other toasts followed, which were duly responded to, and a hearty vote of thanks to the Chairman for presiding having been given the proceedings shortly afterwards terminated.

EDINBURGH BOTANICAL.

MAY 10.—The Society met this evening at the Royal Botanic Garden, Dr. Craig, President, in the chair. The following communications were made:—

1. "List of Plants observed in West Sutherland by Mr. Archibald Gray, with Notes on the Flora," by Lionel W. Hinxman, H. M. Geological Survey.

2. "A Review of our present Knowledge regarding the Colouring Matter of Plants (Part III.)," by P. Sewell.

3. "Obituary Notice of Professor Asa Gray," by A. Taylor.

4. "On Temperature and Vegetation at the Royal Botanic Garden," by R. Lindsay, Curator.

5. "On Temperature, Vegetation, &c., in the Botanic Garden, Glasgow," by R. Bullen, Curator.

Open-air Vegetation during April in the Royal Botanic Garden, Edinburgh.—During the month of April vegetation made very slow progress, frequent sharp frosts and cold easterly winds having prevented any rapid growth from taking place. Many deciduous trees and shrubs were still in their winter condition at the end of the month. Hardy herbaceous plants are also behind their usual time of flowering. No appreciable injury has been observed from these late spring frosts except this retardation of growth. The thermometer fell below the freezing point on eleven occasions; the lowest readings were registered on the 1st, 5th, 7th, 8th, and 9th of the month, when the glass fell to 25°, 26°, 26°, 25°, and 22° respectively.

The lowest day temperature for April was 42°, which took place on the 23rd, and the highest day temperature was 64°, on the 17th of the month. The total amount of frost for the month is the same as for April last year, viz., 58°.

The collective amount of frost registered this season, up to the end of April, is 589°, as against 520° for the same period last year. The following is the distribution for each month:—October, 31°; November, 49°; December, 132°; January, 67°; February, 121°; March, 131°; April, 58°. The lowest point reached this season was 9° Fabr., or 23° of frost, which occurred on February 16.

On the rock garden 137 species and varieties of plants came into flower during the month, being 22 less than for last April. Amongst the most conspicuous were:—

Androsace Laggeri	Narcissus Eystettensis
Anubria Leichtlini	„ incomparabilis and vars.
„ Hendersoni	„ rupicola
Anemone fulgens	„ triandrus
„ Robinsiana	Petrocallis pyrenaica
„ pulsatilla	Polygala chamaebuxus
Deutaria pentaphylla	„ purpurea
„ triphylla	Primula ciliata purpurata
Daphne Blagayana	„ decora
Coronaria Graelsi	„ mistassinica
Erythronium giganteum	„ cashmiriana
„ roseum	Soldanella montana
„ Nuttallianum	Trillium grandiflorum
Gentiana verna aestiva	Tulipa pulchella, &c.
Narcissus bulbocodium	
„ bicolor and vars.	

Of the forty spring-flowering plants annually recorded to show their periods of flowering nine came into flower, thus completing the list for the thirty-eighth year.

No.	Name of Plants.	First Flowers opened.		
		1886.	1887.	1888.
1	Adonis vernalis ...	April 3	March 29	April 16
2	Arabis albidia ...	March 4	Feb. 27	Feb. 6
3	Anubria grandiflora...	April 6	March 19	April 14
4	Bulbocodium verum...	Feb. 27	Feb. 19	Feb. 22
5	Corydalis solida ...	April 6	March 26	April 6
6	Corylus Avellana ...	Feb. 10	Jan. 26	Jan. 25
7	Crocus susianus ...	„ 12	Feb. 4	„ 26
8	„ vernus ...	March 17	„ 17	Feb. 23
9	Daphne Mezereum ...	„ 22	Feb. 5	„ 22
10	Dondia epipactis ...	Dec. 30, 1885	Jan. 13	Jan. 5
11	Draba aizoides...	Feb. 31	March 28	March 30
12	Eranthis hyemalis ...	March 10	Feb. 4	Feb. 8
13	Erythronium dens-canis ...	March 26	March 19	March 31
14	Fritillaria imperialis...	April 25	May 4	April 20
15	Galanthus nivalis ...	Feb. 9	Jan. 27	Jan. 26
16	„ plicatus ...	„ 9	„ 31	„ 26
17	Hyoscyamus Scopolia	April 3	March 23	April 13
18	Iris reticulata ...	March 20	Feb. 26	Feb. 23
19	Leucoium verum ...	Feb. 17	Feb. 11	„ 4
20	Mandragora officinalis	April 3	March 2	March 8
21	Narcissus Pseudo-Narcissus...	„ 6	„ 23	April 3
22	„ pumilus ...	March 25	„ 14	March 17
23	Nordmannia cordifolia	„ 20	Feb. 18	Feb. 11
24	Omphalodes verna ...	April 3	„ 28	March 23
25	Orobis verus...	March 28	March 6	„ 31
26	Rhododendron atrovi-rens ...	„ 23	Feb. 17	Feb. 3
27	„ Nobleanum ...	April 4	„ 26	April 13
28	Ribes sanguineum ...	„ 8	March 23	„ 10
29	Scilla bifolia ...	March 19	„ 2	March 19
30	„ alba...	„ 21	„ 4	„ 8
31	„ praecox ...	Feb. 13	Feb. 16	Jan. 26
32	„ sibirica ...	„ 17	„ 19	„ 30
33	„ taurica ...	March 20	„ 27	March 8
34	Sisyrinchium grandiflorum	„ 21	March 4	„ 8
35	„ album ...	„ 21	„ 8	„ 13
36	Symphitum caucasicum ...	April 20	April 10	April 18
37	Symplocarpus foetidus	March 23	Feb. 14	Feb. 8
38	Tussilago alba...	Feb. 10	„ 3	„ 9
39	„ fragrans...	„ 6	Jan. 19	Dec. 28, 1887
40	„ nivea ...	April 3	April 4	April 10

Extract from Report on Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, for April, 1888. —During the month frost has been registered on

eleven nights, the lowest reading being 7° during the night of the 8th. Total frost recorded, 37°, and that mostly confined to the early part of the month; but although the degrees of frost registered have been a little below the average, we have experienced an unlimited supply of cold east and north-east winds. The weather altogether has been variable, often appearing as a “reminder” that “many a sunny morning turns out a cloudy day.” Comparatively little progress has been made in the development of leafage, and the changeable nature of the weather has retarded all kinds of outdoor garden work. All except the hardiest kinds of annuals are still safest in their seed drawers.

SCOTLAND.

ORCHIDS AT EASTWOOD PARK, GIFFNOCK.

This place is about 5 miles to the south of Glasgow, in a rural district, with a surprisingly pure atmosphere.

Mr. Tod is devoted to horticulture generally, but Orchids are his special study and delight. Odontoglossum is the most favoured genus, and the collection of rare and valuable species and varieties is rich and extensive. A large span-roofed house is almost exclusively devoted to this genus. Many were in flower at the time of our visit, and a finer display it has rarely been our good fortune to see; the free and vigorous character of the inflorescences was remarkable everywhere. Several forms of *O. crispum* were of rare excellence—one in particular, deeply tinted and shaded with purple-rose, and having flowers of the unusual dimensions of 5 inches diameter, and of good substance, is much valued by Mr. Tod. Of other forms in bloom there were grand specimens of *O. Pescatorei*; one in particular deserves special mention, it having five spikes, bearing in all about 200 fine blooms. *O. tripudians grandiflorum* was showing twelve fine spikes. Several varieties of *O. Hallii* were in flower, showing the variable character of this excellent species. *O. mnilus* was just throwing up its spikes, and the interesting *O. Wilckeanum* was flowering profusely. A fine healthy plant of *O. luteo-purpureum maculatum* showed a bold spike with grand flowers. *O. gloriosum* appeared in several splendid forms, along with forms of other species too numerous to mention. Amongst rare things not in flower were *O. elegans*, showing three fine breaks; *O. hebraicum*, *O. Coradinei*, *O. Andersonianum*, the latter with pseudobulbs of enormous size, measuring about 5 inches by 5 inches; *O. Jenningsianum*, *O. naviun*, *O. Harryanum*, &c.

Of *Cypripediums* there is a very full collection of the most admired species, varieties, and hybrids. There were *C. Maulei*, *Chantini*, and *punctatum violaceum* of the insigne section in splendid plants, along with *C. Dominii* and others of the hybrids, and such species as *caudatum* and others of equal interest.

Dendrobiums are grown in limited numbers only, *D. Jamesianum*, *D. infundibulum*, *D. Ainsworthii*, *D. densiflorum*, *D. Wardianum*, and *D. Devonianum* being the most conspicuous.

Masdevallias in flower were fine, and included samples of *M. Harryana*, the bull's blood var., *M. H. Dennisoniana*, *M. ignea Massangeana*, *M. Chelsoni* ×, *M. Lindeni*, and its var. *grandiflora*.

Miscellaneous specimens noticeable were fine *Epidendrum vitellinum majus* in exceptional vigour, with spikes a foot or more long; *Mesospinidium sanguineum* and *vulcanicum*, *Miltonia vexillaria*, of which many plants are grown, in fine health; *Ada aurantiaca*, glowing in its rich orange-scarlet in fine contrast with the masses of light tinted *Odontoglossums* around; *Lycaste Skinneri alba*, *Oncidium macranthum* *O. ramosissimum*, and others. *Calanthes* in all the forms are well grown. Mr. James Ewart, the gardener, while showing in every department commendable skill, proves himself a master amongst Orchids.

The only other special feature at present is a fernery in rockwork, which is one of the most perfect things of the kind we have seen under glass.

Entering at one end of the house the visitor is introduced to an enchantingly pretty glen, with rugged craggy sides, which are luxuriantly clothed with well developed specimens of Tree Ferns in variety, with water below. The house terminates in a cave-like continuation, which is devoted to *Todeas*, *T. superba* and *T. pellucida* being the principal species; and the spaces surrounding the plants are clothed with masses of seedlings. Here the Filmy Ferns have been planted for only about two years, and were simply turned out of 3-inch pots and perched on the sandstone craggy projections of the sides of the house, very little soil being considered desirable. *W. S.*

THE WEATHER IN SCOTLAND.

An Aberdeenshire correspondent writes under date, Saturday, 26 May:—“The feature of the week, from a meteorological point of view, was the very severe thunderstorm that passed over a large part of the country in the opening days of this week. In the North, fortunately, no human life was lost, but several animals fell victims to the lightning—a fact which illustrates the dangerous nature of the storm in this part of the country. The heat that has been experienced for some time past has given an immense impetus to vegetation. The trees are now almost in full foliage, the fruit bushes are showing abundance of fruit, and garden produce generally is thriving very well indeed. The work of the farm is now well in hand, and farmers are busy laying down the Turnip crop. The weather has now become cloudy, and much colder than on the previous day, but the general run of fine weather has to some extent dissipated the fears that the crops would be prejudicially affected.

TREE PLANTING ON THE EARL OF FIFE'S BRAEMAR ESTATES.

The enclosing of a very considerable area of hill ground on the Earl of Fife's Braemar (Aberdeenshire) estates for the purpose of being planted has just been completed under the direction of Mr. James Gray, his lordship's overseer at Mar Lodge. It should be mentioned that the ground so treated lies beyond the Linn o' Dee, on the south side of the river, extending westwards in the direction of Dalvarar. Between the Linn o' Dee and the village of Iaverey his lordship also planted and enclosed a very extensive stretch of hill ground a few years ago, and this new extension is in a sense a continuation of the forest. It is now too late to have the plants put into the new park, but these, largely consisting of Larches, Scotch Firs, and Spruces, will have attention at the close of autumn. *W. K.*

THE WEATHER.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JUNE 9. (AVERAGE OF FORTY-FOUR YEARS.)

June 3 ...	58°·8	June 7 ...	59°·7
„ 4 ...	59°·2	„ 8 ...	59°·9
„ 5 ...	59°·4	„ 9 ...	60°·0
„ 6 ...	59°·6	Mean for the week ...	59°·5

THE PAST WEEK.

The following summary record of the weather for the week ending May 28, is furnished from the Meteorological Office:—

“The weather has been fine and dry in all parts of the kingdom, and the sky generally free from cloud. “The temperature has been from 2° to 4° below the mean in the ‘Wheat producing’ districts, but rather above in most of the ‘grazing’ districts. The highest of the maxima, which were recorded either on the 23rd or 24th, varied from 66° in the ‘Channel Islands’ to 74° in ‘Scotland, W.’, ‘England, S.W.’, and ‘Ireland, N.’ The lowest of the minima were generally registered on the 27th or 28th, when the thermometer fell to between 27° to 34° in Scotland, 37° and 38° in Ireland, and 31° and 36° over

England. At most of the inland stations some sharp ground frosts were experienced. The low average in the 'Wheat producing' districts was chiefly due to the prevalence of very cold nights, the daily maxima in many cases being rather high for the season.

The rainfall has been almost entirely absent over England, but some very slight falls have occurred in Ireland and Scotland.

"Bright sunshine shows a very general and decided increase, the percentage of the possible amount of duration ranging from 41 to 55 in the eastern and northern districts, and from 56 to 72 in the western and south-western."

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending May 28.	ACCUMULATED.			
		Above 49° for the Week.	Below 49° for the Week.	Above 49° difference from Mean since Jan. 3, 1888.	Below 49° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	2 below	43	8	— 58	+ 189
1. SCOTLAND, E. ...	2 below	52	8	— 97	+ 146
2. ENGLAND, N.E. ...	4 below	40	0	— 112	+ 73
3. ENGLAND, E. ...	4 below	54	2	— 162	+ 154
4. MIDLAND COS. ...	2 below	69	4	— 180	+ 150
5. ENGLAND, S. ...	2 below	70	0	— 235	+ 204
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 above	73	0	— 111	+ 107
7. ENGLAND, N.W. ...	0 (aver.)	74	0	— 145	+ 117
8. ENGLAND, S.W. ...	0 (aver.)	82	0	— 236	+ 254
9. IRELAND, N. ...	2 above	83	0	— 131	+ 67
10. IRELAND, S. ...	2 above	95	0	— 166	+ 113
— CHANNEL ISLANDS	1 below	81	0	— 215	+ 154

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	3 less	103	15.9	55	27
1. SCOTLAND, E. ...	4 less	85	10.1	47	30
2. ENGLAND, N.E. ...	4 less	74	8.1	41	27
3. ENGLAND, E. ...	4 less	73	7.4	42	28
4. MIDLAND COS. ...	5 less	65	6.9	5	26
5. ENGLAND, S. ...	4 less	68	8.5	53	27
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 less	71	14.4	58	32
7. ENGLAND, N.W. ...	5 less	74	7.4	56	29
8. ENGLAND, S.W. ...	5 less	73	10.4	72	34
9. IRELAND, N. ...	5 less	78	10.7	64	28
10. IRELAND, S. ...	5 less	69	12.1	70	34
— CHANNEL ISLANDS	3 less	90	10.3	70	37

ENQUIRIES.

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

"G. M. W., Poona, India, writes as follows:—"Many years ago I found the following lines in my memory, but the source from which they had been derived completely forgotten. Perhaps some readers

of your far-reaching journal may be able to identify them:—

"Gardening, man's primeval work,
Is a most blessed toil:
It cheers a man,
Makes him kind-hearted, social, genial,
Forms a serene parenthesis from care,
And his whole nature raises and improves."

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INSECTS.—*Camjee*: The moth is the well-known Puss moth (*Cerura vinna*). Its caterpillar had no connection with the piece of gnawed wood sent. *I. O. W.*—*E. L.* The two wild bees sent are the burying *Andrena nitida*. They make their solitary nests—not combs—on grass plots underground. Use lime-water and soap-suds, or gas tar-water, to dislodge them. *I. O. W.*

MILDEW ON VINES: *Mildew*. The attack is not due certainly to the pig manure-water you employed, but to your keeping the temperature several degrees too low with much moisture, and a stagnant state of the air within the house. Give no front ventilation; and syringe with sulphide of potassium in the proportion of ½ oz. to a gallon of rain water.

NAMES OF PLANTS: *R. Greenfield*. The larger flower is *Phycocactus multiflorus*; the smaller *P. Jenkinsonii*.—*E. H. C.* *Odontoglossum luteo-purpureum* sceptum.—*T. H.* *Odontoglossum Andersonianum*, an attractive sparsely spotted variety.—*J. F. W.* *Aërides japonicum*.—*K. S. L.* *Ornithogalum arabicum*.—*J. B.* 2, *Eriurus alpinus*.—*F.* 1, *Mesembryanthemum muricatum*; 2, *Fuchsia splendens*.—*J. T. B.* *Viburnum Awafukii*.—*H. T.* 2, *Alonsoa Warscewiczii*; 3, *Festuca ovina glauca*; 4, *Stachys lanata*; 5, *Staphylea colchica*.—*J. T. S.* 1, *Prunus Padus*; 2, *Zephyranthes carinata*.—*A. M. A.* 1, *Cattleya gigas*; 2, *Cedrus atlantica*; 3, next week; 4, *Abies Pinsapo*; 5, *Hippophae rhamnoides*; 6, 7, 8, next week; 9, *Eupatorium Weinmannianum*.—*N. O. P.*, *Pontypool*. Probably *Blechnum brasiliense*, but we cannot be certain, without fertile fronds.—*W. M.* *Spiraea hypericifolia*.

NOTICE TO QUIT SERVICE: *F. P.* If the hiring of a domestic servant be general, without any particular time mentioned, the law construes the hiring to be for a year; and in that case a quarter's warning must be given prior to the expiration of the term; but this refers chiefly to servants in husbandry. If no special contract be made, a domestic servant is entitled to a month's warning or a month's wages in lieu of it.

PEACH TREES: *J. Peacock*. The leaves are "blistered" by cold, and they then become the hiding-places of aphides, &c. Cut the injured leaves clean away, and burn them—there is no remedy. Another year protect your trees from cold as much as you can by means of canvas, nets three or four fold, and Frigi Domino.

SEEDS OF CAPE PLANTS: *T. Taylor*. With good treatment the *Begonia* might be got to flower under two years. The yellow Iris, which must be kept very moist after sowing, would not flower in less than two years, and it might be still longer before doing so; Water Melons would bear fruit the first season; Citrons would take many years before they fruited, unless parts of seedling plants were worked on old plants of bearing age.

TWIN-FLOWERED LILUM: *C. F. Wood*. The appearance is not uncommon, and is caused by two flowers uniting when in a very young state.

UTRICULARIA MONTANA: *J. C. E.* This is a native of New Grenada, and does best in the stove. *Dendrobium chrysanthum* will grow best in a basket

suspended near the roof. Give it decided periods of rest, and you may then succeed with it.

CATALOGUES RECEIVED.

CLARK BROTHERS & Co., 65, Scotch Street, Carlisle—Summer Flowering Plants.
THOMAS KENNEDY & Co., Dumfries, N.B.—Florists' Flowers, Pot Roses, &c.
HOOPER & Co. (LIMITED), Covent Garden—Makart Decorations.
WOOD & INGRAM, The Nurseries, Huntingdon—Bedding and Herbaceous Plants.

COMMUNICATIONS RECEIVED.—Jno. Lockyer (next week).—H. G. V.—S. C.—T. H. W.—T. S.—C. Ndn.—R. MoL.—D. & S.—G. P. (next week).—W. S. M.—S. Sidebottom (next week).—T. F. P.—Jas. Bray.—R. D.—F. S. & Co.—P. A.—G. S.—R. A.—R.—Vanda.—W. B.—D. T. F.—Young Head Gardener.—Bell's Weekly Messenger and Farmers' Journal.—Ernest Benary—F. W. B.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, May 31.

Our market has now recovered itself, and prices are firmer all round, with good supplies. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	3 0-6 0	Peaches, dozen	6 0-15 0
Grapes, per lb.	3 0-5 0	Pears, per dozen	3 0-6 0
Kent Cobs, 100 lb.	40 0-45 0	Pine-apples, each, lb.	1 0-2 0
Lemons, per case	12 0-21 0	— St. Michael, each	2 0-5 0
Melons, each	2 0-4 0	Strawberries, lb.	1 6-5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz.	4 0-...	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., bund.	1 0-5 0	Mustard and Cress, punnet	...
— English, 100	3 6-6 0	Onions, per bushel	5 0-...
Beans, Kidney, lb.	1 6-...	Parsley, per bunch	0 4-...
Beet, red, per dozen	1 0-2 0	Potatoes, per cwt.	4 0-5 0
Carrots, per bunch	0 6-...	— kidney, per cwt.	4 0-5 0
Cauliflowers, each	0 8-...	Rhubarb, per bundle	0 4-...
Celery, per bundle	1 6-2 6	Shallots, per lb.	0 6-...
Cucumbers, each	0 3-1 0	Spinach, per bushel	2 0-...
Endive, per dozen	2 0-...	Spruce, per bundle	1 0-...
Green Mint, bunch	0 4-...	Tomatoes, per lb.	2 0-...
Herbs, per bunch	0 4-...	Turnips, per bunch,	...
Leeks, per bunch	0 6-...	— new	...
Lettuce, per dozen	1 6-...		...

POTATOS.—Old Potatoes unsaleable; new, from Jersey, making 5d. lb.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Ferns, in var., doz.	4 0-18 0
Azalea, per dozen	18 0-30 0	Ficus elastica, each	1 6-7 0
Bourasias, per dozen	9 0-12 0	Foliage plants, various, each	...
Calceolarias, dozen	6 0-12 0	Fuchsias, doz.	2 0-10 0
Cinerarias, dozen	6 0-12 0	Gehsias, dozen	4 0-6 0
Coleus, dozen	3 0-6 0	Heliotropes, dozen	6 0-9 0
Cyclamens, per dozen	9 0-18 0	Lily of the Valley, 12 pots	...
Cyperus, per dozen	4 0-12 0	Marguerites, doz.	9 0-12 0
Deutzias, per dozen	6 0-12 0	Mignonette, 12 pots	6 0-12 0
Dracena terminalis, per dozen	...	Musks, dozen	1 6-3 0
— viridis, per doz.	12 0-24 0	Myrtles, per dozen	6 0-12 0
Ericas, various, per dozen	...	Palms, in variety, each	...
— ventricosa, doz.	18 0-30 0	Pelargoniums, doz.	9 0-15 0
Eunonymus, in var., per dozen	...	— scarlet, dozen	4 0-9 0
Evergreens, in var., per dozen	...	Roses, dozen	12 0-24 0
	...	Spiræas, dozen	6 0-12 0

BEDDING-OUT PLANTS.

By the box, 2s. to 6s.; or by the dozen, 1s. to 2s. Now coming good.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemone, 12 bun.	1 6-4 0	Narcissus, various, 12 bunches	1 6-3 0
— fulgens, 12 bun.	2 0-4 0	— double, 12 bun.	4 0-6 0
Arum Lilies, 12 blms.	2 0-4 0	Pelargoniums, 12 spr.	0 6-1 0
Azalea, 12 sprays	0 6-1 0	— scarlet, 12 spr.	3 0-6 0
Bouvardias, per bun.	0 6-1 0	Polyanthus, 12 bun.	1 6-3 0
Camellias, 12 blms.	1 0-2 0	Primulas, double, 12 sprays	...
Carnations, 12 blms.	1 0-2 0	Roses, Tea, per doz.	0 6-1 6
Cowslips, 12 bun.	1 0-2 0	— coloured, dozen	2 0-4 0
Cyclamens, 12 blms.	4 0-6 0	— red, per dozen	2 0-4 0
Deutzia, 12 bunches	4 0-9 0	Safrano, dozen	4 0-6 0
Eucharis, per dozen	3 0-6 0	Spiræa, 12 bun.	4 0-6 0
Forget-me-nots, 12 bunches	...	Stephanotis, 12 spr.	2 0-4 0
Gardenias, 12 blooms	1 6-4 0	Tuberose, 12 blms.	0 9-1 0
Heliotropes, 12 spr.	0 6-1 0	Tulips, 12 bunches	2 0-4 0
Lilium longiflorum, 12 blooms	...	Violets, Parme, bun.	2 0-4 0
Lily of Val., 12 bun.	4 0-6 0	Wallflowers, 12 bun.	2 0-4 0
Marguerites, 12 bun.	3 0-6 0	White Lilac, French, per bunch	...
Mignonette, 12 bun.	3 0-6 0		...

*. Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: May 30.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market, as might be expected, thinly attended, with scarcely any business doing. Quotations all round in consequence remain quite nominal. The growing crops of Clover seeds are unfavourably spoken of. Rape seed continues in favour at the late rise. White Mustard is steady. Boiling Peas realise full rates. In bird-seeds there is no change to be noted. English Buckwheat continues in small supply.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended May 26:—Wheat, 31s. 6d.; Barley, 27s. 10d.; Oats, 16s. 11d. For the corresponding week in 1887:—Wheat, 34s. 6d.; Barley, 25s. 1d.; Oats, 16s. 9d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: May 30.—A sluggish trade for green vegetables, and a stagnant one for Potatoes. Supplies abundant. Prices lower. Quotations:—Asparagus, 1s. 3d. to 1s. 9d. per 100 heads; Cabbages, 2s. 6d. to 5s. per tally; Cauliflowers, 3s. to 5s. do.; Spinach, 9d. to 1s. 6d. per sieve; Greens, 1s. 6d. to 2s. 6d. per dozen bunches; Carrots, 3s. to 4s. do.; Parsley, 1s. to 1s. 6d. do.; Mint, 1s. 6d. to 2s. do.; spring Onions, 1s. 6d. to 2s. do.; Turnip Radishes, 5d. to 8d. do.; Mustard and Cress, 2s. per dozen baskets; Rhubarb, 1s. 6d. to 2s. per dozen bundles; Horse-radish, 10d. to 1s. per bundle; Seakale, 1s. 3d. per punnet; Endive, 4d. to 8d. per dozen; Beetroots, 6d. to 9d. do.; Cabbage Lettuces, 4d. to 6d. do.; Cos Lettuces, 1s. to 2s. per score; English Onions, 6s. to 7s. per cwt.; foreign, do., 4s. to 5s. 6d. per bag of 110 lb.; Carrots, 120s. to 140s. per ton; English Apples, 9s. to 10s. per bushel; American, do., 20s. to 26s. per barrel.

STRATFORD: May 29.—Supply was fair during the week, and a brisk trade was done at the following prices:—Onions, Egyptian, 6s. to 7s. per bag; Apples, American, 18s. to 25s. per barrel; Watercress, 6d. to 8d. per dozen; Radishes, 8d. do.; Lettuce, 1s. to 1s. 6d. per score; Onions, 2s. 6d. to 4s. per dozen; new Carrots, 1s. per bunch; new Turnips, 1s. to 1s. 3d. do.; Cucumbers, 2s. 6d. to 7s. per dozen; Rhubarb, 2s. to 3s. 6d. per dozen bundles.

POTATOS.

BOROUGH AND SPITALFIELDS: May 29.—Stocks of old large, and sales very difficult to effect. Prices irregular and depressed. Quotations:—Regents, 40s. to 85s.; Magnum Bonums, 40s. to 80s.; Dunbar, 80s. to 90s.; Champions, 24s. to 100s.; Dutch Rocks, 50s. to 55s. per ton. New: Malta round, 10s. to 11s.; ditto kidneys, 14s. to 16s.; Lisbon round, 9s. to 10s. per cwt.

SPITALFIELDS AND COLUMBIA: May 30.—Quotations:—New: Guernsey kidneys, 4d. to 6d. per pound; Malta do., 14s. to 16s.; do., rounds, 9s. 6d. to 11s. per cwt. Old: Presidents, 50s. to 60s.; Imperators, 50s. to 60s.; Regents, 30s. to 35s.; Champions, 30s.; Victorias, 30s. to 40s.; and Magnums, 20s. to 50s. per ton.

STRATFORD: May 29.—Quotations:—Old: Scotch Regents, 50s. to 70s.; do. Magnums, 50s. to 75s.; English do., 45s. to 70s.; and fenlands, 30s. to 50s. per ton. New: kidneys, 12s. to 16s.; Lisbons, 9s. to 10s.; Malts, 9s. to 11s. per cwt.

Imports.—The imports into London last week consisted of 1628 half-boxes, 3550 half-barrels, 3684 packages, from Lisbon; 546 cases, 1899 packages, 151 casks, 228 boxes from Malta; 2 baskets from Bordeaux, 229 bags from Harlingen.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 84s. 6d. to 102s. 6d.; inferior, 74s. to 82s.; mixture, 75s. to 95s.; hay, prime, 84s. to 100s.; inferior, 72s. to 84s.; and straw, 30s. to 48s. per load.

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out doubt a very valuable manure, and easy of application."
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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),
40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half
ton; 25s. per ton, in 2-bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO
CLOTH, RUSSIA MATS, &c. Write for Price LIST.—
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Lane (lately called 17A, Coal Yard), W.C.

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Condensed Farmyard Manure, 7s. 6d. per sack. Fertilising Moss, bags, 1s. and 3s. 6d.; per bush, 7s. 6d. Composite, special for Exhibitors of Chrysanthemums, Ferns, Greenhouse and Stove Plants, Lawns, Vines, and Fruit, &c.

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W. WOOD & SON, Wood Green, LONDON, N.,
Or of all Seedsmen and Seed Potato Dealers.



Sold in Packets, 6d. and 1s. each, and in SEALED BAGS ONLY.

7 lb. 14 lb. 28 lb. 56 lb. 1 cwt.

2/6 4/6 7/6 12/6 20/-
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C. & L. also supply Crushed Bones, Bone Dust, Peruvian Guano, Sulphate of Ammonia, and Nitrate of Soda, in best qualities only.



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Mr. W. G. HEAD, Superintendent of the Crystal Palace Gardens, says:—"We were so satisfied with your Weed Killer and its price, that we have used it absolutely. I have every confidence in recommending it."

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SOLD BY SEEDSMEN AND FLORISTS.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

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Flower Sticks and Labels, Bamboo Canes,
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For Covering Fruit Trees,
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LAWN MOWERS.

The Best in the World.
NEW "TENNIS" LAWN MOWER.
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HORSE and PONY LAWN MOWER.
Good Lancashire-made Machines. Far superior to American and other imitations. They have been awarded many Silver Medals and Prizes at International Exhibitions.
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Machines of any make REPAIRED and made equal to new.

GLASS.—CHEAP GLASS.
8s. 6d. per 100 feet 15 oz. 12x10, 18x12, 18x14, 24x14,
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20s.; Oxford Ochre, 24s.; Green, 16s.; Black, 16s. per cwt.;
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GARDEN HOSE.—The Antimonial Red Rubber Hose is cheapest in the long run. Buy direct, and avoid useless stuff, which seems cheap, but is not so. Antimonial Hose is best. Prices free.

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NETTING.—Buy your Netting direct from the Makers. Write for sample piece, of our best quality, waterproof, tanned and oiled, 4 yards by 50 yards, 8s.; second quality, 5s. 6d. Any size made to order. Trade supplied.
SPASHETT AND CO., Net Manufacturers, Lowestoft.

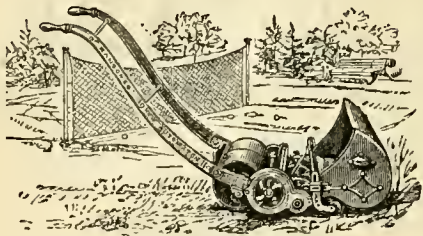
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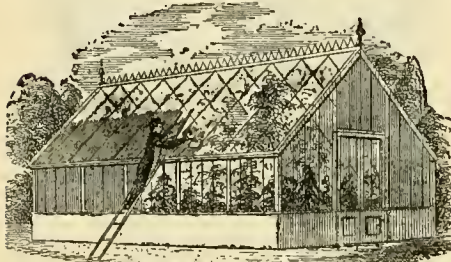
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A GREEN COLOURING WASH

For Conservatories, Greenhouses, and similar structures.
The best and most economical Shading before the public.
Sold in 1s. tins sufficient for 100 square feet, is easily applied,
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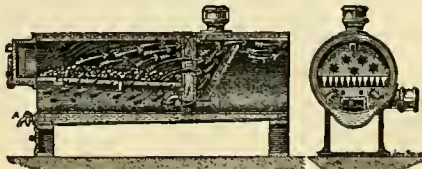
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For training Peas instead of
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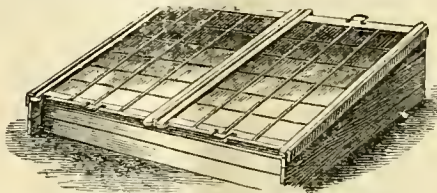
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Made any size to order at
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R. HALLIDAY AND CO. desire to
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Prices delivered to any station in England:— £ s. d.

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The glass is nailed and puttied in. Lights and framing for
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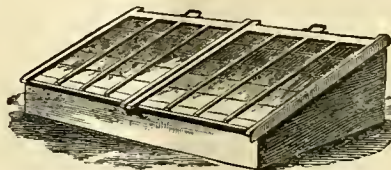
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Our 8 by 6 feet

2-LIGHT MELON AND CUCUMBER FRAMES



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For other sizes, see NEW PRICE LISTS, Post-free.

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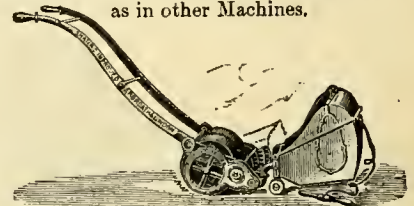
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CRICKET, 1888.—A number of second-hand
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THE ONLY LAWN MOWER FITTED WITH
DOUBLE EDGED SOLE-PLATE,
Enabling the Cutting Parts to last twice as long
as in other Machines.



THESE MACHINES are strong, substantial, and
very easily worked. They make the Lawn like
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Prices of Hand Machines, with Grass Boxes, complete.

To cut 10 in. wide... £3 10 0 To cut 19 in. wide... £8 0 0

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" 14 " ... 5 10 0 " 24 " ... 9 0 0

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Small Lawn Mowers, 6 in., 25s.; 7 in., 35s.; 8 in., 45s.

Horse and Pony Machines, with or without Patent Delivery
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The working parts are greatly reduced in number, and this
MACHINE is easier to work than any other in the
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10-inch Machine ... £3 0 0 14-inch Machine ... £4 15 0

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Grass Boxes extra—10 and 12 in. sizes, 7s. 6d.; 14 and
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GARDEN ROLLERS OF ALL SIZES.

ALEX. SHANKS & SON,

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And 110, Cannon Street, London, E.C.

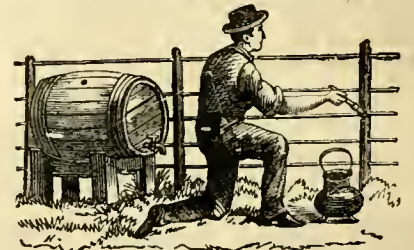
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(Registered Trade Mark.)

An excellent substitute for oil paint, at one-third the cost.
Used in all London Parks, at Windsor, and Kew Gardens,
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Price 1s. 6d. per gallon at the manufactory, or carriage-paid
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CAUTION.—Every Cask bears the above
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Experienced Workmen sent to any part of the Kingdom.

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Patterns free.
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A large quantity of all descriptions and sizes in stock, at the lowest possible prices.

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THE "NEW EASY" LAWN MOWER.

Has an Open Steel Roller.

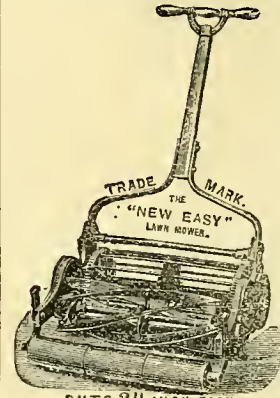
A man can cut a 24-inch machine, cutting Grass 5 inches high clean to roots.

There is no easier working, no better finished, no stronger, no more durable mower in the market.

The Front Roller, with simple adjustment, enables the machine to cut very close to the ground, and to do fine work.

The machine will also cut verges.

To be obtained through all the leading Ironmongers or Seedsmen, or from the Sole Licensees—



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14x12	20x15
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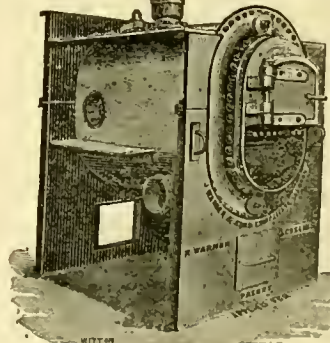
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HOT-WATER BOILER,

For Greenhouses, Vineries, Conservatories, Forcing Houses, &c.



Advantages

Equally applicable for Domestic or Warehouse Heating.

Baths, Lavatories, and Laundries.

Minimum Cost of Setting. Free Access to all Flues.

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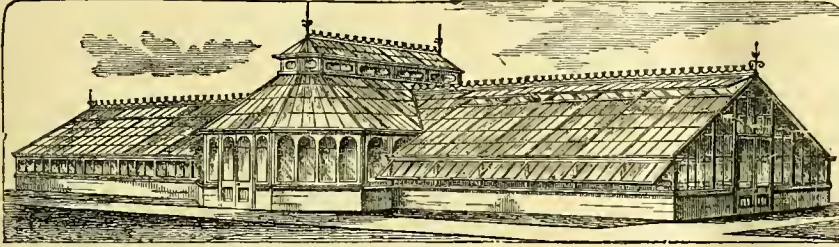
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Five 1st Prize Medals recently awarded in open competition.



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HOTHOUSE BUILDERS and HOT-WATER ENGINEERS,

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Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

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Children's... .. 1s. 2d.
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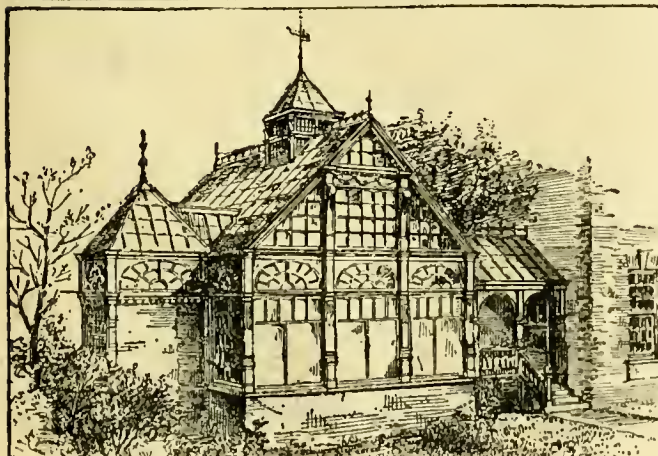
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11 " ..	0 6 6	22 " ..	0 12 0
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CAMOMILE PILLS.

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See Testimonial, selected from hundreds:—

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Accidents all the Year Round.

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GARDENER (UNDER, or SINGLE-HANDED).—Age 22; eighteen months' good character from last situation.—E. NAYLOR, 8, Shakespeare Street, Long Eaton, Derbyshire.

GARDENER (UNDER), or SECOND, in the Houses.—Age 21; seven years' experience, Indoors and Out. Good reference.—S. SALMON, The Gardens, Old Dalby Hall, Melton Mowbray.

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FOREMAN, or SECOND, in good establishment.—Age 24; eight years' experience, both Inside and Out. Can be well recommended from past and present employers.—W. CASTLE, The Gardens, Nym Park, Potter's Bar, Barnet, Herts.

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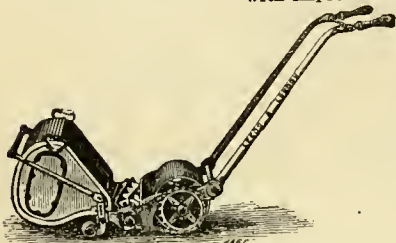
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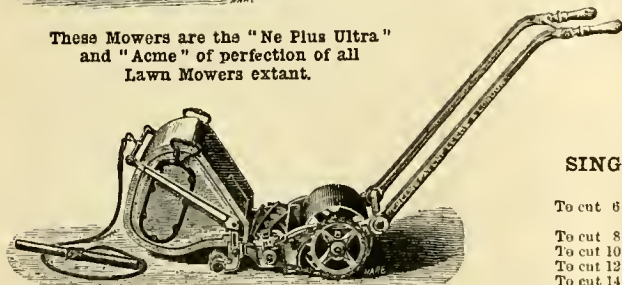
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These Mowers are the "Ne Plus Ultra" and "Acme" of perfection of all Lawn Mowers extant.



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	Price.
To cut 6 in., can be worked by a Lady ...	£1 15 0
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To cut 10 in., do. by a strong youth ...	3 10 0
To cut 12 in., do. by a man ...	4 10 0
To cut 14 in., do. do. ...	5 10 0

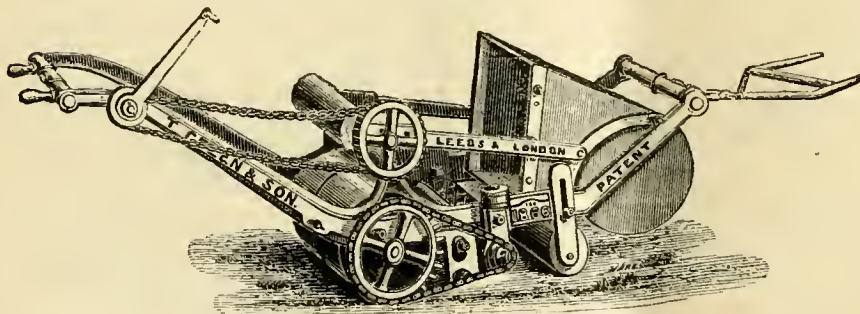
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The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machine makes little noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the machine. Packing Cases as per List, except when for export.

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To cut 30 inches ...	£23 0 0
To cut 36 inches ...	26 0 0
To cut 42 inches ...	30 0 0
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The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, Free of Cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

GARDEN SEATS AND CHAIRS, AND HORTICULTURAL IMPLEMENTS OF EVERY DESCRIPTION, WIRE NETTING, &c., &c.
Descriptive Illustrated PRICE LISTS Free on application to

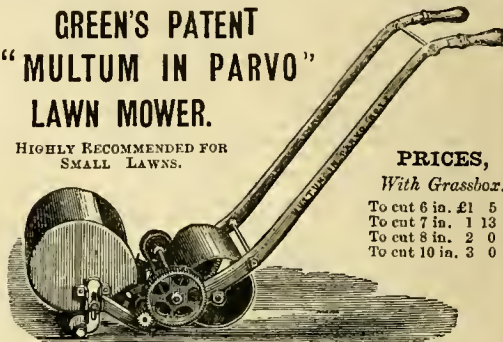
THOMAS GREEN & SON, LIMITED, SMITHFIELD IRONWORKS, LEEDS; AND SURREY WORKS, BLACKFRIARS ROAD, LONDON; or they can also be had of any Ironmonger, Seedsman, Merchant, or Factor in the United Kingdom.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

HIGHLY RECOMMENDED FOR SMALL LAWNS.

PRICES,

With Grassbox.
To cut 6 in. £1 5 0
To cut 7 in. 1 13 0
To cut 8 in. 2 0 0
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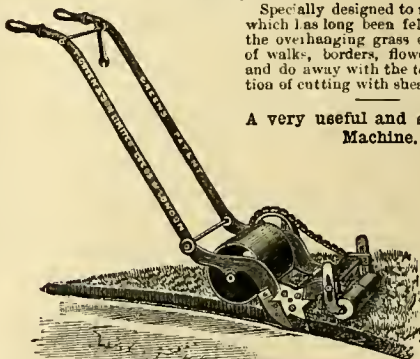
GREEN'S PATENT GRASS EDGE CLIPPER.

SIZE and PRICE.

7 inches wide, 7 inches diameter ... £1 16s.
Packing Case, 3s.

Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

A very useful and serviceable Machine.



GREEN'S PATENT LAWN TENNIS COURT MARKER.

No. 2412.

The Best Marker made.

Size with 1 wheel for Ordinary Courts, price 14s.

Do., with 3 wheels, 17s.

Size for Clubs and Large Grounds, price £1.

Small Bag of Marking Composition, 9d.



The GARDENERS' CHRONICLE

ESTABLISHED 1841.
No. 24.6.

No. 76.—VOL. III. {THIRD SERIES.}

SATURDAY, JUNE 9, 1888.

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Post-FREE, 3d.

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ROYAL BOTANIC SOCIETY,
Gardens, Regent's Park, N.W.
EXHIBITION OF PLANTS, FLOWERS, AND FRUIT,
WEDNESDAY, June 20. Gates open at 2 o'clock. The Bands
will play from 2 to 7. Tickets, to be obtained at the Gardens
only by Vouchers from Fellows of the Society, price 5s., or on
the day of Exhibition, 7s. 6d. each.

ALEXANDRA PALACE
GRAND ROSE SHOW, JUNE 25 and 26.
The series of Shows promoted by the Alexandra Palace and
Park Company, Limited, for 1888, will be inaugurated by a
grand display of ROSES on the above dates. Liberal Prizes in
all Classes of Roses for professional and amateur growers are
offered. All Prize Money will be paid on the first day of the
show. Excellent facilities are offered for Trade exhibits,
Specialties and Appliances; and suitable Honours and Certifi-
cates will be awarded.
Full particulars and Schedule of Prizes may be obtained on
application to the Secretary of Rose Show, Mr. R. BEALE,
Alexandra Palace, London, N.

WOOD GREEN AND DISTRICT
HORTICULTURAL SOCIETY.
THE THIRD ANNUAL SHOW will be held on FRIDAY and
SATURDAY, July 6 and 7, in the Grounds of Bowes Manor,
Bowes Park, kindly lent by Thomas Sidney, Esq. Special
Prizes are offered for Gentlemen's Gardeners, and there is also
an Open Class in which good Prizes are offered. Communi-
cations to
WALTER T. DEWDNEY, Hon. Sec.
3, Myddelton Terrace, Wood Green, N.

TWICKENHAM HORTICULTURAL and
COTTAGE GARDEN SOCIETY.
The ANNUAL SUMMER SHOW of this Society, will be
held in the grounds of Orleans House, Twickenham (by the
kind permission of W. Cunard, Esq.), on TUESDAY, July 10.
A number of New Open Classes have been added to the Schedule
this year. Further particulars may be had of
JAS. J. G. PUGH, Esq., Hon. Sec.
2, Heath Road, Twickenham.

The Best Present for a Gardener.
VINES and VINE CULTURE.
The most complete and exhaustive Treatise on
Grapes and their Culture ever published.
New Edition.
Price 5s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

SUTTON'S FLORISTS' FLOWER SEEDS.
Begonia, Calceolaria, Cineraria, Cyclamen, Gloxinia,
Primula, &c., the finest strains in existence. See SUTTON'S
AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct
from SUTTON AND SONS, Reading.

CAMELLIAS (Two large) for Sale. Disposing
of same on account of being too large for greenhouse.
D. H. HAGGIE, Seaford, Sunderland.

CREEPERS FOR WALLS.—By planting
what is suitable, an ugly object may easily be made
beautiful. Most being in pots, can be sent and put out at any
time. Descriptive LIST and advice Free.—RICHARD SMITH
AND CO., Nurserymen and Seed Merchants, Worcester.

VERBENAS—VERBENAS.—Purple, White,
Crimson, Scarlet, and Pink, 6s. per 100, 50s. per 1000;
in twelve best exhibition varieties, 8s. per 100. The above are
all good, strong, healthy, well-rooted plants from store pots.
Package and carriage paid. Terms cash with all orders.
FLETCHER, SON AND CO., Florists, &c., Chesterfield.

50 HARDY FERNS, in 10 varieties, worth 5s.,
for 1s. 6d.
VANSLEY POND, Florist, Kenwyn Street, Truro.

PRIMULA, Double White, 5s. per dozen,
35s. per 100.
Price for quantities on application.
Terms, Cash with Order.
TAYLOR AND CO., Nurserymen, Timperley, Cheshire.

MESSRS. GREGORY AND EVANS,
NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower
Market, Covent Garden, W.C., are open to RECEIVE
CONSIGNMENTS of Choice CUT FLOWERS in any quantity
for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

SQUELCH AND BARNHAM,
North Row, Covent Garden, W.C., are OPEN TO DIS-
POSE OF any quantity of MUSCATS and BLACK GRAPES,
TOMATOES, CUCUMBERS, FRENCH BEANS, STRAW-
BERRIES, CHOICE FLOWERS, &c. Highest Market Prices
obtained. Account Sales daily; Cheques weekly or as preferred
by Sender. Baskets and Labels supplied. References given.

GEO. CLARKE AND CO. are OPEN to
RECEIVE CHOICE CUT FLOWERS in any quantity.
Highest market prices guaranteed. Boxes and Labels sup-
plied. Address
3, Conduit Court, Covent Garden, W.C.

CHOICE FRUIT and FLOWERS.—Highest
Market Prices guaranteed. Empties free.
HENRY RIDES (late Wise & Rides), Covent Garden, W.C.

Adiantum cuneatum, also **gracillimum** and **Farleyense**.
WANTED, strong Plants, in 2 to 4-inch pots.
—State price per dozen or hundred for cash, with sample
plant, to E. BURTON, The Gardens, Ben Rhydding, by Leeds.

WANTED, good strong Plants of CARN-
ATION. PINK "Souvenir de la Malmaison" and
"Prince of Orange." Please state quantity and price to
T. JACKSON AND SON, Nurserymen, Kingston-on-Thames.

WANTED, GERANIUMS:—10 dozen Surrey
Rival, 10 doz. Forbury Nosegay, 20 doz. Mengeslii.
Price with sample to
A. BILLMOORE, Caversham Nurseries, Reading.

The Advertisers Desire the
LOAN, FOR A FEW WEEKS,
of a Collection of Specimens of British-grown TIMBER,
such as was exhibited at the Forestry Exhibition in Edinburgh.
They will be glad to pay all expenses and a reasonable amount
for hire.—WILLIAM BARRON AND SON, Elvaston Nurseries,
Borrowash, Derby.

CARTERS' FIRST-PRIZE PRIMULA.

CARTERS' FIRST-PRIZE CINERARIA.

CARTERS' FIRST-PRIZE CALCEOLARIA.
Seed of each, in sealed packets, price 1s. 6d., 2s. 6d.,
3s. 6d., and 5s. per packet, post free.

CARTERS' SEEDSMEN BY SPECIAL ROYAL
WARRANTS to H.M. the Queen and H.R.H. the Prince of
Wales, 237 and 238, HIGH HOLBORN, LONDON, W.C.

BEAUTIFUL FLOWERS.—I beg to intimate
that my celebrated collection of CALCEOLARIAS and
CINERARIAS are now in full flower at my Nursery, Beech
Hill, Edinburgh. Inspection invited.
JOHN DOWNE, of the late firm of Downie & Laird.

CACTUS DAHLIA, "JUAREZII."—Extra
strong Plants for Early Flower, 4s. per doz., 30s. per 100;
ditto, from boxes, 2s. per dozen, 16s. per 100. Cash.
GEO. POULTON, Fountain Nursery Angel Road, Edmonton.

EUONYMUS.—20,000: all nice bushy well
grown specimens, 9 to 30 inches, 15s. to 27 per 100;
about 150 large ones, 3s. 6d. to 5s. each.
J. J. CLARK, Goldstone Farm, West Brighton.

PRIMULAS—PRIMULAS—PRIMULAS.—
Nineteenth year of distribution, Williams' superb
strain, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS same price.
Also double white PRIMULAS, 6d. each.
Carriage free for cash with order.
JOHN STEVENS, The Nurseries, Coventry.

Plant Now.
TROPEOLUM SPECIOSUM, the well-known
hardy scarlet Climber. Fine strong plants, with numerous
strong growths, free and safe by post, out of pots, 1s. each;
9s. per dozen. Cash with order.
HOWDEN AND COMPANY, The Nurseries, Inverness, N.B.

BEDDING PLANTS, established,
and so sure to give satisfaction.
CHRYSTHEMUMS, the very choicest sorts, in good plants.
DAHLIAS, an unsurpassed collection. Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen and Seed
Merchants, Worcester.

A Few Large Healthy
PALMS, 3 to 5 feet high, for immediate
disposal.—Latania borbonica, Seaforthia elegans,
Chamærops excelsa, and Phoenix reclinata—from 10s. per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

Tea Roses for Present Planting or Pot Culture.
EDWIN HILLIER begs to offer very fine
bushy plants in 48-pots, of the leading varieties, at 10s.
to 15s. per dozen, 76s. to 100s. per 100. LISTS free.
The Nurseries, Winchester.

ROSE BLOOMS, Choice Yellow, 12s. per 100.
STEPHANOTIS, fine trusses, 3s. per dozen. Cash must
accompany orders.—EDWIN HILLIER, Nurseries, Winchester.

GRAPE VINES, FIGS.—Leading kinds;
healthy young growing stuff for present planting.
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

SIMPLE INSTRUCTIONS by which an
abundance can be insured of delicious MUSHROOMS.
See Seed LIST, Free.
RICHARD SMITH AND CO., Seed Merchants and Nursery-
men, Worcester.

New Sowing Rape and White Mustard Seed.
H. AND F. SHARPE have to offer fine clean
samples of the above-named Seeds, which they will be
pleased to submit, with Lowest Prices, on application.
Seed Growing Establishment, Wisbech.

W. H. LASCELLES AND CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement on June 2, page 679.

SALES BY AUCTION.

The Downside Collection of Orchids.
PRELIMINARY NOTICE.

HIGHLY IMPORTANT EIGHT DAYS' SALE of the whole of this renowned Collection, including many plants matchless in point of rarity, and the whole remarkable for culture and condition, embracing unquestionably the most valuable and extensive Collection of

ESTABLISHED ORCHIDS.

that has ever been submitted to Public Competition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Wm. Lee, Esq. (who is Selling the Estate of Downside, and relinquishing the cultivation of Orchids), to SELL by AUCTION, on the Premises, Downside, Leatherhead, about 1 mile from either of the Leatherhead Railway Stations,

On **TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY,** July 10, 11, 12, and 13, 1888; and also on

TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 24, 25, 26, and 27, 1888.

at half-past 12 o'clock precisely each day, the whole of this most valuable Collection of

ESTABLISHED ORCHIDS.

Amongst the **CATLEYA TRIANE** section (mostly fine specimens) will be found:—

Catleya Triane Leana, 4	C. Triane Victoria Regina
plants of this superb variety.	" " Russelliana
" " Osmani, 3 plants.	" " marginata
" " Dodgsoni, 3 plants.	" " bellicosa
" " Dayana	" " magnifica
" " Emperor	" " Normanii
" " Empress	" " gigantea
" " Emilie	" " Williamsi
" " Rackbousiana	" " lilacina
" " Colemanii	" " General Gordon
" " alba	" " Riddigore
" " Orion	" " Mephistopheles
" " virginialis	" " Chelsoni
" " eboracensis	" " beatifica
" " compacta	" " Archduke
" " regina	" " Archduchess
" " impatiata magna	" " bella

and many others not yet named, which will be offered with their portraits painted by Macfarlane, the whole forming probably the grandest collection of fine varieties of the Triane section ever brought together, many of the plants moreover being of the largest size with many strong leads.

Amongst the **HYBRID CATLEYAS** will be found:—

Catleya fausta	Catleya Domini
" calumnata	" Germainii
" Mardelli	" Mastersoni
" exoniensis	

HYBRID LÆLIAS will include:—

Lælia Amesiana	Lælia bella
" Veitchiana	" flammea
" calistoglossa, a grand	" Leana
plant, with 16 great	" Rivieri
bulbs and 4 breaks	

The **HYBRID DENDROBIUMS** will include:—

Dendrobium Ainsworthi	Dendrobium splendidissimum
" Leechianum	grandiflorum, the grandest of
" splendidum	all, with 8 bulbs over 2 feet
" micans	high, and 3 breaks
" euousmum variety leucopterum	Dendrobium endocharis
	" rhodostoma

The **HYBRID CYPRIPEDIUMS** will include:—

Cypripedium grande	Cypripedium cardinale
" amandum	" Sedeni, and its fine
" Arthurianum	variety candidulum
" albo purpureum	" Crossianum
" calurum	" conchiferum
" euryandum	" Dominianum
" lo	" Hartwegi
" Morganie	" Læcanum superbum
" Swavianum	" politum
" Verveanum	" marmorophyllum
" selligerum majus	" calophyllum
" Harrisianum	" tessellatum porphyreum
" superbum, the special	" supercilare
fine variety of	" vexillarium
" Veitch	" ananthum
" Ashburtonie	" superbum
" microchilum	" Schroderi
" javanicum-superbiens	" Wiumianum
" chloroneurum	

CATLEYA SECTION.

Catleya labiata (autumn	Catleya Mendeli, many special
flowering)	varieties
" Skinneri	" elegantissima
" alba	" Selborneensis
" Percivaliana, special	" Jamesiana
varieties	" Jamesiana, rare
" alba, rare	" gigas [iana
" delicatissima	" imperialis and Sander-
" Mossie alba	" Hardyana
" Reineckiana	" auren
" Southgatei	" Williamsi, of the gutta-
" rubra superba	tum section

LÆLIA SECTION.

Lælia elegans alba	Lælia purpurata Williamsi
" " Leana	" " Warneri
" " Stelzneriana	" " Nellisi
" " Dayana	" " anceps Schroderi
" " prasiata	" " Sanderiana
" " Houtteana	" " Dawsoni
" " Hesperis	" " Veitchi
" " Wolstenholmie	" " Williamsi
" " Turneri	" " Leana
" " purpurata alba and rosea	" " Hilliana
" " Russelliana (a magni-	" " alba (true)
fiscous specimen)	" " Percivaliana
" " Brysiana	" " Barkeri
" " albo lilacina (a splen-	" " Calvestrina
d variety)	" " blanda

(Continued on next column.)

(Continued from previous column.)

DENDROBIUM SECTION.

Dendrobium Phalenopsis	with 8 bulbs over 2 feet long,
" " nobile nobilis, the well-	and 3 growths
known large plant,	Dendrobium arachnites

LYCASTE AND CŒLOGYNE SECTION.

Cœlogyne cristata alba	Cœlogyne Massangeana
" " Chatsworth variety	" " Dayana
" " Lemoineana	" " Lovi
" " Trentham variety	Lycaete Skinneri (fine varie-
" " maxima variety	ties, true to name
" " All fine plants.	

MASDEVALLIA SECTION

comprises a grand and complete collection of Masdevallias, many of the highest class, and some very rare.

ODONTOGLOSSUM SECTION.

There is a large and very choice collection of the finest varieties in large plants, true to name, and which have been grown at Downside for several years, and are models of successful cultivation.

PHALENOPSIS SECTION.

Amongst the Phalenopsis are two plants of P. Brymeriana, also intermedia, Portei, one of the true variety Dayana, and several leucorrhoda and casta.

VANDA, AERIDES, and ANGRECUM SECTION.

A grand assortment of these, all in splendid health.

MISCELLANEOUS.

Maxillaria Sanderiana, five	Cymbidium Wallisi, 3 plants
plants (one in flower)	Saccolabium Heathi
Cypripedium Wallisi, two	" " Harrisianum or giant-
	cum album

Messrs. P. & M. desire to mention that no plants will be sold privately, but that the whole will be submitted to public competition.

The collection may be viewed any day prior to the Sale, by cards, to be obtained of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C. The Catalogue is in hand and will shortly be published. Copies can be obtained on application to the Auctioneers.

Tuesday Next.

CATLEYA MENDELI.
ODONTOGLOSSUM ALEXANDRE.
CATLEYA SANDERIANA.
ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth, Carder & Co., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT, June 12, at half-past 12 o'clock precisely,** a splendid importation of **CATLEYA MENDELI**, in fine masses; **ODONTOGLOSSUM ALEXANDRE**, of the best type, and in unusually good condition; **CATLEYA SANDERIANA**, including several extra fine masses; **ODONTOGLOSSUM GRANDE**, and other **ORCHIDS**. The Sale will also include about 150 lots of well-grown **ESTABLISHED ORCHIDS**, imported **DENDROBIUM FORMOSUM**, **GIGANTEUM**, **ONCIDIUM VARIOSUM**, **ROGERSII**, and others.

On view morning of Sale, and Catalogues had.

Friday Next.

One hundred fine varieties of **ODONTOGLOSSUM ALEXANDRE** in bloom.
Twenty plants of **ODONTOGLOSSUM HARRYANUM** in bud. These plants not having previously flowered in this country, some grand varieties may confidently be looked for. Also

CATLEYA HARDYANA, in flower.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION on **FRIDAY NEXT, June 15, by order of Mr. F. Sander, together with 4 cases of CATLEYA MENDELI**, received direct for unreserved Sale, and a splendidly blotched hybrid **ODONTOGLOSSUM**.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY NEXT, June 15, at half-past 12 o'clock precisely,** a large importation of **White LÆLIA ANCEPS**, in extraordinary masses and fine condition. The importation contains the varieties **SCHRODERIANA**, **SANDERIANA**, **STELLA**, and doubtless other fine forms will from time to time crop up; **CYPRIPEDIUM VENUSTUM** **PARDINUM**, just received in finest possible condition, as good as established; **AERIDES FIELDINGII**, in fine order; **CATASETUM BUNGEROTHII** and varieties, described in the *Gardener's Chronicle* of January 27, 1887, and also figured in *Lindleya*. No collection is perfect without one or more of this valuable novelty. The plants now offered are really good, sound, and healthy, and cannot fail to give satisfaction to buyers. **CATLEYA MOSSIE**, just received in very good condition. Also importations of—
Odontoglossum nebulosum **Odontoglossum Rossi majus**
" citrosomum " Cervantesi
" maculatum " Roelzii
Catleya citrina **Catasetum species, probably**
Cypripodium punctatum **new**
Oncidium lancans **Lælia purpurata, &c.**

On view morning of Sale, and Catalogues had.

Friday Next.

SPLENDIDLY BLOTCHED HYBRID ODONTOGLOSSUM.
MESSRS. PROTHEROE AND MORRIS are instructed to include in their SALE on **FRIDAY NEXT, June 15, a strong plant with ten flowers of a very fine Hybrid ODONTOGLOSSUM**, profusely marked, with highly coloured blotches or spots.

On view morning of Sale, and Catalogues had.

Monday, June 25.

SPECIAL SALE OF ORCHIDS IN FLOWER, instead of Tuesday, June 26, as advertised last week.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next **SPECIAL SALE OF ORCHIDS IN FLOWER** will take place as above, in which they will be glad to receive notice of entries as early as possible.

Tuesday and Wednesday, June 26 and 27.

IMPORTANT UNRESERVED SALE of the whole of the well-known **COLLECTION OF ESTABLISHED ORCHIDS** formed by F. A. Philbrick, Esq., Q.C., who is relinquishing the cultivation of Orchids.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY and WEDNESDAY, June 26 and 27, at half-past 12 o'clock precisely**, without reserve, the whole of this well-known **COLLECTION OF ESTABLISHED ORCHIDS**. The plants are in unusually fine condition, and the collection includes probably the grandest lot of Phalenopsis offered for many years, beside a large number of specimens of hybrid and other Cypripediums. Among the principal items the following may be mentioned:—

Phalenopsis amabilis, including picta and many other fine varieties	Cirrhopetalum Cunninghami, large plant
" Dayana (true)	Sobralia macrauhia superba
" grandiflora, the best Java and Borneo varieties	Aërides Lawrenceana
" Schilleriana, including magnifica and other grand forms	" affine Godefroye
" casta, three healthy plants	" roseum magnificum
" leucorrhoda, fine variety	Cœlogyne cristata alba
" speciosissima	" " maxima
" trispis	" " Chatsworth var.
" violacea Schroderi	" " Trentham var.
" Marie and others	" " Lemoineana
Cypripedium Morganie	" " barbatum
" Læcanum superbum	" " Massangeana
" ananthum superbum	" " tomentosa
" Williamsii	Odontoglossum crispum regium
" vexillarium	" " Ruckerianum
" Sedeni superbum	" " Wilkenum and other great forms
" barbatum grandiflorum superbum (Henderson's)	" " Pescatorei, many fine varieties
" politum	" polyanthum
" selligerum majus	" " blandum, special dark variety described in Veitch's Monograph
" grunde	" " vexillarium abescens
" Schroderi	" " Cobbianum
" marmorophyllum	Catleya Mossie Goliath
" Spicerianum magnificum	" " grandissima
" Veitchii	" " Skinneri alba and oculata
" Lowi superbum	" " aureum
" Chantini	" " Mardelli
" punctatum violaceum	" " Wagneri (true)
Lælia anceps Dawsoniana, with 5 breaks	" " Backhouseana
" Hilli Percivaliana	" " exoniensis
" Schroderi virginialis, and other white varieties	" " Triane, Clio, and other fine varieties
" lilacina	" " Gouldiana (true)
" elegans, many fine forms	" " Mendeli superbissima
Saccolabium bellinum	" " Wallacei
Cymbidium Philbrickianum	" " gigas Madeleine, and other superb varieties
	Lycaste Skinneri alba
	Masdevallias, including nearly all the finest species and varieties

Also Bateman's "Orchidaceae of Mexico and Guatemala," elephant folio, 1843, Sir Titus Salt's copy; Williams' "Orchid Album," both series, in 6 volumes, half-bound in morocco, gilt; Bateman's "First and Second Century of Orchidaceous Plants," and Bateman's "Monograph of Odontoglossum."

Messrs. P. & M. desire to state that no plants will be sold privately prior to the Sale.

May be viewed on the premises by cards obtainable of the Auctioneers, or at the Sale Rooms on the morning of Sale. Catalogues may be had of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.—(Sale No. 7692.)

VALUABLE IMPORTED and ESTABLISHED ORCHIDS.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Sale Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT, June 13, at half-past 12 o'clock precisely**, extensive consignments of **BRAZILIAN ORCHIDS**, comprising 1500 splendid plants of **Oncidium Jonesianum**, in fine order; the rare **Cypripodium St. Legerianum**, **Oncidium crispum**, **Lælia prestans**, &c.; an extensive importation of **BURMESE DENDROBIUMS**, several **Wardian Cases** of **VANDA SIAMENSIS**, a fine lot of **ESTABLISHED ORCHIDS**, many in Flower and Bud; a Consignment of **LILIES** and other **ROOTS**, from South Africa; **HORTICULTURAL SUNDRIES**. On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7692.)

70,000 Seeds of new and choice **BRAZILIAN PALMS**, just brought home by Collector, comprising 20,000 *Cocos Yatai*, 10,000 *C. australis*, 5000 *C. cordiliferensis*, 28,000 *Copernicia Totai*, and 1000 *Orghania humilis*, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT, June 13.**

Wednesday, June 20.

ORCHIDS IN FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SALE OF ORCHIDS IN FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, June 20, at half-past 12 o'clock precisely**, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will SEND LIST not later than **THURSDAY NEXT**.

Wednesday June 20.

AERIDES SCHRODERII, grand plant, with about thirty leaves and 100 blooms, in splendid health; **A. VEITCHII**, strong plant, with twenty leaves, and fine branched spike, a lovely variety; **MASDEVALLIA HARRYANA**, Bull's blood var., &c.

MR. J. C. STEVENS will include the above in his SPECIAL SALE OF ORCHIDS in flower at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, June 20.** On view morning of Sale, and Catalogues had.

The Third and Concluding Portion of the Valuable COLLECTION OF ORCHIDS formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 18, at half-past 12 o'clock precisely, the Third and Concluding Portion of his valuable COLLECTION of ORCHIDS.

For further particulars, see future Advertisement.

Unique and Valuable Water-colour Drawings of ORCHIDS, DRIED FERNS, &c.

MR. J. C. STEVENS has been favoured with instructions from the Executors of the late John Day, Esq., of High Cross, Tottenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 18, the Unique and Valuable Collection of Life-size WATER-COLOUR DRAWINGS of ORCHIDS, by Durham, contained in 29 bound volumes, together with 44 loose Drawings, and 5 Framed, ditto; also the famous Collection of DRIED FERNS.

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The FORTY-FIFTH ANNIVERSARY DINNER in aid of the Funds of this Institution, will take place at the "Albion," Aldersgate Street, E.C., on WEDNESDAY, July 4 next, when the Right Hon. JOSEPH CHAMBERLAIN, M.P., will preside.

Tickets 21s. each. In order to provide for the comfort and convenience of the Guests no Tickets will be issued after Friday, June 29.—By order, EDW. R. CUTLER, Sec.
50, Parliament Street, S.W.—May 30, 1888.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE COMMITTEE have the pleasure to announce the following Contributions to be added to the Subscription List of the Right Hon. JOSEPH CHAMBERLAIN, M.P., on the occasion of his presiding at the 45th Anniversary Festival, to be held on JULY 4, 1888:—

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For Destroying Weeds on Carriage Drives, Garden Walks,
Stable Yards, &c. Prices: per gallon, 2s., tin included; 5 gal-
lons, 1s. 6d. per gal.; 10 to 20 gallons, 1s. 4d. per gal., carriage
paid. Special quotation for larger quantities. One gallon makes
26 gallons.

Mr. W. G. HEAD, Superintendent of the Crystal Palace
Gardens, says:—"We were so satisfied with your Weed Killer
and its price, that we have used it absolutely. I have every
confidence in recommending it."

The "Invicta" Insecticide.—For Destroying Mealy-bug,
Scale, Thrips, Red Spider, &c. In tins, 1s. and 2s.; per gallon,
9s., carriage paid.

The "Invicta" Mildew Destroyer.—An unfailing
remedy for Mould and Mildew on Roses, Vines, &c. In bottles,
1s. and 2s., per gal. 7s. 6d., carriage paid. Used by Messrs.
Veitch & Sons, Chelsea, and other Rose Growers.

The "Acme" Worm Killer.—For Eradicating Worms
from Tennis Courts, Lawns, and Plants in Pots. Prices in
bottles, 1s. 3d. and 2s. 6d.; per gallon, 6s., carriage paid.

Kentish Garden Manure.—For Vines, Plants in Pots,
Vegetables, &c. Guaranteed to Analysis by Mr. Bernard
Dyer, B.Sc., &c. Highly recommended. Prices, in tins, 3d.,
1s., and 2s. 6d.; 28lb., 7s. 6d.

The Kentish Soluble Manure.—For use in Conservatories
and on Plants in Rooms. No disagreeable smell. A perfect
plant food. In tins, 3d., 9d., and 2s.; 28lb., 7s. Sample tins
of these manures, post-free, 6d.

Sole Proprietors and Manufacturers,
THE AGRI-HORTICULTURAL CHEMICAL COMPANY,
TONBRIDGE, KENT.
SOLD BY SEEDSMEN AND FLORISTS.

FOWLER'S
LAWN
SAND.

MANY years' experience
has proved this article the
most certain and efficacious remedy
for the destruction of Daisies and
Weeds on Lawns. It used according
to the directions it cannot fail to
produce a healthy and luxuriant
growth of Grass in one application,
and to enable the article to be in
more general use it is now offered at
the following
Reduced Prices.
Viz.: Tins, 1s., 2s. 6d., 5s.; and in Kegs, ½ cwt. 8s. 6d.;
¾ cwt., 16s.; 1 cwt., 30s.
Sold by all Nursery and Seedsmen.

Sole Manufacturers:
CORRY, SOPER, FOWLER & CO., LTD.,
16, FINSBURY STREET, LONDON, E.C.

SAVE HALF THE COST.
GARSID'S
SILVER SAND,
BEDFORDSHIRE
Coarse and Fine.

Is admitted by the leading Nurserymen to be the Best
Quality obtainable in the Trade.
Consumers should Buy Direct from the Owner of these
Celebrated and Extensive Pits, which contain a practically
inexhaustible supply of Splendid Sand, and thus save half the
ordinary cost. NO TRAVELLERS OR AGENTS.
Apply direct to the Proprietor for Samples and Prices.
Free on Rail or Canal. All Orders executed with the utmost
promptness and under personal supervision. Special Rail-
way Rates in force to all parts.
GEORGE GARSIDE, Jun., LEIGHTON BUZZARD, BEDS.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.
4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),
40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks,
25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks,
4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half
ton; 26s. per ton, in 2-bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-
MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO
CLOTH, RUSSIA MATS, &c. Write for Price List.—
H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury
Lane (lately called 17A, Coal Yard), W.C.

GARDEN REQUISITES,
of best quality, as supplied to the Royal Gardens, &c.

BEST COCOA-NUT FIBRE REFUSE, 10 sacks for 10s., 15 for
14s.; 20 for 18s., 30 for 25s.; two ton truck, 28s. Free on rail.
RUSSIA MATS, from 12s. to 18s. per dozen.
FINEST ORCHID PEAT, 7s. per sack.
BEST BROWN FIBROUS PEAT, 5s. per sack, 5 for 22s. 6d.
BEST BLACK FIBROUS PEAT, 4s. 6d. per sack, 5 for 20s.
COARSE SILVER SAND, 1s. 6d. per bushel; 14s. 4d. per
ton; 25s. per ton.
PURE LEAF-MOULD, 3s. per sack.
YELLOW FIBROUS LOAM, 3s. per sack.
BEST MUSHROOM SPAWN, 4s. per bushel.
RAFFIA, LABELS, STICKS, BAMBOO CANES, VIRGIN
CORK, CHEMICAL MANURES, &c.
SPHAGNUM MOSS, 6s. per sack. **CHARCOAL**, 8s. per sack.
SPECIALITE TOBACCO PAPER and CLOTH, each 8d. per lb.
28 lb. for 18s. Price List free by post.
W. HERBERT AND CO., Hop Exchange Warehouse, South-
wark Street, London, S.E.

GARDEN REQUISITES.
TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d.
PEAT, best black fibrous ... 4s. 6d. ... 5 sacks for 20s.
PEAT, extra selected Orchid ... 7s. 6d. ... 5 sacks for 35s.
LOAM, PREPARED COMPOST (1s. per bush., 3s. per sack
LEAF, or PEAT MOULD) (sacks included).
SILVER SAND, coarse, 1s. 6d. per bush., 14s. half-ton, 24s. ton.
RAFFIA FIERE, best only ... 1s. per lb.
TOBACCO CLOTH, or PAPER ... 8d. lb.; 28 lb., 18s.
SPHAGNUM MOSS, all selected, 3s. per bush., 5s. per sack.
CHUBB'S "PERFECT" FER-
TILIZER (the Best Food for
all kinds of Plants, Flowers,
Fruits, Vegetables, &c.) Tins, 7lb. 14lb. 28lb. 56lb. 1 cwt.
Crushed Bones, or Bone Dust 1/2 2/ 3/ 5/ 14/ 22/
VIRGIN CORK (Best quality only) 3/ 5/ 10/ 17/
RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO,
NITRATE OF SODA, HORTICULTURAL CHARCOAL, &c.
PEAT MOSS LITTER, cheapest and best Bedding for Horses and
Cattle, 2s. per ton. Extra large Sample Bales, 6s. each.
COCOA-NUT FIBRE REFUSE (by Chubb's special process),
sacks, 1s. 3d. each; 10 sacks, 11s.; 15 sacks, 15s.; 20 sacks, 18s.;
30 sacks, 25s.; 40 sacks, 30s.; Truck-load, loose, free on rail,
28s. Limited quantities of G., special quality granulated,
in sacks only, 2s. each. Terms, strictly Cash with order.
(Bankers, Union Bank of London.)

CHUBB, ROUND & CO.,
WEST FERRY ROAD, MILWALL, LONDON, E.

CERTAIN SUDDEN DEATH
To all Grubs, Aphids, Lice, Red Spider, Thrip, Mealy
Bug, Caterpillars, &c., &c.
PERFECTLY to the Hands and Skin, but will cure
HARMLESS Ringworm in Animals, and all diseases
produced by parasites.

FIR TREE OIL
(SOLUBLE) INSECTICIDE
A combination of Hydrocarbon Oils, made soluble in
Water, for destroying ALL INSECTS & PARASITES
that infest Trees and Plants, whether at the Roots or
on the Foliage.
Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., & 4s. 6d.;
½ gallon 7s. 6d., 1 gallon 12s. 6d., or less in larger quantities.
A Treatise on FIR TREE OIL as an INSECTICIDE.
Its application to Plants and Animals, sent Post free
on receipt of address, by the Manufacturer.

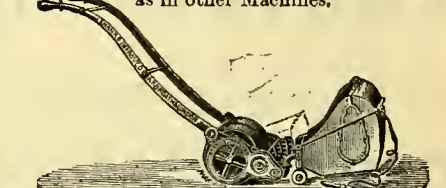
HUGHES'
FIR TREE OIL
SPRAY PUMP
PRICE 25/-



Throws a fine
spray 20 ft., and
a jet 30 ft., with
great force.
A splendid
substitute for the
Syringe for using
Insecticide, Price
25s. A larger
size for watering
purposes, 45s.
Carriage Paid.
For
Glass Houses. **HUGHES'**
GREEN & CREAM COLOR SHADING
Convenient, Inexpensive—Easily applied—Lasts all the
Summer, and can then be easily washed off, 1s., post 1/3.
E. GRIFFITHS HUGHES, Manchester.
Wholesale: Hooper & Co.; Corry, Soper, Fowler & Co.;
C. E. Osman & Co.; and from all the London Seed Mer-
chants and Wholesale Patent Medicine Houses. NEW
YORK—Rohrer & Sons.

SHANKS'S IMPROVED
LAWN MOWER.

THE ONLY LAWN MOWER FITTED WITH
DOUBLE EDGED SOLE-PLATE,
Enabling the Cutting Parts to last twice as long
as in other Machines.



THESE MACHINES are strong, substantial, and
very easily worked. They make the Lawn like
velvet, and are not liable to get out of order.

Prices of Hand Machines, with Grass Boxes, complete.
To cut 10 in. wide... £3 10 0 To cut 19 in. wide... £8 0 0
" 12 " ... 4 10 0 " 22 " ... 8 10 0
" 14 " ... 5 10 0 " 24 " ... 9 0 0
" 16 " ... 6 10 0 " 26 " ... 9 0 0
Small Lawn Mowers, 6 in., 26s.; 7 in., 35s.; 8 in., 45s.
Horse and Pony Machines, with or without Patent Delivery
Apparatus.

SHANKS'S NEW LAWN MOWER,
'THE IMPROVED AMERICAN.'

The working parts are greatly reduced in number, and this
MACHINE is easier to work than any other in the
Market. Every working part is protected. It can be used
with or without Grass Box.

PRICES.
10-inch Machine ... £3 0 0 14-inch Machine ... £4 15 0
12-inch " ... 4 0 0 16-inch " ... 5 10 0
Grass Boxes extra—10 and 12 in. sizes, 7s. 6d.; 14 and
16 in. sizes, 10s.

GARDEN ROLLERS OF ALL SIZES.

ALEX. SHANKS & SON,
Dens Ironworks, Arbroath,
And 110, Cannon Street, London, E.C.

A large Stock of all sizes of Machines is always kept in
LONDON, where Repairs can also be executed by experienced
workmen.

LONDON ADDRESS for Repairs:
44, Tenter Street East, Goodman's Fields, E.

GISHURST COMPOUND, used by leading
Gardeners since 1859 against Red Spider, Mildew,
Thrips, Green Fly, and other Blight. 1 to 2 nunces to the
gallon of soft-water; 4 to 16 ounces as winter dressing for Vines
and Orchard-house Trees; and in later from the cake against
Americas Blight. Has outlived many preparations intended
to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on
wet ground. Boxes, 6d. and 1s., from the Trade.
Wholesale from PRICE'S PATENT CANDLE COMPANY
(Limited), London.

To Nurserymen, Seed Merchants, and Florists.

J. BLACKBURN AND SONS are offering Arch-
angel Mats lower than any other house in the trade; also
Petersburg Mats and Mat Bags, Raffia Fibre, Tobacco Paper,
and Shading. Prices free.—4 and 5, Wormwood Street, E.C.

PILCHARD NETTING, ½-inch mesh, 12 yards
wide, 9d. yard; extra stout strong TANNED NET,
2 yards wide, 1½d. yard; 4 yards wide, 3d. yard; or 2 yards
wide, 10s. per 100; 4 yards wide, 20s. per 100 yards. New
TWINE NETTING, 1 yard wide, 1½d. yard; 2 yards wide, 3d.
yard; 4 yards wide, 6d. yard; 12 yards wide, 1s. 6d. yard.
COTTON NET, nine meshes to square inch, 1½ yard wide, 6d.
to 7d. yard run.

W. CULLINGFORD, Forest Gate, E.

HY. VAN & CO.
(The Oldest London House in the Trade, Estd. 1780),
25, Tooley Street, London Bridge, S.E.

Illustrated CATALOGUES Post-free.

PROTECTION FOR FRUIT AND FLOWERS.
GARDEN NETTING, 2 yards wide, 1½d., or per 100 yards,
10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s.
SCRIM CANVAS, 1 yard wide, 3d.; 1½ yard, 4½d.; and
2 yards, 6d. per yard.
TIFFANY, 28 inches wide, in 20 yard pieces, 3s. 6d. per piece.
SHADING BLINDS made up any size.
RICK CLOTHS, TARPAPULINS, Corn and Potato SACKS,
FLAGS, TENTS, &c., for Sale or Hire.
TOBACCO PAPER, RAFFIA, and Garden MATS of all kinds.

SPEARMAN'S ROYAL NAVY
AND OTHER SEROES,
for LADIES' DRESSES and GENTLEMEN'S SUITS,
the best in the world, also the cheapest.
Patterns free.
Order direct, not through Agents or Drapers. Only address—
SPEARMAN and SPEARMAN, Plymouth.

[The List of Applications for Shares will Open on Saturday, the 9th of June, and Close on or before Tuesday, the 19th of June, 1888.]

VERTEGANS & HEWITT, LIMITED,

In which are incorporated the following businesses :—

R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston.
R. H. VERTEGANS, Shelley Nurseries, Malvern.

HANS NIEMAND AND CO., Royal Nurseries, Harborne Road, Edgbaston.
THOMAS HEWITT AND CO., Nurseries, Solihull.

Incorporated under the Companies Acts 1862 to 1886, whereby the liability of Shareholders is limited to the amount subscribed.

CAPITAL, £50,000, IN 5,000 SHARES OF £10 EACH.
FIRST ISSUE OF 3,000 ORDINARY SHARES.

No payment on application; £2 10s. per Share on allotment. It is not expected that more than £6 per Share will be called up.

DIRECTORS :

Mr. J. COURTENAY LORD, J.P., Birmingham.
Mr. WILLIAM PEARCE, Pershore and Birmingham.
Mr. THOMAS HEWITT, Solihull, near Birmingham.
Mr. R. H. VERTEGANS, Edgbaston, } *Managing Directors.*
Mr. J. F. L. EVANS, Solihull, }

This Company is formed for the purposes of acquiring the undermentioned well-known Nurseries, and extending the businesses thereof :—

The Chad Valley Nurseries, Edgbaston.
The Shelley Nurseries, Malvern.
The Royal Nurseries (Hans Niemand & Co.), Edgbaston.
The Solihull Nurseries (Thomas Hewitt & Co.).

CHAD VALLEY NURSERIES.

The Chad Valley Nurseries were established by the present proprietor, Mr. Richard H. Vertegans, F.R.H.S., in the year 1852. Since then he has carried on the business of Nurseryman, Seedsman, and Landscape Gardener, with uninterrupted success. As a Landscape Gardener he has designed and competed successfully for the laying-out of parks, cemeteries, and private grounds, in different parts of the country.

Two new departments have of late years been added to the Chad Valley Nurseries, Alpine and choice Herbaceous Plants have now become in such request as to constitute a special business. The collection, growth, and propagation of these has been conducted with singular success, and at the present time these Nurseries are of the first rank for the production of these plants. The other department is that of choice novelties in fruits, shrubs, and bulbs, and large quantities of these have been distributed during the past twelve months. More than one thousand new customers have resulted, and in all probability this branch will be greatly increased. A considerable number of novelties, in addition to those already distributed, are in hand, and only need the requisite time for working up a stock before being offered to the public.

In addition to the establishments before mentioned, Mr. Vertegans has a stall in the Birmingham Market Hall (connected by telephone with the Nurseries), from which an extensive and lucrative trade is carried on.

THE SHELLEY NURSERIES.

The Shelley Nurseries, Malvern, consist of about 5 acres of land well stocked with nursery produce, and form a valuable feeder for the Nurseries of Edgbaston.

HANS NIEMAND'S NURSERIES.

The Royal Nurseries, Harborne Road, Edgbaston, have long enjoyed a well-deserved reputation, especially for the growth of decorative plants. They were the only Nurseries at Edgbaston in competition with those at Chad Valley, and the consolidation of the two businesses increases the resources of both whilst diminishing the cost of management, and secures other important advantages.

The Chad Valley and the Royal Nurseries, under separate management, have each long been famous for their resources for decorations for balls, receptions, and parties. The stock of decorative plants at present available for such purposes is very large and important, and far surpasses any other in the Midland Counties. For such plants there is always a considerable demand in Birmingham and the neighbourhood.

The Chad Valley and Royal Nurseries at present cover some 13 acres, upon which there are no less than 40 green and hot-houses, many of large dimensions, and constructed upon the most modern and approved principle.

HEWITT'S NURSERIES, SOLIHULL.

Hewitt's Nurseries are situated adjoining the Solihull Station on the Great Western main line, about 6 miles from Birmingham. They comprise upwards of 9 acres of fertile land, of which nearly an acre and a half are covered by 27 Glasshouses. The Nurseries are approached by a private entrance from the Railway Station, and are admirably laid out. They are well stocked, and in a high state of efficiency. The Greenhouses are of modern construction, and are in good order. Not only have the Nurseries a considerable local trade, but in connection with the business there is a Stall at the Birmingham Market Hall, from which large daily sales are effected.

PURCHASE MONIES.

The purchase monies have been paid as follows :—

(a.) For the Leasehold Properties, including the commodious Dwelling House, with Seed Shop, Offices, and Conservatories attached, and all the Greenhouses and other erections situated at the Chad Valley Nurseries; and for the Nursery Stock-in-Trade there, and at the Shelley Nurseries, Malvern, and also for the Leasehold Properties and House at 46, Harborne Road, Edgbaston, with the Greenhouses, Plant, Frames, and other erections there, together with the whole of the Nursery Stock-in-Trade, the sum of £10,000, of which £5,000 is payable by the issue to Mr. R. H. Vertegans of fully paid-up Shares in the capital of the Company and £5,000 in cash.

(b.) For the Leasehold Nurseries situated at Solihull, together with the Greenhouses, Trade Erections, and Nursery Stock, and the Goodwill of the business the sum of £9,200, of which £9,000 is payable by the issue to the Vendors, or their nominees, of fully paid-up Shares, and the balance of £200 in cash.

INDEPENDENT VALUATIONS ON BEHALF OF DIRECTORS, MADE APRIL 1888.

These purchase monies were based upon reports previously made by Messrs. George Paul and Hewitt in the case of Mr. Vertegans, and by Mr. F. Perkins, of Leamington, in the case of Messrs. Hewitt & Co. The Directors, however, caused professional valuations to be made on their behalf of both Properties, in order that they might be assured that the purchase monies asked were fair and reasonable. They instructed Messrs. Roderick & Sons, of Temple Row West, to value the Leasehold Properties, Greenhouses, and Erections situated at Edgbaston, to be purchased from Mr. Vertegans, and that firm report their value to be £4,500.

Mr. John Fraser, of Leyton, Essex (a practical nurseryman and professional valuer), who is well known in the trade as a man of large experience, has on their behalf made a detailed valuation of the whole of the Nursery Stock, Plant, Trees, &c., at those Nurseries, and he values the same at £7,097 5s. This gives a total value of £11,597 5s. for the Properties purchased from Mr. Vertegans, for which the Company pay £10,000 without any payment for Goodwill.

Mr. Fraser has also on behalf of the Directors, valued the Greenhouses and Nursery Stock at Solihull, and reports the same to be worth £9,555 11s. 11d., for which the Company pay only £9,200, without any consideration for the Leases, Dwelling House, and Stables on the Nursery, and the Goodwill.

REPORTS OF MR. JOHN FRASER, OF LEYTON.

Mr. Fraser has made reports on all three Nurseries (which may be seen on application to the Solicitors of the Company), from which the following extracts are given :—

"Chad Valley.—Here is an excellently appointed establishment, in which neatness of arrangement and careful attention are combined. The Greenhouses and pits are in good condition,

and, in looking over the stock, the beautiful Lapagerias, both white and red, are remarkable for their good health and vigorous development. . . . Out-of-doors will be found a most choice selection of herbaceous and alpine plants, many of them of great rarity, and all of them in a fine thriving condition. . . . The most notable articles in this place are the collections of new fruits, which are (many of them) only to be found here. These comprise new Raspberries, Blackberries, Apricots, Plums, Apples, Diospyros, and several others.

"The introduction of these fruits displays a most praiseworthy enterprise on the part of the proprietor, and would seem to possess a national importance, giving the owners or tenants of land an opportunity to turn some of it to profitable advantage—this is a most desirable step in advance of the time."

"Hans Niemand's.—Here is a Nursery composed chiefly of glasshouses, which are all in good working order, and contain a large number of plants, such as are used for decorating the large halls and other places of a similar description which are so plentiful in Birmingham. The most extraordinary collection of large Palms is not to be matched in any Nursery in the country. Some of the specimens are of immense size and remarkably healthy, especially when it is taken into account that they have been used for decorating many times. . . . There is as well-grown and healthy a lot of Japanese Maples as can be met with anywhere, and some of the varieties are exceedingly elegant and attractive. Ferns are here in immense quantities, and the same may be said of all the finer and rarer kinds of Dracaenas, Caladiums, Begonias, and many other choice and scarce things, too numerous to mention in a summarised report of this kind."

"Hewitt & Co.—A most notable feature here is the position of this Nursery, situate as it is close to the Solihull Station of the Great Western Railway, from the platform of which there is a convenient entrance. The place is attractive to passengers, and there is no doubt that many customers are secured from this circumstance. The convenience for sending goods at all times to stations on every branch of such an important line as the Great Western is invaluable, and the advantage of the ready communication with Birmingham cannot be overrated. Manure, coal, and other heavy goods are easily obtained, and can be had at the lowest prices. . . . After commenting favourably on the Camellias, Pelargoniums, and Roses, the report says: "Azaleas, Lapagerias, Begonias, Ferns, Palms, Lilies and an immense variety of other useful things help to make up an assortment of good saleable stuff such as is not often met with. Bad cultivation, or worn-out stock is not to be found here. . . . The stock of gold and silver variegated Hollies is such as is not often to be met with; it contains many large and valuable specimens. . . . Greenhouses and hot-water apparatus: these structures are all in good order. Several have been recently erected, and are fitted up with all the improved appliances for ventilating and heating. . . . Tanks are in all the houses, and have an abundant supply of water. The arrangement of boilers and hot-water piping is most efficient, and indicates an accurate knowledge of the requirements of the plants under cultivation."

FUTURE MANAGEMENT.

The management of the business will remain in the hands of Mr. R. H. Vertegans and Mr. J. F. L. Evans (one of the partners of Thomas Hewitt & Co.). Mr. Vertegans' experience in horticultural work has extended over a lifetime, and it would be probably difficult to find a man with a more intimate acquaintance with every branch of the business. The management of the Royal Nurseries is, and has been for the past seven years, in the hands of Mr. Spioks. It is proposed to retain the services of the present staff as far as practicable.

PAST PROFITS.

Mr. Vertegans commenced business in 1852 with practically no capital, and has gradually attained his present position.

Mr. Thomas Hewitt commenced business some forty years ago without capital, and retired in 1884, after having acquired a competency. Since then his business has been carried on successfully by the present vendors, Messrs. Evans & Falcon. In neither case have periodical stocktakings been made, and it is impossible to arrive at an accurate estimate of the profits of the past, but both businesses have grown rapidly, and have always been attended by prosperity.

FUTURE PROFITS.

In view of the terms upon which the properties and stock are acquired, the Directors believe that the profits in the future may be relied upon to produce, after making ample provision for redemption of leaseholds and for depreciation, satisfactory and increasing dividends to the shareholders.

The business is capable of great extension, especially in the direction of the new fruits and other novelties which Mr. Vertegans has recently introduced.

The Cut Flower Trade of the district is at present largely supplied from a distance; during the last few years the demand for Wreaths, Bouquets, Buttonholes, and Flowers for Church and House Decoration has grown enormously and is still growing. With a sufficiency of capital at command there cannot be a doubt but that a much larger quantity of the flowers required for these purposes can be home-grown, at a large profit. There is apparently no limit to the extension of this trade.

The amount of general Nursery Stock required to supply the customers of the business grows larger every year, and as the existing Nurseries are not large enough to supply the present demand, it is in contemplation to secure, either on lease or otherwise, additional land in a suitable locality, where Shrubs, Trees of all kinds, Specialties in Seeds, and Flowers for cutting may be economically grown in large quantities.

Considerable savings will be effected by combining the management of these businesses, and the Directors look forward with great confidence to a successful issue for the undertaking.

Applications for Shares on the accompanying forms may be sent to the Bankers, Solicitor, or Auditors of the Company, and to the Offices, Chad Valley Nurseries, Edgbaston.

The following Contracts have been entered into on behalf of the Company :—
Two Agreements, each dated May 31, 1888—one made between Charles William Falcon and John Frederick Lee Evans, of the one part, and William Thomas Smedley (as Trustee for and on behalf of the Company and of his firm of Smedley & Sargent), of the other part; and the other made between Richard Hartland Vertegans, of the one part, and the said William Thomas Smedley (as Trustee and on behalf of aforesaid), of the other part; but in addition there are or may be various current trade contracts, and applicants for Shares shall be deemed to have waived the publication of the names and dates thereof. Copies of the documents above referred to (other than trade contracts) and the Memorandum and Articles of Association can be inspected at the offices of Messrs. J. B. Clarke & Co., 40, Waterloo Street, Birmingham, and applicants for Shares are to be deemed to have had notice of the contents of all such documents.

PENTSTEMONS.—CLEARANCE SALE.—A charming assortment of the newest and most beautiful varieties. Splendid for the garden, choice named sorts, fine young plants, per doz., 2s. 6d.; 6 for 1s. 6d. Extra choice, per doz., 3s. 6d.; 6 for 2s. Carriage free.

DANIELS BROS., Town Close Nurseries, Norwich.

DAHLIAS.—CLEARANCE SALE.—From our magnificent collection, including all the most beautiful and popular varieties. Show and Fancy, Pom-pom and Single-flowered, per doz., 4s.; 6 for 2s. 3d.; per 100, 30s. New and extra choice sorts, per doz., 6s.; 6 for 3s. 6d.; per 100, 45s. Cactus-flowered varieties, new and select, including the most beautiful and distinct sorts, per doz., 6s.; 6 for 3s. 6d.; 3 for 2s. All in strong young plants, correctly named. Carriage free.

DANIELS BROS., Town Close Nurseries, Norwich.

CHRYSANTHEMUMS.—CLEARANCE SALE.—A splendid collection, including all the most beautiful and popular varieties, Incurved, Japanese, or Pom-pom, strong, well-rooted cuttings, correctly named, per doz., 1s. 6d.; per 100, 10s. 6d. Extra choice sorts, per doz., 2s. 6d.; per 100, 15s. Post-free.

DANIELS BROS., Town Close Nurseries, Norwich.

NEW DOUBLE ZONAL PELARGONIUMS.—Splendid, massive, double flowers, of the most brilliant and lovely colours, magnificent for pots. Fine young autumn-struck plants, correctly named, per doz., 2s. 6d.; 6 for 1s. 6d. Extra choice, per doz., 3s. 6d.; 6 for 2s. Carriage free.

DANIELS BROS., Town Close Nurseries, Norwich.

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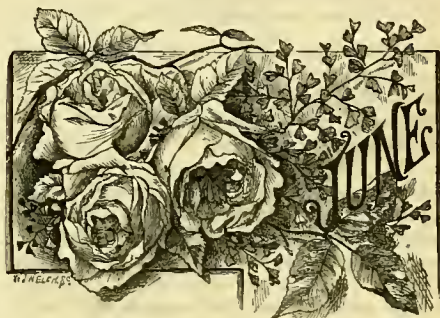
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 9, 1888.

BOTANIC GARDEN, TENERIFFE.

THIS famous garden is situated midway between the port of Orotava and the "Villa," or upper town. From the lower ground there is a steep ascent the whole way, as it lies on a plateau on the slope of the valley. The garden is about 2 acres in extent, and is said to contain 3000 specimens. It was originally laid out with plants and trees from other zones, with the idea that they might be acclimatised, so as to become capable of growth in countries of considerably higher or lower temperature than those from which they were transplanted. Both money and energy were expended in carrying out the system, and in the latter part of the last century the Marqués de Villeneuve del Prado—a resident of Teneriffe—spent large sums and devoted many years of his life to the promotion of the work. On the death of the Marqués the garden languished from lack of funds, and it was let to a private individual, who grew Barley, Wheat, and Potatoes.

In the year 1858 sufficient interest was awakened to cause influence to be brought to bear to obtain a subsidy from the Government for its restoration, when, after further vicissitudes, it became the present botanical garden, renowned for its rare products grown in the open air, and for its collection of the fauna of the Canarian Archipelago. Government, liberal in vote, is lax in award, so that unstinted praise is due to the Curator, Herr Wildpret, a Swiss, who, although ill-paid and short-handed, has accomplished great things. His courtesy is continually taxed, and his botanical knowledge called into requisition by visitors. On the occasion of a visit round the garden under his guidance we came away laden with cuttings. Among our store was the white trumpet-flowered Brugmansia Knightii—double variety—a favourite plant in the gardens

of Orotava; the *Combretum micropetalum*, in colour and shape like lobster's claws; the *Greyia Sutherlandi*, whose blooms had merged into red seed-pods, as brilliant as flowers; some curious mottled leaves of the *Ficus Parcelli*; and a bunch of beautiful spotted red leaves—like a Maple touched by frost; a variety of the Castor-oil tree, produced by the Curator's combinations; and other specimens of the wide range of medicinal, edible, and ornamental trees and plants, are too numerous to dream of mentioning, as may be inferred, by the fact, that there are twenty-five varieties of the Bananas in these islands alone.

"Here fragrant herbs their odours shed;
Here shoots the healing plant,
With copious fruit the expanded boughs are hung."

The *Eucalyptus globulus*, or Blue Gum tree, was introduced by Mr. Wildpret into the *Jardin d'Acclimatation* in 1862, and the newly made *carreteras*—carriage roads—are everywhere being planted with the fast-growing trees. They are of straggling habit, with leaves of a thick leathery texture—quite entire, and very variable in shape. In young plants the leaves are always opposite, but they generally become alternate as the plant gets older, and their stalks then acquire a peculiar twist, so that they present their edges to the branches. The upper leaves are of a distinctly different shade to the under, the top ones being by far the bluer, with a tendency to a tinge of pink. Nevertheless, the effect of the tree individually is rather colourless. The leaves made into a tea are useful in fevers, while a decoction prepared from them has been pronounced by French and Italian physicians, after considerable experiment, to be an excellent substitute for quinine; and they are sometimes bound round the head of a patient, with an advantageous lessening of headache. The timber is exceedingly valuable, but it is yet early for the islanders to grasp the importance of the strength and durability of the wood; nor is it certain that out of the many species—between 100 and 150—the best quality for that purpose has been chosen. The tree is peculiarly adapted for a damp soil, absorbing malarious exhalations, but it thrives well under the system in vogue with arboriculturists in the Canary Isles, *i.e.*, a trench dug round it and daily supplied with water from one of the many channels of irrigation.

The garden boasts some beautiful specimens of *Pinus canariensis*, which is peculiar to the Archipelago, and is a grand and beautiful tree. It has three long spike-like leaves in each cluster, and branches out in great freedom and luxuriance. The wood when cut green preserves anything placed on it, and was used by the aborigines—the Guanches—to deposit their mummies on in the sepulchral caves. It burns brilliantly when used as a torch. About Lent, many of the trees had undergone a cropping, and had been denuded of their lower feathery branches for religious and church purposes. Some of them are also pruned in, but one tree that a knife had never touched was by far the most elegant in its native amplitude, and its stem looked all the finer for being less heavily scored with the marks that are left when a branch has been removed. [In the present issue we give an illustration of this interesting Pine, see Fig. 94, p. 721.]

The tree of all others that most interests the traveller is *Dracæna Draco*, or Dragon Tree of Teneriffe. These are still a conspicuous feature in the scenery of Orotava, and one of great age and repute flourished till recently at Icod, a neighbouring town, about 20 miles to the west.

They are in reality a kind of gigantic *Asparagus*. Foremost among this wonderful type of vegetation stood the famous colossal tree of history and fable, which flourished in the garden of the Marqués de Sauzal at the Upper Orotava. This Broddignagian was, according to Meyen, 70 feet high and 48 feet in circumference, with an antiquity which must, at least, have been greater than that of the Pyramids. The trunk of the tree was hollow, and contained a staircase in the interior which reached to the height at which it began to branch. Near the ground Le Duc found it to be 79 feet in circumference. Humboldt mentions that when he saw it it had the same colossal size—16 feet in diameter—which it had when the French adventurers, the Béthencourts, conquered these Gardens of the Hesperides in the beginning of the fifteenth century. A tree of such slow growth that for centuries it exhibited but little change naturally aroused the veneration of each succeeding generation. Unfortunately, weakened by inward rotting, it was thrown down by a hurricane that occurred in 1867, and was afterwards completely destroyed by fire. It was figured in the *Gardeners' Chronicle*, p. 765, June 8, 1872. [As we believe our illustration to be the only authentic one ever published, we think it may be of interest to reproduce it (see fig. 92, p. 713). It is from a photograph. Ed.] A seedling was planted on the immediate site in 1877, and is now a strong plant of 4 feet high. As it is yet in its infancy it has only a single stem, from the top of which spring a mass of sword-shaped leaves.

Around the wonderful parent tree in connection with the luscious fruited Orange trees was centred much of the romance of the islands.

The *Dracæna Draco* of Teneriffe derives its common name from a resinous exudation known in commerce as dragon's blood. The resin has been found in the sepulchral caves of the Guanches, and has hence been supposed to have been used by them in embalming their dead. It appears at one time to have formed a considerable branch of export from the Canaries, and has never wholly fallen into disuse.

That mythology should have encompassed these huge plants is little wonder. Their antiquity, the drops of blood that flowed from a wound, their reputed medicinal properties, the slowness of their growth—it is only after blossoming when of great age that they branch—and their rarity, made them fit subjects for mythic fiction. Though time and progress have swept away much of the romance, they remain still objects of great interest. The Icod tree, next in antiquity to that of the "Villa," formed the occasion for drives and excursions until a storm wrecked that also, and its remains became the prize of relic-hunters, the large portions being made into articles of furniture or ornament, the smaller retained as *souvenirs*, and the oldest tree now extant, likewise at Icod, is visited both by inhabitants and travellers. Viewed dispassionately, they are in no wise beautiful, but curious—very. The leaves, of a glaucous-green colour, sprout upwards from a series of sausage-like stems, and though wondrously diverse in mode of growth, the tree is always symmetrical, and forms a striking feature in any landscape. While ascertained to be indigenous, they are by no means general in the island, and could with advantage be increased in number. There is a good specimen outside the Botanical Garden gates, and in some of the private grounds care has been directed to their cultivation.

The Orange trees still occur in great numbers in the gardens of Orotava; they grow to a good height, and when covered with their blossom and

yellow fruit, are showy and fragrant, but the renowned golden Apples of the Hesperides have dwindled down to a medium-sized, medium-flavoured Orange. Those of finer quality have been allowed to fall out of cultivation, and the inhabitants are fain to import the large luscious species from Grand Canary; but those of Canary are doubtless akin to the golden Apples of fame, and are much appreciated by the visitors. If the name they give them is less poetic than that bestowed upon them by the Greeks, their appreciation is as keen. They eat them before meals, at meals, after meals, in fact at any and every time that the right kind is obtainable.

The glance given at the famed garden has necessarily been cursory. I need only add that it would be a boon to the general visitor, who has but little botanical knowledge, if, by the generosity of the many now making acquaintance with its treasures, more money could be obtained and spent in laying it out, keeping it in order, and labelling the plants. Mr. Wildpret has done wonders; but with a little increase of expenditure it might be made as delightful for the general public as for the scholar and *savant*. *S. Francis Latimer.*

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × VERRAETIANUM, *n. hyb. Belg.*

Messrs. E. VERRAET & Co. have kindly sent me a peduncle with flower and a leaf of this unique plant, a hybrid between *Cypripedium Lawrenceanum* and *superbiens* (Veitchianum). The leaves are those of the first-mentioned species, but the pallid spaces are uncommonly large, so that they surpass what is usually seen in Sir Trevor's *Cypripedium*. The bract is very short. Peduncle brown with short hairs. The upper sepal is transverse, oblong, apiculate, white, greenish at the base, with twenty-one nerves, brownish purple, greenish at the base. The lower sepals form a narrow body, acute, half as long as the reddish-brown lip that is distinctly angulate on each side. The petals are deflexed, with light purple-brown hairs, and are ciliate at the base, with blackish ocular spots on each side. Staminode forcipate, with an apiculus in the centre, with green reticulations on disc and purple-mauve hairy border. It is dedicated to Mr. E. Verraet, whom I have had the satisfaction of knowing for at least thirty years as an enthusiastic lover and grower of plants. *H. G. Rebb, f.*

CYPRIPEDIUM × LEMOINERIANUM, *n. hyb. Gaill.*

At the recent exhibition at Ghent there was a class for "Orchidée nouvelle de Semis." The 1st prize was given to its progenitor, Mons. Raymond Lemoinei, of Lille. The plant belongs to that rich group that followed Mr. Seden's *Cypripedium*. If you look over the types of all that crowd, you find that there is not one quite like this one. *Cypripedium leucorrhodum*, which might be regarded as near it, has the petals curved, and *Cypripedium Lemoinei* has them deflexed and ascending at the top (half sigmoid).

The plant, duly named in honour of its originator, is most probably the boldest of the whole company. The long leaves are between 2 to 3 inches in breadth, with a very sharp keel on the mid-line underneath. The very strong peduncles are as thick as an eagle's quill (I think 3 feet high), usually branched, brownish-purple, hairy. The bracts are uncommonly large, spatheaceous, light green, equal to or surpassing the reddish indian-purple ovary; sepals whitish-yellowish, the combined one very ventricose, all with many purple nerves; lateral edge of the upper one inflexed, purple. All the colours are deeper outside. The petals are descending, but ascending at the apex, with a broad base, then lanceo-acuminate, white on the disc inside, with a purple margin and top. The lip is exceedingly



FIG. 92.—*DRACENA DRACO*; DRAGON TREE AT TENERIFFE. (SEE P. 712.)

conspicuous, retuso-ventricose, very broad, inflexed, side lobes yellowish-white with purple spots inside, with numerous similar spots on a white ground inside. The sac and inferior side are of fine dark purple. Stamens moderate transverse, whitish-yellow, with a hairy purple margin.

I admired the plant at Ghent, and as is customary with exhibition plants, I felt pretty sure that I should not receive any specimen of it, and hence should be unable to describe it. But now, to my great surprise, I have received glorious materials. They do not, however, come from Mr. Raymond Lemoine, but from Mr. F. Sander—not from Lille, but from St. Albans. What an interesting topic is the wandering of Orchids! *H. G. Rehb.f.*

THE GARDEN AT THE DELL, EGHAM.

BEAUTIFUL at all seasons of the year, but the present is perhaps the best time to see Baron Schroder's garden, which is a most perfect example of well-ordered gardening. Just now the brilliant and extensive display of Rhododendrons, artistically and uniformly planted, gives a rare glow of colour, and which harmonises delightfully with the delicate yellows, coppery-red, and other showy tints of the *Azalea mollis* and *A. pontica*, with the rosy-lilacs and lavenders of the clumps of tree Peonies, and with the clear yellow of the double dwarf Spanish Furze, which is found in the garden in abundance. The beds of Violas, Wallflowers, Forget-me-Nots, and other spring subjects are still in flower, but making place here and there for the summer bedders. The herbaceous and hardy bulbous plant garden is also very showy now, and as it is planted with a view to a permanent display it will continue to be so until the winter comes. Ranunculuses, Anemones, Pyrethrums, Irises, Peonies, &c., make a grand display, and soon that noblest of all hardy bulbous plants, *Crinum Powellii*, will be in even greater beauty than in former years. In frames near at hand it is a pleasing and unusual sight to see a large quantity of Freesias, Sparaxis, Tritonias, Ixias, and other allied plants which are or have been well furnished with bloom—an unusual sight with these plants, which, however, are easily grown and flowered if properly managed; and their rich colours should make them worthy of more attention than they get in most gardens.

Of the glass department it may be said that the Dell seedling Imantophyllums have made a grand show. The greenhouses were well filled with bloom, the Nepenthes-house was stocked with vigorous plants, and the numerous fruit and forcing-houses were all in the most promising condition. In the fruit-room it is noteworthy that in bottles in the racks Madresfield Court and other Grapes cut and placed there last Christmas, are plump and perfect as ever.

The new rockery-house, arranged and planted by Messrs. Jas. Veitch & Sons with fine tree and other Ferns, Palms, foliage plants, such as variegated Phormiums and creeping plants of various kinds, adds another good feature to The Dell gardens, and one which, being admirably executed, needs only a little time for new growth to be made by the plants to render it perfect. In such a quiet retreat as this, the sound of running water as here arranged is very grateful to the ear—indeed, a rock-fernery is not complete without it.

THE ORCHIDS.

The large new Cattleya-house just built is now filled with the finest and best *Lælias* and *Cattleyas*, both imported and hybrids, which can be obtained; indeed, the great specimens of *Lælia Amesiana* ×, *L. bella* ×, *L. Sedeni* ×, *L. callistoglossa* ×, *L. flammea* ×, and other rare hybrid *Cattleyas* and *Lælias* now in the new house, and which have been grown on at The Dell from small plants, would be unpurchasable now at any price. With them in bloom are great masses of *Lælia purpurata*; a grand

variety of *L. ensipathæ*, with five flowers on a spike; some good *L. elegans*, many specimens of *Cattleya Mendelii* and *C. Mossie* varieties, of which the distinct *C. Mendelii Rothschildiana*, with wonderfully frilled crimson lip, and something of the look of *C. gigas* about it; the true *C. Reineckiana*, with very large pearly-white flowers; the pure white *C. Mossie alba*, and a fine specimen with the flowers of the pure white and orange *Cattleya Wagneri superba*, are wonderful examples. Some large specimens of *C. Skinneri*, too, were covered with bloom, as were some smaller ones of *C. S. alba*, *C. citrina*, the new *Scuticaria Keyseriana*, some large and well-flowered plants of *Sobralia macrantha*, and a huge specimen of the noble yellow-flowered *Sobralia xantholeuca*, with many large *Cattleya*-like flowers, the whole displaying themselves much better in their more commodious quarters than in the old house. In this new house there is no central stage, but broad side-stages instead, with a wide walk between them, the roof over the walk being hung with plants in baskets, and in that position there is no risk of damaging those on the stages with drip from those hanging overhead—an arrangement which has cost the life of many a valuable plant.

THE COLD HOUSES

have also a fine display. In that devoted to the large *Odontoglossums* is the first bright yellow *Odontoglossum* of the best true form of *O. Alexandre*, with fine shape and substance, and marked profusely with chestnut-brown, differing only from really good *O. crispum guttatum* in having golden-yellow flowers. It seems to be a seedling from a natural hybrid with a yellow ground, which, while reverting in shape to the best form of *O. crispum*, still retained the bright yellow colour acquired through the original cross. Certain it is that some combination of circumstances has produced in it features which have not appeared in *Odontoglossums* in cultivation before. Another good thing is a heavily blotched variety in the way of the priceless *O. crispum apiatum* also located with many of the *élite* of the *Odontoglossum* family at The Dell. Also in flower were many *O. Wilckeanum*, *O. citrosum*, *O. cordatum*, *O. Erstedii*, *O. Harryanum*, *O. Cervantesi decorum*, and *O. C. morada*, *O. Hallii*, *Oncidium macranthum*, *Sophranitis grandiflora*, *Epidendrum vitellinum majus*, *Dendrobium Jamesianum* with some thirty flowers. This last-named Orchid thrives well here in this collection.

Among *Masdevallias* the *M. Harryana* in variety are a gorgeous display of bloom, of which with *M. Veitchiana* continue still to supply the more brilliant colours in the genus. Many *M. ignea*, *M. Schlimii*, *M. macrura*, *M. amabilis striata*, *M. Cheloni* ×, *M. Gaireana* ×, and others, were in bloom; while overhead hung baskets of *M. chimera*, *M. bella*, *M. radiosa*, *M. Houtteana*, and others of that class, some of them with over fifty blooms on them.

The houseful of *Miltonia vexillaria* also made a great show, the pretty white-lipped *M. var. Cobbiana*, and some equally good imported varieties being well furnished with bloom. Of the importations, some plants of Messrs. Shuttleworth, Carder & Co.'s importing far excel all others in the size and beauty of their flowers, while some from other sources have flowers so diminutive that they are cast out as weeds. *M. Roelzii* is also represented by many specimens, and *Oncidium phymatocilium*, *Lycaste Lawrenceana*, *L. Skinneri alba*, *Cœlogyne ochracea*, *C. ocellata*, *C. Massangeana*, *Arpophyllum giganteum*, and some marvellously sturdy plants of *Disa grandiflora*, bore evidence of the highest degree of culture.

THE WARM HOUSES.

Each of these has a fine arrangement of large specimen foliage and flowering plants, *Anthuriums*, *Ixoras*, &c. On the centre staging, and among the Orchids on the sides, were a fine lot of *Ardisias* showing bloom; a large specimen of the neat and pretty *A. Ballantinei*, *A. Boulletianum*, and of the richly-tinted *A. virens Dayii* being already expanded.

Some *Phalænopsis* also were in flower, some good specimens of *Dendrobium thrysiflorum*, *D. Bensoniæ*, *D. Devonianum*, *D. transparens*, *D. chrysotoxum*, *D. densiflorum*, *Vanda Dennisoni*, *V. teres*, *Angraecum sesquipedale*, *Saccolabium ampullaceum*, *Zygocloax leopardina* ×, *Calanthe Dominiiana*, and a very rich collection of large plants of *Cypripediums*, among which was a fine specimen of *C. Fairrieanum*, which, suspended in a basket, in a shady corner of a coolhouse, had leaves almost as large as those of *C. insigne*. Other *Cypripediums*, in bloom or bud, were the grand new *C. bellatulum* of Messrs. Hugh Low & Co., *C. concolor* *Regnierii*, *C. Godefroye*, *C. Wallisii*, *C. Cartisii*, *C. Morganæ*, *C. Schroderæ*, *C. Stonei platyanthemum* (almost the whole of the stock of it in cultivation), *C. superciliare*, *C. lævigatum*, *C. calanthum*, *C. Lawrenceanum*, *C. Harrisianum superbum*, *C. H. nigrum*, *C. grande*, *C. selligerum majus*, *C. Veitchii*, and *Uropedium Lindenii*.

THE ROCK GARDEN.

THYMUS SERPYLLUM var. ATROPURPUREUS.

As to the beauty of this plant I can support all that *C. Briner* says respecting it. It may, however, be as well to state that Messrs. Backhouse & Son possess two varieties of the Mountain Thyme of equal merit but different in colour. *T. serpyllum* var. *atropurpureus* (this is not yet in commerce) and *T. serpyllum* var. *coccineus*, and I think it is this latter plant Mr. Briner desires to call attention to, and than which nothing can be more beautiful on the rockery.

SAXIFRAGAS.

Of the *oppositifolia* section of *Saxifraga* several varieties have been selected at the York Nurseries. *S. oppositifolia* var. *pallida* was I believe the first, then *S. o. var. splendens*; these were found by Mr. Backhouse in either Wales or Cumberland (I am not sure which locality—possibly in both). After these varieties had been grown and distributed for a few years, an importation from the Pyrenees was received of *S. oppositifolia*, and when these became established they were found to be distinct in foliage, habit, and flowers, and were named *S. o. var. pyrenaica*, to distinguish them from the British plant. Again when *S. o. var. pyrenaica* had been cultivated for a few years and seedlings raised from it, it was found to vary considerably, from which the following varieties were selected:—*S. oppositifolia* var. *pyrenaicarubra*: the flowers of this are about the size of those of *pyrenaica*, but intensely deep in colour; *S. o. var. pyrenaica* var. *maxima* has blossoms very large indeed, which are of a soft rose changing to rosy-pink; *S. o. var. pyrenaica* var. *superba* has good sized flowers, fine in form, and of an intense deep rose in colour. It is to this latter plant Mr. Briner's remarks evidently apply. By referring to p. 419, vol. N. S. 21 of this journal an illustration of this latter variety will be found. To grow this latter plant well and successfully it is requisite yearly to scatter amongst the leaves a covering of alpine soil—loam mixed with small stones or gravel. *R. Potter, Holgate, York.*

THE MANUFACTURE OF QUININE IN INDIA.

A RESOLUTION recently issued by the Government of Bengal briefly reviews the history of the introduction of the *Cinchona*s into India, and traces their development, as well as the manufacture of amorphous quinine, *cinchona febrifuge*, and, more recently, of quinine itself. The history of all the stages of progress except the last are well known, but the success which has attended this latest experiment deserves to be fully recorded.

On this head the resolution referred to says—alluding to the work of Mr. Gammie, the resident manager of the Government *Cinchona* factory in Sikkim—that he took the matter up with energy,

and, encouraged and assisted by Dr. King, he carried on a long series of experiments on an acid and alkali process of manufacture, by which he succeeded in producing excellent quinine. He never, however, succeeded in recovering much more than half of the amount contained in the bark upon which he operated. The acid and alkali process had, therefore, to be abandoned as wasteful and inefficient. A process depending on the maceration of the bark in spirit was next tried, but after much experiment it was in turn abandoned.

During a visit which he paid to Holland in 1884, Dr. King acquired some hints as to a process of extraction by means of oil; and now, benefiting by the advice of some chemical friends, Mr. Gammie has been able to perfect this process, with the result that the whole of the quinine in yellow bark can be extracted in a form undistinguishable, either chemically or physically, from the best brands of European manufacture. This can be done so cheaply that, as long as the supply of bark is kept up, quinine need never cost Government much more than 25 rupees per pound. It is remarked that the price of quinine in the open market at the present time is not very different from this, but this is stated to be due to entirely exceptional causes. For some time past the Ceylon planters have been uprooting their Cinchona trees, both to save them from disease, and to make way for Tea planting, which appears now to be becoming the principal industry of the island, and Cinchona bark has actually been sold in London below the cost of its production in Ceylon.

It is further notified that "The cordial thanks of Government are due to Dr. King and his coadjutors, and especially to Mr. Gammie, for the patience, energy, and resource displayed by them in their long search for the best method of utilising these valuable medicinal barks. The Government has no desire to make a profit by the discovery, and the details are now produced in order that private growers of Cinchona may be enabled to take full advantage of the process, and that a permanent reduction in the price of quinine may ensue."

THE ALPINE GARDEN.

HABERLEA RHODOPENSIS.

DURING several years I have found this plant far easier to cultivate than its near ally, *Ramondia pyrenaica*. It multiplies its rosettes readily, is easily divided, and grows readily under a sheltered stone on the rockery in a mixture of limestone, gravel, and loam. It dislikes sunshine, but is less liable to be injured by it than the *Ramondia* is. The flowers are more plentiful, but less attractive in their colour and expansion than those of *Ramondia*. Both plants ripen seed plentifully, but the seedlings grow so slowly that they are generally overwhelmed and lost in fungoid growth before they are large enough to be moved. I may add that the flowering of all alpinas this year is most exceptionally good.

LITHOSPERMUM GASTONI AND ADONIS PYRENAICA.

These are two plants each of them remarkable for the narrow limits of the district in which it is found wild, and each of them equally refractory in the hands of most cultivators. First as regards *Adonis pyrenaica* (DC.). It has been imported and sold by nurserymen—though very frequently *A. verna* has been sold for it—for twenty years; but no one can say that he has cultivated it continuously and successfully for many years. I have had many imported plants, which I have tried under many conditions. Sometimes they flower well once or twice, and then disappear altogether. No one who has once seen the plant can mistake *A. verna* for it, although it is often grown under that name. The broad-spreading, bare-stalked foliage of *A. pyrenaica* at once distinguishes it. Still *A. verna*, where it does well, is, I think, quite as good a plant. *A. pyrenaica* is confined to a few valleys in the Central Pyrenees, where it is becoming scarce. Two years ago a correspondent sent me, without my asking for them, a hundred roots, saying that he sent me a good supply, being the last he should send, as plant collectors had

nearly extinguished it! The greater part of these I distributed where I thought they would be well cared for, but I have received hardly one favourable report of its welfare. Out of about fifty planted in different situations and soils in my garden, perhaps half are still alive. Not more than three or four have flowered well this year; and about half-a-dozen look healthy, as if they would reach their climax next year, after which they will probably perish.

Lithospermum Gastoni (Bentham)—named after Gaston Saccage, a local botanist of Eaux Bonnes—is a still more interesting plant. Its portrait in *Bot. Mag.*, t. 5926, shows it as very attractive, as no doubt it is on its native rocks, but it does not readily adapt itself to the conditions of an English garden. A plant—I forget whether imported direct, or obtained from a York nursery—has been growing unhappily on my rockery for four or five years; this year—owing, I believe, to the heat and suns of last summer—it has flowered, and looks healthy. Still, for English gardens I do not think it as good a plant as the native *L. purpureo cœruleum*, which has flowered exceptionally well this year, and is, when properly managed, a first-class spring flower. *L. Gastoni* is found wild only on a few steep mountain faces at high elevations in the department of Basses Pyrenees, where I saw it growing, but not in flower, in May, 1886. *C. Wolley Dod*.

SOME SPECIES OF PRIMULA.

PRIMULA villosa var. *nivea* (t. 1161 of *Botanical Magazine*) is the plant alluded to at p. 650. It was at that time (1809) grown in gardens under the name of *P. nivalis*, also as *P. pubescens*. Mr. Dewar, in his synonymic list, places it with *P. viscosa* as a variety *nivea*. As this is the latest authority from Kew, I think it ought to be adopted. [Mr. Dewar now thinks it is *P. pubescens alba*, and in that opinion he is supported by Mr. Churchill and Mr. J. G. Baker, Esq.]

The t. 14 of *Bot. Mag.* is *P. villosa*, now grown in gardens as *P. viscosa*. This figure was taken in 1787, with a statement that the *Primula* in question had been grown for many years in the nursery gardens near London; and as a proof that the white variety was found in the Alps, the editor says, "Mr. Salisbury informs me that a variety of this plant with white flowers, brought originally from the Alps of Switzerland, has for many years been cultivated in a garden in Yorkshire." This white variety is certainly a gem amongst *Primulas*, and is easily cultivated.

Mr. Jenkins will not get a large quantity of seeds from his plants, and the produce cannot all be depended upon to flower like the parent; some of them will produce pink or pale purple flowers. The few seeds the plants produce does not in any way weaken them. Our seedlings flowered very freely this year, and as they were raised some six years ago they are now good specimens, but many of them are of slow growth, and are as diverse in their constitution as they are in colour.

The loveliest *Primula* we now have in flower is *P. Reidii*. We cannot yet get large plants of this species. The largest might be planted in a tumbler, but they each produce a flower-stem 2–3 inches high, furnished with four to five white flowers 1 inch across. *P. Munroi* is also in flower in the open ground, so also is *P. Parryi*. We have plenty of plants of the latter, but they fall short of the *Botanical Magazine* figure. Each truss is formed of some six or eight reddish flowers with a yellow centre, but it does not form a very showy garden plant. It is sufficiently hardy, and is flowering, both planted out-of-doors and in pots. *P. geraniifolia* is just opening its flowers in the Auricula-house, so that it may be said to be one of the latest spring flowering varieties. The flowers are of a purplish-red colour. *P. sikkimensis* is and has been in flower for more than a month; its clusters of primrose-coloured flowers, each 1 inch across, are very showy. I have just counted eighty-three flowers in one umbel. *P. imperialis* is late, but the lower whorl

of flowers on the stems are opening. The flowers are produced in whorls on tall stems in the manner of *P. japonica*, and are of a rich bright yellow colour; it is a June-flowering variety, but those showing flower have been for some time in heat. *P. verticillata* is yet plentifully in flower as a pot-plant. We could have filled a large garden with our *Primulas* alone this year if the Auriculas are, as they ought to be, included in *Primulas*. *J. Douglas*.

FOREIGN CORRESPONDENCE.

NARCISSUS SULPHUREUS, DOCTOR GORMANN, AND SEMI-PARTITUS.

It seems that there is a difference of opinion as to these three sorts, which we consider different one from the other, and in consequence it may be of some interest to point out the reason why, in the absence of proof to the contrary, we adhere to our opinion. It seems necessary to point this out, as Mr. Hartland, in the *Gardeners' Magazine*, May 16, 1885, says that what is sold by our firm as *N. incomparabilis albus-sulphureus* is called in England Doctor Gormann; and in his *Little Book* of 1886 it is said that Doctor Gormann is Haworth's *Queltia alba*; while Messrs. Barry, in their pamphlet on *Daffodils* of 1887 say that the name Doctor Gormann is withdrawn until the Daffodil Committee settle which candidate is to have this name.

Firstly, we must observe that in our list as synonymous with *incomparabilis albus-sulphureus* we put the name of Doctor Gormann, but with a mark of interrogation after it, as we accepted the synonym from the English reports, although not persuaded that it was correct to do so. We have now closely examined the different forms belonging to the above sorts, with the following results:—

In the first instance, we think it necessary to say from whence our stock came which gave the flowers for examination. *N. incomparabilis albus-sulphureus* was introduced into our nursery as long ago as 1846 from Whitley & Osborn's collection. We received it from these gentlemen under the name of *Queltia aurantiaca alba*. In later years we found in our double sulphur crowns single forms quite equal to this *Narcissus*. Our Doctor Gormann came from Mr. Peter Barr's collection, from whom we too introduced (partially) our *N. semi-partitus*. As for the double forms, the double sulphur crown is cultivated under that name, or that of Sulphur Phoenix, in Holland for as long as the present generation can remember. We received it about the year 1846 from the Fulham Nursery, under the name of *Queltia concolor sulphurea plena*. The double form of *semi-partitus* originated in our nursery by the gradual change of the single one.

As for the colour of the flowers, that of the single *albus-sulphureus* and Doctor Gormann is quite the same, but there is a great difference between them in the form and size of the perianth and cup, Doctor Gormann having the best form of the two. The cups of both are lemon-yellow, the perianths whitish, at the base slightly tinged yellowish. The cup of *sulphureus* is deeper, and not so much spread out as that of Doctor Gormann, more curled at the margin, and forming stronger folds at the lower part of the incisions; the perianth segments are longer, and not so broad as those of Doctor Gormann, which are finely pointed, oval. Of Doctor Gormann the cup is larger, shorter, and more widely opened.

N. incomparabilis pallidus semi-partitus has a finely formed regular cup, divided into six equal ovate parts; it is widely spreading, and of the same lemon colour as that of the two other sorts, but showing a little lighter as there are no shades from folds. It is equal in depth to that of Doctor Gormann. The perianth segments are spreading, of fine ovate form, and of stronger constitution than those of the two other sorts; they are of a saffron-yellow colour, and quite distinct. Of Doctor Gormann we never saw a double form.

The double form of *N. sulphureus* is well known as

the White Peerless Daffodil or Codlings and Cream. It has full double pompon flowers without any mantle of a whitish colour, the small leaflets being yellowish at the base.

The double form of semi-partitus is quite different. When doubling the single flowers begin to show a few more flower leaves than usual, and when such plants are separately planted they not only remain constant, but their doubling increases every year, the segments being superposed regularly in six rows, thus forming a fine double or triple star in the same way as the doubling of *Narcissus capax* or *Eystettensis*. Whether this doubling will increase must be proved in the future; but even if this be the case, the double flower will never become equal in form to that of the sulphur crown. We suppose, in examining the difference of the cups of the single form of both sorts, there already will be found indications of what the future doubling will be—the wrinkled cup of sulphureus promising a double flower, the more regular cup of semi-partitus divided into six parts indicating the star doubling of the superposed segments. So, if the single form of *N. capax* be ever found, we should think it will prove to have a cup similar to that of the single semi-partitus. *E. H. Krelage, Haarlem.*

FRUITS, &c.

A recent report from Baltimore gives some interesting items on the trade of tinning and packing fruits and vegetables for export. The packing-houses of Baltimore, it is stated, can put up 40,000 bushels of Peas, and 100,000 bushels of Tomatoes, a day, each bushel being equivalent to thirteen tins. During the past year Maryland and Virginia turned out 968,646 cases of preserved Tomatoes of two dozen tins to the case, or a total of 23,247,504 tins, which at the wholesale price of one dollar a dozen 3 lb. tins, represents a sum of 1,937,292 dols.

Another mode of treating fruit which is becoming very popular—and which has, no doubt, a great future in store for it—is by evaporation. This system, however, is more practised in Virginia than in Maryland. While a great saving to the grower, it is a luxury to the consumer, for it is said that fruit thus treated, when cooked or used in pies or tarts, is quite as good as when plucked fresh from the trees.

The Zimmerman Fruit Drying Company, of Cincinnati, manufacture an evaporator at a cost of from 45 dols. to 50 dols., which, besides drying fruit, may be used to bake and roast. It is stated that this implement will bake fifteen loaves of bread and forty pies at a time; that it will roast meat, poultry, and game, to perfection; that it will dry clothes; and when not in use may serve as a meat-safe.

On the subject of Cotton-seed oil, which it is well known has been for some time used as a substitute for Olive oil, the report says:—"Cotton-seed oil has become quite important as an article of food. It is shipped in vast quantities to Spain and Italy, whence it returns to America labelled 'Pure Olive oil;' for adulterating purposes it enters largely into all fatty substances for domestic consumption, such as lard, butter, cheese, &c.; and there is quite an extensive demand for it in the Northern States for the manufacture of 'Pure French Sardines' out of a small local herring!"

ST. BRIGID ANEMONES AT HOME.

MUCH as I had heard of the St. Brigid Anemones as they grow in their windy home at Ilowth, their beauty, both in form and colour, was a surprise. Any attempt at description must not only be a failure, but will probably seem an exaggeration. Beds of every shade of bright colour, from brilliant scarlet to soft rose, and pale flesh-colour; some flowers with clear white circles round their black centres, others shaded and striped Carnation-fashion. Purples of many shades blend amongst these, and add much to the beauty of the general effect. Even pure white is to be found, and is a singularly beauti-

ful variety, in which the black centre is replaced by one of very light grey. Almost all these Anemones are semi-double, although the few single ones scattered amongst them are by no means the least lovely. Amongst the semi-double kinds there is great variety of form; some with deeply-lobed segments like miniature leaves of Staghorn Fern; others pointed like the petals of a Cactus Dahlia—a flower, indeed, which many of these bright scarlet Anemones strongly resemble. When not in full sunshine, and with the flowers partially closed, their beauty changes, but hardly lessens; the black centres become hidden, and the flowers are quite double, some of them reminding one of double Paeonies, others of Chrysanthemums. This year, amongst these many varieties an entirely new form has appeared, the outer segments being large, quite flat, and deep purple; while round the usual black centre the flower is filled in with very small sepals of a light mauve.

This singular success in Anemone culture is chiefly the result of rigid selection carried on, one might almost say ruthlessly, for many years, the plants pulled up being often quite as good as some of the best amongst ordinary Anemones. Here, however, only the best of the best are allowed to "survive," and the result more than justifies the means, the largest flowers being 5 to 6 inches across.

The soil is a stiff one, well enriched with cow-manure dug in about 6 inches deep. The seedlings are transplanted, or thinned out to at least 6 inches apart. This latter point "St. Brigid" considers of the utmost importance in their culture. The position is sunny, and though much exposed to west and south winds, well sheltered from the north and east. This garden is within a few hundred yards of the sea, but St. Brigid succeeded equally well in growing Anemones in a cold inland county, where, however, the soil was also a stiff loam.

Amongst the many brilliant masses of colour to be found where spring flowers are well grown, I have never seen anything to surpass the beauty of these beds of Anemones on a bright day in May. *C. M. O.*

ORCHID NOTES AND GLEANINGS.

ONCIDIUM SPHEGIFERUM, Lindl.

THE bright orange-coloured flowers of this species render it a particularly showy one, the colour being rather rare in the genus. They are borne in large branching panicles, which have a very brilliant appearance. I do not know if it is as variable in colour as the allied *O. divaricatum*, in which some of the varieties are much more brilliant than others, but the particular piece which has just come into my hands has the sepals and petals deep orange, while the lip is yellow, spotted with brown. It belongs to Lindley's small group *pulvinata*, of which one or two of the species are sometimes confused. The four species of this group are all Brazilian, and distinguished by a small pulvinus, or cushion-like hairy crest on the lip. *O. Harrisonianum* cannot be confused on account of its remarkable crest having five ascending teeth, of which two are longer than the others. The colour is yellow, enlivened with crimson linear markings. *O. divaricatum*, though variable in colour, may be recognised by its distinctly four-lobed cushion, while the lateral lobes of the lip are flat, and the margin entire. The two remaining ones are very closely allied, but in *O. pulvinatum* the cushion is quite circular, while the side-lobes of the lip are crisped, and the middle one very broad; but in *O. sphagiferum*—the subject of the present note—the cushion is somewhat obovately oblong, and the side-lobes serrate or crenulate, but flat. These characters may help to separate these allied forms from each other. *R. A. Rolfe.*

EPIDENDRUM IONOSMUM, Lindl.

"The Western world wants no Violets where this charming plant is found, for it fills the air with a

fragrance as delicate and delicious as that of our favourite wild flower." Thus wrote Dr. Lindley when describing the plant in 1833 (*Bot. Reg.* xxiv., *Misc.*, p. 49), from a garden plant, imported from Demerara by the Messrs. Loddiges. And very fragrant it certainly is, as well as a few other allied species, of which *E. selligerum* and *E. virens* are especially noteworthy in this respect. There is a plant now flowering in the Kew collection which appears quite identical with the two solitary flowers in the Lindley Herbarium. In habit and general character it agrees with *E. selligerum*, which however has the front lobe of the lip acute, not obtuse as in the present species, while the violet colour on the lip is also wanting in the present species. Here the front lobe is yellow, with numerous radiating keels, which are paler behind, and streaked and splashed with small lilac-purple spots. It appears to be a rare species, for I have not seen a wild specimen, although the plant has again appeared in gardens. There are several species of this particular group which resemble each other rather closely, and some care is required to distinguish them satisfactorily, especially in the dried state. *R. A. Rolfe.*

PHAIUS MACULATUS.

There are very few Orchids other than the *Anætochile* that can be classed as fine-foliage plants; the above is one, however, well worth growing for the beauty of its leaves alone. One or two healthy plants would quite redeem the usual uninteresting appearance of a shelf of Orchids when out of flower. The plicate leaves vary from 1 to 2 feet in length, and are dark green, irregularly marked with numerous yellow spots. The whole of the flower is of a bright yellow colour, except the centre of the lip, which, being thickly striped with brownish-crimson lines, forms an effective contrast to the other parts. A plant now flowering at Kew carries eight or ten spikes—one bearing sixteen flowers. Like the other species of *Phaius*, this one is benefited by having a good proportion of loam in the compost, and may be grown in the warmest part of the cool house. During the growing season it requires abundance of water, and in the case of established plants an occasional dose of weak manure-water will be found beneficial.

CYCLOPSYNE ELATA.

This species is widely distributed in Northern India, and although long known to botanists, it has not as yet been extensively cultivated. The flower-spikes are produced along with the young growths in summer, but the flowers do not develop until the following spring. The pseudo-bulbs are large and somewhat angled, and, like the leaves, are light green in colour. The flowers, which are densely arranged on the spike, are pure white with some orange-coloured markings on the lip. Imported pieces will become established and grow very well fastened to a piece of wood, with a little sphagnum and peat about the roots. It may then be suspended against the back wall or partition of the warm house, and should be syringed three or four times a day in summer.

LISSOCILUS KNEISII.

Although not of such an imposing appearance as the species *L. gigantea*, shown by Sir Trevor Lawrence at the recent show in the Inner Temple Gardens, this is of sufficient merit to warrant its more extensive cultivation. The flowering period of a scape extends over two or three months, during which time it develops from twenty to thirty flowers. The sepals are green with purple blotches, while the petals, which are considerably larger and almost orbicular, are of a pale yellow colour; the lip is three-lobed, the lateral ones similar to the sepals in colour, and the central lobe of a rich bright yellow.

Of deciduous habit, this species needs a decided period of rest during winter to ensure its subsequent flowering. When the young growths appear, the plants should be potted in a compost of fibry peat with about half the quantity of loam, to which may be added some chopped sphagnum and silver-sand,

During growth it requires a moist position in the intermediate-house. An additional robustness will be given to the handsome plicate leaves, and to the flower-spikes, by watering at intervals with weak manure-water. *W. B.*

LÆLIA MAJALIS.

This Mexican species, when seen in good condition, is without doubt one of the finest of the genus. It blooms with the young growths in the summer months, and lasts a considerable period in great beauty, providing water is kept off the flowers. Most growers find the plant difficult to manage satisfactorily, but the little greater care which it requires in its cultivation is quite repaid by its burden of flowers. It is found to thrive best upon blocks suspended from the roof of the Cattleya-house, almost in the full sun, and requires a very liberal watering whilst growing. When the growths are finished they should be removed to a much drier and cooler temperature, so that the pseudobulbs may ripen thoroughly—an important point. A number of these plants are now flowering at The Vineyard Nurseries, Garston, Liverpool. *F. Ashton.*

TILLANDSIA VIRGINALIS.

THE plant from which the accompanying illustration (fig. 93), was taken, was one of the collection of Bromeliads purchased for Kew from the widow of the late Professor E. Morren. When it came to Kew it was a small plant, composed of a crowded tuft of linear grass-like recurved leaves, without any indication whatever of the character shown in the drawing. For about a year after its arrival at Kew this plant continued to develop the linear leaves, and then suddenly it commenced to push up broad strap-shaped foliage. There was no gradual change from one state to the other. As this character has not been observed in any other Bromeliad, its occurrence in *T. virginalis* seemed worth recording. The species is a native of Mexico. Its flowers are not attractive.

NURSERY NOTES.

MESSRS. J. VEITCH & SONS.

GLOXINIAS.—In Messrs. J. Veitch & Sons' Nursery, Chelsea, the house of Gloxinias in full bloom presents one of the most gorgeous sights a lover of handsome, varied and showy flowers could desire. Especially superb are the vivid scarlet and crimson sections—some edged with pure white, some with white or mottled throat, and indeed all sorts of pretty combinations of colour; the pure white and the spotted forms also exhibit great strides, indeed the whole strain seems to leave nothing to be desired. A curious feature is noted in this strain, which Messrs. Veitch have so persistently worked on, viz., that whereas in the old Gloxinias and earlier hybrids with *Sinningia*, the least check caused the flowers to fall off, the Chelsea strain have resulted in persistent flowers which, generally speaking, keep on their stalks instead of dropping, thus continuing the bloom for a much longer period than usual. This is a great advantage, and especially to exhibitors, who with the old sorts often had the chagrin of unpacking the plants with fallen flowers for their exhibition stand.

Orchids.—A fine display of noble plants of *Lælia purpurata*, *Cattleya Mossie* and *C. Mendelii*, *C. Skinneri*, *C. S. alba*, and other *Lælias* and *Cattleyas*, is now to be found in the great *Cattleya*-house, and an equally admirable arrangement of flowers in the *Odontoglossum*-house and intermediate-houses. Besides the grand show of *Odontoglossum Alexandrie* and its varieties and hybrids, and *O. Pescatorei*, are some superbly coloured *O. cordatum*, *O. Sanderianum*, many *O. citrosum*, *Oncidium superbiens*, *O. macranthum*, *O. phymatocilium*, *O. leucociliatum*, *O. nigratum*, *O. Forbesii*, *O. crispum*, *O. hastatum*, *Odontoglossum Roezlii*, *O. Phallenopsis*, *Bifrenaria vitellina*, *Nanodes*

Medusa, *Miltonia vexillaria*, *Epidendrum vitellinum*, *E. Wallisii*, *E. atropurpureum*, and some other curious and pretty *Epidendrums*, *Catasetum trifidum*, *Dendrobium capillipes*, *D. Farmerii*, *D. Jamesianum*, *D. Bensonie*, and many other *Dendrobies*; many fine *Masdevallias*, *Cattleya labiata* *Schrodæra*, *Lælia majalis*, *Cologyne Massangeana*, *Lycaste candida*, *Sobralia macrantha nana*, and a number of other species, showy, rare, or curious. The now favourite *Cypripediums* have among them the quaint *C. Sanderianum*, the fine hybrid between *C. hirsutissimum*, and *C. villosum*, *C. Germianum* ×, and *C. Druryi*; some new hybrids between *C. Hookeri* and *C. venustum*; *C. Tautzinum* ×, a beautiful cross between *C. barbatum* and *C. concolor*; *C. Druryi*, and numerous other species and hybrids. The new *Dendrobium porphyrogastrum* ×, and the lovely *Anguloa intermedia* ×, are still in bloom, as well as the favourite *Dendrobium enosmum leucopterium* × and *D. splendidissimum grandiflorum* ×, the best of the section. The house of *Anthuriums* is now resplendent with scarlet spathes; the greenhouses showy with the New Holland and other plants; and the *Nepenthes*-house, wonderful as usual.



FIG. 93.—DIMORPHIC FOLIAGE IN *TILLANDSIA VIRGINALIS*.

Ferns.—The fine collection of these graceful plants in the ferneries at Chelsea give ample evidence that, although they are less written about than many other classes of plants, there are still plenty of admirers of them. Indeed it could not fail to be so, for if Ferns are regarded collectively, almost any feature desired may be obtained among them: be it colour rivaling the glow of flowers, then we have, as seen at Chelsea, the brilliant crimson tint of the young fronds of *Adiantum tetraphyllum*, the softer but no less bright fronds of *A. tinctorum*, *A. Veitchianum*, and others; the rosy hue of *A. Farleyense*, *A. scutum*, and *A. rhodophyllum*; the blue tints of *Polypodium glaucophyllum*; the rich red of *Lomaria L'Herminieri*; the young fronds of *Lastrea erythrosora*, and the neat *Doodia aspera corymbifera*, and the bright crimson sori of *Lastrea prolifica*; the white, red, and green of *Pteris tricolor*, and of *Athyrium Goringianum pictum*. With these mingle the bright gold and silver of the *Gymnogrammas*, and the varied tints of green, and with all the beauty of colour enhanced by that grace and diversity of foliage to be found in ferns alone. Be it quaintness of form that is desired, then turn we to the various forms of *Platynerium*,

known as Stag-horn Ferns, the diverse fronded *Davallia heterophylla*, *D. parvula*, *Rhipidopteris peltata*, and the numerous crested forms which cultivation seems to have been so instrumental in producing in Ferns. Among these *Lastrea tenericanlis cristata* and *Osmunda japonica cristata* are especially noteworthy.

Elegant Ferns for basket or pot are numerous represented; perhaps the fairy-like *Davallia tenuifolia Veitchiana* is the most charming, but *D. Mariesii*, *D. M. cristata*, the ample and beautiful *D. retusa*, the noble *Nephrolepis rufescens tripinnatifidum*, the old but still rare *Asplenium appendiculatum*, and the graceful *Asplenium flaccidum* are among the best; while the different varieties of *Platyloma* of the *P. flexuosa* section are charming in tint and in the arrangement of their fronds.

Among the new or little known Ferns we noted *Asplenium pteroides*, like a large scaly *A. marinum*; *A. Richardsoni*, an elegant species, something between *A. Fernandezianum* and *A. alatum*; *Gymnogramma Pearcei robusta*, the coveted *Pearcei*, but with a good constitution; *Lastrea lepida*, a beautiful finely-cut species; *Davallia feniculacea*, good for pot or basket; a large-growing *Vittaria*, with divided points to the fronds; *Nephrodium patulum*, from Jamaica; *Aspidium tripterum*, with pretty three-parted fronds; *Gymnogramma schizophylla gloriosa*, and *Todea Mooreana*, a noble Filmy Fern. But with respect to this last-named, which was imported as a species, a curious incident arises, for it is identical in every respect with the fine hybrid raised by Mr. Schneider, the foreman over the Fern department, and named and awarded a First-class Certificate as *Todea grandipinnula*.

Tree Ferns abound at the Royal Exotic Nursery, also hardy British and exotic species; and the rockery-house is very effective, prominent species being *Agathaea dealbata*, *Todea arborea*, *Woodwardia radicans*, and *W. r. Burgessii*; *Pteris adiantoides*, *Lastrea atrata*, *L. aristata variegata*, *L. opaca*, *L. varia*, *Struthiopteris germanica*, *Osmunda javanica*, *Stenochlæna scandens*, *Adiantum Pacotii*, *Lomaria Gilliesii*, *L. chilense*, *L. zamioides*, *Lygodium palmatum*, and other *Lygodiums*, *Adiantum pedatum*, *Doryopteris nobilis*, *Balanium culcitum*, the pretty fragrant *Aspidium fragrans*, &c.

Ferns for indoor decoration have commanded great attention of late years, and here it is made a special feature. We found various forms of *Pteris serrulata* and its crested varieties in great bushy plants in small pots, the fronds not having a blenish on them. Also *P. tremula foliosa*, a noble Fern, and *P. t. flaccida*, with elegantly elongated points to the fronds; *P. cretica*, and its varieties; *P. Ouvardi*, intermediate between *P. cretica* and *P. umbrosa*; *Aspidium capense*, which stands indoors as long almost as an *Aspidistra*; *Adiantum cuneatum*, that most serviceable of all *Adiantums*; *Polypodium aureum*, *Asplenium biforme*, also a durable Fern; *Aspidium falcatum*, *A. setosum*, and numerous others, all cultivated up to the highest pitch of excellence, without which they are of little use for decorative purposes.

A good collection of *Gleichenias* and Filmy Ferns are also to be found at Chelsea, and, like the other plants, in such sound condition that they speak highly of the diligence and skill of Mr. Schneider, their grower.

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY.

Never perhaps has the extensive and varied stock in Mr. B. S. Williams' famed establishment looked better than at the present time, when to the beauties of the fine collection of Ferns, Palms, and stove and greenhouse foliage plants, are added the fine display of flowers on the Heaths and New Holland plants, *Pimeleas*, &c.; the latest of the *Amaryllis* and *Cliveas*; the cheerful display of *Pelargoniums* and other plants, usually denominated "decorative;" the numerous brilliant scarlet spathes on the varieties of *Anthurium Scherzerianum*, the

neat and well-flowered Azaleas, the densely clustered pitchers in the well-filled Nepenthes-house, and many other plants with beautiful foliage or flowers which never fail to appear at this nursery, and among which are found many rare plants seldom seen elsewhere. But beautiful as many of the other plants are, it does not require an enthusiast to see that, as usual, here the best display is given by

The Orchids, and with these Mr. Williams has an excellent way of making an arrangement of the most attractive character in the entrance or the lobby attached to each house, the old species, and those likely to interest Orchid growers only, being allowed to flower in their places in the body of the house. The first group noted was tastefully arranged with Maidenhair Ferns, and composed principally of *Cattleya Mossie* and *C. Mendelii*, *Aerides Fieldingii*, *A. crispum*, great masses of *Lælia purpurata*, *Cœlogyne Massangeana*, *Oncidium sarcodes*, with about 150 flowers on a spike, and a pair of *Masdevallias Harryana* with flowers of brilliant blood-red on clear yellow ground—certainly one of the best *Harryanas*, and flowering here for the first time. Also noteworthy in this group was a pretty *Cattleya Mendelii* much like *C. M. Rothschildiana*, but rather lighter in colour.

The lobby of the next house had in the back a grand variety of *Cymbidium Lowianum* surrounded by specimen *Lælia purpurata*, with in front of them *Cattleya Mossie* and *C. Mendelii*, *Lælia elegans prasiata*, *Oncidium macranthum*, and *O. m. hastiferum* (true), *O. Jonesianum* and *Masdevallias* fronted by fine plants of *Miltonia vexillaria*, *Dendrobium thysiflorum*, and *Cypripediums*, the whole being set up with *Adiantums* and *Asparagus plumosus*, and overhead finely flowered plants of *Odontoglossum citrosium* in great variety. On the side stages are *Anguloa Ruckerii*, *A. Clowesii*, *Brassia Keiliana tristis*, *Dendrobium Dalhousianum*, *D. Bensoniæ*, *Cattleya intermedia*, *C. Schilleriana*, *Oncidium Sutunii*, *Epidendrum cochleatum*, *Burlingtonia fragrans*, *Miltonia Warszewiczii Weltoni*, *Lælia cinnabarina*, *Oncidium sessile*, &c.

The next house gave some fine *Vandas* in flower—*V. suavis*, *V. tricolor Patersoni*, *V. t. The Glen var. V. teres*, and others, and with them *Phalænopsis Sanderiana*, *P. amabilis*, *P. Luddemanniana*, *P. rosea*, and *P. r. leucaspis*, *Thunia Veitchiana*, *Dendrobium Falconeri*, *D. Deari*, *D. superbiens*, *Cœlogyne pandurata*, *C. asperata*, and *Saccolabium ampullaceum*.

The whole of the cold-houses were fairly filled with flowers of good *Odontoglossums*, *Masdevallias*, *Oncidium concolor*, *Cattleya Acklandiæ*, &c., and the *Cypripediums* had among them, in flower or bud, *Cypripedium bellatulum*, *C. selligerm majus* × *C. grande* × *C. albo-purpureum* × *C. Ainsworthii* × *C. ciliolare*, *C. Hookeriæ*, *C. Swianum* × *C. supercilare* × *C. cardinale* × *C. vernixium* × *C. Argus*, *C. superbiens* *Demidoff var.*; *C. Dominianum* ×, and many others, the whole collection being in excellent condition, the plants sound, and well rooted.

THE APIARY.

HOW TO GET A SURPLUS.

I HAVE more than once before mentioned the subject of reversing, but as my object is to give the benefit of my own experience to the readers of the *Gardeners' Chronicle* I must again refer to it. The object of keeping bees being to get honey, I will state what has happened here during the last few days. I had a large Pettigrew skep, with a flat top and circular hole in the middle of said top. About a fortnight ago I found that this skep of bees was in very good condition. It was full of bees, and the comb reached to the floorboard. From the gathering of bees at the entrance I concluded that preparations were being made for swarming, and I meant to prevent that taking place. I had a section crate which holds thirty-two 1 lb. sections, so I got all things ready and went to the bees one evening when the

greater number of them were at home. I smoked them well to drive them upwards amongst the combs. I have occasionally had a piece of comb fall—in such cases the bees sometimes unite such a piece above. To guard against that I took a strong carving-knife and slipped it all round carefully between the hive and the floorboard so as to loosen all attachments. The hive being very heavy I had a man near to help turn the hive over, and block up the entrance; this was done carefully but quickly. The bees did not seem to relish the matter, for they were just beginning to come out in hundreds, when the super was placed on, and they had to rush into it. I ought to have said that the hive was propped up a little, so that the bees coming home had the same spot to fly to, and only had to crawl a little further, when they entered the hive by the circular hole which was at the top. There was a great rushing of bees about for, I should say, half an hour, when all seemed quiet. I left them for another half hour, when I lifted off the cover of the super, and found the bees examining the boxes. I have had a peep at the boxes most days since, without disturbing the bees at all, and they are filling them as hard as they are able. A perfect roar is going on inside the hive, the bees are bringing in immense quantities of honey, as well as pollen, so that matters are going on in a very satisfactory manner. Swarming seems to be given up at present, and I consider it very probable that they will not swarm at all. This hive is in an exposed part of the garden, so that all may see it who desire to. It is sometimes difficult to keep skeps from tumbling over when inverted, and some future time I will describe a way of preventing it. Meanwhile, try one skep if you are doubtful of success. *Bee.*

THE ORCHID HOUSES.

ÆRIDES ALPINE SUPERNUM AND *A. LOBBI*.—These two interesting East India species are not so often seen in collections as their merits certainly entitle them to be, and even when added to the collections they are sometimes indifferently grown. This cannot be because they are difficult to establish when first obtained as imported plants, nor, that they are hard to manage when once new leaves and roots are formed and fresh. Still there is a cause, and so far as I have been able to observe, even in Orchid growing the taste sometimes seems to run in one direction and at other times in another, and as just now we very seldom see a large mass of *Masdevallia Lindenii* or *M. Harryana* on an exhibition stage the same may be said of many of the *Ærides*, which used to be considered indispensable a few years ago. Doubtless, in a short time the East India plants will come again to the fore, and then we may hope to see these two fine species oftener and also grown better than at present. There can be no doubt that that section of Orchids which come under the appellation "cool house" are more commonly grown, and grand things these are; still many of the most beautiful of these require in their growing season a good share of heat—and if sunheat is wisely made the most of, fire-heat need be used but sparingly, that is, for three or four months; and the fact that this extra warmth is needed for their good cultivation should not deter any one from growing some of them. When an importation of these species is first received it will be noticed that the leaves are much shorter and closer on the stem than is the case with plants established here. Their appearance would indicate that they came from a locality where a large share of sunlight reached them, where growth was made rapidly, and where the resting season is a prolonged one. There will also be indications of the plants being abundant bloomers in their native country, although the spikes may be much shorter than those produced in our houses. In the matter of treatment, on being received the plants should be hung in the *Cattleya*-house round the stage, their heads being downwards, where they can be syringed, and slightly shaded; fresh roots will soon make their appearance, and old roots make new points over much of their

surface. Ere these new roots grow to any length, the plants must be put in baskets or pots, using crocks and charcoal very freely, and filling up the spaces on the top with fresh green sphagnum. If put in baskets, do not hang them up very close to the glass at first, any such sudden change of position acting injuriously, but after a few days they may be exposed to the light by degrees. Plenty of heat and moisture must be given during the growing season, but moisture stagnant in the pots, or an atmosphere which is close and stuffy, must be avoided. A buoyant condition of the atmosphere in the house is an essential condition, shade being given occasionally when strong sunshine might prove injurious. The growth having finished, and the winter approaching, warmth and humidity must be gradually abated, so that during the months of November, December, and January, the night reading of the thermometer will not be higher than 55°, and that of the day about 60°, with a corresponding dryness at the roots. *Vanda.*

PLANTS AND THEIR CULTURE.

THYSACANTHUS AND *CENTROPOGON LUCYANUS*.—Both these plants require to be prepared for winter flowering during the summer months. Cuttings of either which were put in some time ago will now be nicely established and fit to pot on, and should be placed in their summer quarters, which may be a low-roofed pit or frame, when the best results may be looked for. But tolerable success may be attained by growing them with the mixed collection of intermediate-house plants, putting the plants on a shelf near the glass, such a position being best for small plants, and they will also branch sufficiently without pinching. If the number of plants is small, cuttings may yet be put in with a fair chance of rooting, and nice plants obtained if large cuttings be employed. The old plants may be utilised if cut back and re-potted, indeed, in the case of *Thysacanthus rutilans* standards with stems about 2 feet high are very useful for mixing amongst other plants, their long racemes of scarlet flowers being very telling. *Thysacanthus strictus* and *T. lilacinus* are the most useful next to *rutilans*; both are vigorous growers and more freely branched, as well as being taller; the erect spikes are scarlet and lilac respectively. *Centropogon Lucyanus* has rosy-carmine flowers, and seems to be the only species in common cultivation. It is a grand thing if done well, but it likes liberal treatment; good loam with plenty of bone-dust or a little fish-manure suit both it and the *Thysacanthus* well. If the *Centropogon* be planted out in such a soil, supplied with plenty of water, the temperature being kept at about 60° in winter, it will flower profusely for about nine months of the year.

Bomarea.—Distinct, handsome twining plants of the *Amaryllid* family, and somewhat resembling in flower the *Alströmérias*, to which they are allied; but not being so hardy as the last-named plants, they require the protection of a greenhouse or cool conservatory. Their culture is comparatively easy, and success is easiest attained when they are planted out and twined round some upright support, which may be either the slender pillars of the house or a stout stake. The plants are not particular as to soil—any free rich compost, such as one consisting of one-half loam, the other half leaf-mould and sand, or peat may be used in lieu of leaf-mould. The addition of a little bone-dust and charcoal improves the compost. The drainage should be good, for they like plenty of water whilst growing, but if the soil should get waterlogged they make slower progress, and some of the more slender growing sorts are liable to decay during the resting season of winter. At the present time the plants are making rapid growth, and are much benefited by frequent waterings with liquid manure, and by being syringed daily. Some care must be exercised in training and regulating the stems, for should their steadily turning points meet with an obstruction their course will get diverted, and the result is a tangled condition of the growths, difficult of undoing without injury; and the flowers being produced at the ends of the stems, it is essential that the growing point be preserved, otherwise no flowers will come, the stems not producing a new growing point from want of axillary buds. It therefore follows that propagation also can only be effected by seed or division. This slow mode of propagation has possibly had much to do with the slow pace at which these plants are being distributed, and as plants usually take quite a year to establish themselves into good flowering specimens, and seedlings double that time,

this may also have retarded their distribution. There are now a good many showy species introduced; but the finest of the family is *Carderi*, which produces a terminal umbellate head of flowers, averaging about 2 feet across on established plants. If it can be so arranged that the inflorescence hang over the path, or, at all events, clear of the surrounding plants, it is then a striking and effective object; and if produced in autumn, as they usually are, the flowers will last for a long time; and the fruits which follow are not without interest, especially when they begin to ripen, the colour then being a golden-yellow. Other desirable species are *oligantha*, *Caldasiana*, *conferta*, *frondea*, and *Shuttleworthii*. They are all terminal-flowered; the three outer parts of the flower are usually of one colour, and smaller than the three inner, which are generally spotted; the prevailing colours are rose, orange, yellow, and red, similarly disposed as in the allied *Alströméria*. They are easily kept clean, as, with the exception of *Carderi* (which is more or less evergreen), the stems die down after flowering, and thus the plants can be thoroughly cleaned. The usual small pests—greenfly, red-spider, thrips, and such-like—may easily be kept down by the free use of the syringe during the growing season. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

SHRUBS.—There are some few species of early flowering shrubs that are better for being pruned now than at any other time of the year; such are *Berberis stenophylla*, *B. dulcis*, *B. Darwini*; also similar subjects whose general character and habit consists of strong annual growth from which flowers are produced the succeeding year. The orthodox system, as is well known, is to prune shrubs between the months of November and March, but to employ this practice on such subjects as we are now dealing with is erroneous, as by so doing the plants are denuded of a goodly portion of their blooming shoots, besides spoiling their characteristic habit when in flower. The flowers being now past their best, all strong shoots should be cut back to a short spur, and from which young shoots will soon push forth; indeed in some instances they are already 4 to 6 inches long; an abundance of the latter well ripened to the points should be the desiderata, if a quantity be desired. The above remarks of course do not apply to berry-bearing species. Examine all late planted stuff and see that none of it suffers from want of water. Where flowers of hardy shrubs have to be sent long distances by rail for decorative purposes they should be cut and the stems placed in water a few hours previously to packing; and so treated, they will keep fresh for a long period; the contrary practice too often prevails, and is most disappointing in dry weather.

Hardy Wall Plants and Climbers.—These should receive close attention during the growing season, and should be nailed in, or tied to wire, as the case may be, and as often as occasion requires it, at the same time cutting out flowerless and superfluous shoots. Keep a vigilant look-out for aphids, and for their destruction employ the means which were recommended in the last Calendar for Roses, this being one which answers perfectly. *Clematis*, *Lonicera*, *Passiflora*, *Wistaria*, and other flowering subjects, will be benefited by waterings of weak liquid manure, with mulching afterwards, if such are growing in light soil.

Herbaceous Borders.—These will demand immediate attention, and in consequence of the dry weather lately experienced watering will have become necessary—any labour that can be spared for this purpose being amply repaid by a healthy growth, and well-developed flowers. It is a bad plan to wait till the leaves flag before watering—far better to err in the opposite direction. Do not delay to stake and tie all such plants as require it, and in doing so cut out weakly growths that are not likely to flower, from old-established plants of *Delphiniums*, *Phlox*, and others of a similar character; afterwards hoe and rake over the surface of the soil. Cut off old stems from early flowering plants, except where seed is wanted. In some gardens great demands are made on the herbaceous borders for supplies of cut flowers during the London season, and these should have their stems placed in water two or three hours before being packed, and are best when tied up in bunches of about a dozen with a little damp moss tied round the ends of stalks.

Dahlias may now be planted out, and see that they are well watered before turning them out of the pots, not forgetting to disentangle the roots slightly of all plants that are pot-bound, and which will greatly accelerate their taking hold of the fresh soil. Stake and tie as the work proceeds; cut out any young lateral shoots that may be pushing, allowing for some time to come, only one stem on each plant. For show purposes these plants are best grown in quarters which have been well manured and trenched over two spits deep the previous autumn. If planted in herbaceous and other mixed borders, dig out a hole and mix two or three spadefuls of rich manure with the staple previously to planting. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

VINES.—Where the Grapes are ripe a free admission of air should be allowed at all times, unless the weather be dull or wet. When the Grapes are approaching maturity, a gradual diminution of atmospheric moisture and a freer admission of air must be the rule; but at no time must Vines be allowed to become too dry at the root, more especially when there is a large quantity of foliage and a crop of fruit to support. Distribute a little water about the house, but at the same time keep up a small degree of artificial heat, so as to prevent it condensing on the fruit. If not already done, a good mulch of some sort of manure should be placed over the borders to prevent cracking of the soil and to save the too frequent use of the watering-pot, and, in the absence of rain, give the outside borders a good soaking of water. Every attention must be given to pinching back the lateral growths; on no account should they be allowed to run and then be removed wholesale, as this gives a check to the Vines, which may result in red-spider attacking the foliage, or in the fruit not attaining its proper size. The thinning of Muscats and other late Grapes should now be completed, every precaution being taken against touching the bunches with sweaty hands or the hair of the head. Avoid over-cropping, as it overtakes the Vines, and delays the ripening of the fruit, which is never so finely finished. Keep a look-out for red-spider, and wherever it appears clear it off by sponging, or syringing, avoiding, as far as possible, touching the bunches, and let the operation be thorough in preference to weak daily syringings, less damage resulting to the fruit from the former method. Choose a clear night for the operation, as it is necessary that the foliage should be perfectly dry by the next morning. Any early viney which may be exhausted, and it is deemed necessary to renew, should be seen to at once, thereby saving a season.

I once planted two houses of Black Hamburg in the beginning of June from Vines struck from eyes the same season; the Vines did remarkably well the same year—the result, partly, of the high temperature (85°) of the newly-made border; and next July they were at the top of the house. Early this spring I lifted the roots in an outside border of a Muscat viney and also those of a mixed house of Vines. The trouble and expense have so far been well expended, for the Vines are in better health than they have been for years, and the colour of the foliage indicates that the roots are in suitable compost. Encourage any Vines that were planted this year; ply the syringe vigorously, to keep the foliage clean; retain enough lateral growth to furnish all the trellis, but no more.

Pot Vines whose canes have grown to the desired length for next year's fruiting should now be stopped, and every possible care taken to preserve the foliage intact, as on this will depend the plumping of the buds for next season's crop, and the proper maturing of the wood. Assist the plants with rich mulchings and weak manure water, but take care that the roots are not allowed to enter the plunging material else proper control over them will be lost. *Wm. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

SUMMER PRUNING WALL TREES.—From this time forward, attention should be given at intervals to this operation, as the trees are now making rapid growth. Summer pruning requires care and forethought in the doing, so that the energies of the trees may be directed to the formation of bloom-buds, and the full development of the fruit. Trees which are inclined

to grow too luxuriantly must not be stopped at a too early stage, otherwise the lower lateral buds will be forced into growth, and bloom-buds will be few. A safe plan to follow is to stop young growths at the fourth, fifth, or sixth buds, according to the kind of fruit tree, and with regard to it being a strong grower or the reverse.

Pears will be the first fruit to claim attention, the breastwood requiring to be shortened back, and sufficient young wood laid in to meet requirements. If there are too many young shoots these should be regulated and also thinned (pulled) out by a sudden twist with the finger and thumb. Cordon Pear trees require frequent and close stopping, to keep them in a fruitful condition. The methods followed with Pear trees apply equally to Plums, Apples, and sweet Cherries, and with slight modification to red and white Currants on north walls.

Peaches and Nectarines.—The final disbudding should be brought to a close. A little attention should be devoted to tacking in the forwardest of the shoots, this work being more readily done now than later, when the wood gets firmer. The first thinning of the fruit may now take place, going over the trees finally when the stoning is over. Wash the trees well with water on warm days, and give an occasional syringing with soap-suds, or soft-soapy water to keep down aphides.

Apricot Trees.—When these are growing in well drained borders, another good soaking of water at the roots will be found necessary, when they will be quite safe till after the stoning of the fruits. Look over the trees frequently for the maggot, which, by the way, is unusually prevalent this year.

Newly Grafted Trees.—These must be examined to see that the ties are not cutting into the bark of scion or stock, and if this is found to be the case take off the old ties and rebind them again rather loosely, fastening them to sticks to prevent damage by wind, and rub off young growths as soon as such appear on the stocks. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

PLANTING WINTER STUFF.—All plants of Broccoli, Brussels Sprouts, Savoys, Chou de Burghley, Kale, &c., remaining in the seed-beds should now be planted out as soon as convenient, doing this work if possible in showery weather, and it is good practice to draw a shallow drill before dibbling in the plants. If the quarters are not yet vacant for the above, the plants should be pricked out at 6 inches apart in beds or lines, so as to prevent them from getting drawn, and if they are afterwards carefully lifted and planted with a trowel they will receive no check. One great cause of Broccoli failing to stand through a severe winter is that of being planted too closely in a soil that is too rich. If the ground is in good condition no manure should be afforded this crop, and the ground should be made very firm, the plants standing in rows not less than 3 feet apart and 2 feet apart in the row. Thus treated the tissues of the plants get well consolidated as growth proceeds, and are not so liable to be injured by frost, as those that are made soft by overcropping.

Cauliflowers for use in the autumn should now be planted out on well enriched land, and encouraged to grow without loss of time, in order to get large heads. Cauliflowers will succeed better if the roots are carefully preserved when lifted from the seed-beds.

Successional crops of Lettuce should be put out as soon as large enough to handle; they grow away much faster when transplanted young, and are not so liable to run to seed in dry weather.

Chou de Burghley should be sown now for cutting during February and March, that being the time of the year when it is most useful.

All Potato land should be at once hoed over, to destroy weeds, and the plants earthed-up when the tops are high enough. The hoe should be kept at work during dry weather among young growing crops. Preparation should also be made at once for sowing a good quantity of Marrowfat Peas for use at the end of August and onwards, at which time they are often very scarce after a dry time. As these crops will have to make their growth during the warmest season it will be better to sow them in trenches into which plenty of manure has been dug, and if the seed be well watered before covering it, its germination will be assisted considerably. *Ne Plus Ultra*, British Queen, and Sturdy are good varieties for sowing. *W. H. Divers, Kettle Hall, Stamford.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, JUNE 11—Chambre Syndicale of Ghent.
TUESDAY, JUNE 12—Royal Horticultural Society: Scientific, Fruit and Floral Committees.
THURSDAY, JUNE 14—Edinburgh Botanic Society.

SHOWS.

MONDAY, JUNE 11—Bedford and Bedfordshire, at Bedford.
WEDNESDAY, JUNE 13—York Floral Fête (three days).
FRIDAY, JUNE 15—Scottish Pansy.

SALES.

TUESDAY, JUNE 12—Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY, JUNE 13—Imported and Established Orchids, 70,000 Palm Seeds, &c., at Stevens' Rooms.
FRIDAY, JUNE 15—Imported and Established Orchids, at Protheroe & Morris' Rooms.

The man who devises a novelty in the midst of the London season surely deserves almost as well of his fellows as he who makes two blades of grass grow where one only was found before. Moreover, when the novelty takes the form of practical benevolence, and the poor and helpless are substantially benefited, its value is very materially enhanced, and what was before a mere pastime becomes a praiseworthy act of beneficence. The Gardeners' Orphan Fund was started in the year of Jubilee by the gardeners themselves as their memorial of the event, and has been so far signally successful. Nor is it difficult to see the reason. As soon as the project was started by Mr. PENNY and Mr. CLAYTON, and mooted in the columns of the Press, it was taken up in earnest by a committee, which has worked with as much business-like tact as it has manifested zeal and energy. The whole affair is eminently creditable to the gardening fraternity, who have on this occasion displayed a spirit of harmony and co-operation not always obvious in horticultural matters. The gentlemen to whom the happy thought occurred of inaugurating the novel fête in the Flower Market on Wednesday last, are specially entitled to a tribute of gratitude for their efforts. Few professed Londoners, or even enterprising foreigners, who do their Covent Garden in the early morning in compliance with the recommendations of their Guide-book, ever penetrate into the handsome and

spacious building devoted to the purposes of the wholesale Flower Market. Few even know where it is, or realise the fact that the great portals adjoining this office give access to one of the most bustling, and at the same time most beautiful scenes to be witnessed in any city.

The portals aforesaid, like those in Tavistock Street, are indeed, closed for the greater part of the day but just when most people are thinking of ceasing work for the day, or of retiring to rest, this part of the market begins to assume a lively aspect, while during the small hours of the morning the business runs fast and furious. Traces of the fray may be seen in Wellington Street, and the other streets leading out of Covent Garden, as late as 9 or 10 o'clock, while residents and passers-by find not only the roadway blocked with vans and carts of all descriptions, but even the footway thickly covered with Hydrangeas, Cyclamens, Marguerites, Pelargoniums, Mignonne, Chrysanthemums, or cut flowers, according to the season, but always in bewildering profusion. The leather-lunged coster, as hard-working as his useful and long-suffering companion, the donkey, here gets his supplies, which he will retail in the suburbs an hour or two later, "all a-blowin' and a-growin'!"

The ordinary gardener witnessing the spectacle may be pardoned for mingling a little envy with his admiration, for truly the "cultivation" of the plants here brought for sale, is of the highest excellence, and what is done with plants in "48-pots" continues to excite our surprise, all familiar, as we are with the sight. In truth, the cultivation of market plants is a specialty, and is carried to a degree of perfection to which none but specialists can hope to attain. Another point of interest (though that is not apparent in the market itself) is the economy with which the cultivation is carried on. To see that, one must go into the suburbs and witness the glazed shanties and make-shift places in which the plants are often grown. The sight affords a useful lesson, that expensive structures and elaborate appliances, though doubtless very convenient, are by no means essential to this class of business.

Another lesson is, that for trade purposes it is of no use to grow any great variety of plants, but only those few which have hit the public taste. To grow others simply because they are beautiful or interesting, is, from this point of view, mere folly, and certain to prove disastrous financially. And hence it comes about that the varieties of "market plants" are comparatively limited as to numbers, the limitations being fixed by public caprice as well as by the circumstance that certain varieties lend themselves well to rapid systems of propagation and quick cultivation, while others are not so pliant. The practical man soon ascertains which are likely to suit his purpose, arriving at his conclusions, as to the development of the fittest, by a rapid process of inductive reasoning, which the physiologist watches with admiration, but which he is unable to imitate, still less to account for. Mixed with all this beauty and triumphs of skill there is, in general, the noise, the confusion, the litter of a great market, frequented by bronzy-complexioned carters and porters, blue-aproned gardeners, and stout dames with huge baskets, frowsy shawls, and astonishing feathers in their limp hats. The picture indeed is one which, despite the beauty of the flowers, and its interest to the student of Nature, human and other, most people would prefer to see at a distance; indeed, it is usually made obvious to strangers that their room is more valued than their company.

But see how the "one touch of Nature makes the whole world kin." The need of the helpless orphan on this occasion silenced the turmoil, banished the confusion, and left only the brilliancy and fragrance of the flowers to be admired by the visitors, and to form an appeal to their generosity, the force of which they cannot withstand.

The weather had been threatening during the day, but towards evening it became clearer, and decidedly warm. Too much cannot be said for the great enthusiasm and zeal exhibited by the numerous flowermen and growers who habitually attend the Flower Market, and who on this occasion staged their beautiful wares in unwonted profusion, and, it is almost needless to say, their best examples. The banks of flowers in the many alleys of the market were bewildering by their galaxy of colour and the exceeding variety of flower and foliage plants of which they consisted. To give the names would require more space than we can command, and we can but allude to those which occurred the more generally, viz., Carnations, Roses, zonal Pelargoniums—still Geraniums in market parlance—Hydrangeas, hortensis in variety, and paniculata, very finely grown and flowered; Ivy-leaf, decorative, show, and fancy Pelargoniums, of dazzling tints, unknown a few years since; Petunias, Lilies, Narcissus, Iris germanica in varied colours, Fuchsias, Calceolarias, glowing Papaver bracteatum, Lobelia erinus in beautiful variety; Paeonies, Marguerites in white and gold; in some stands a few Philocactus made their appearance, in others a few Orchids were to be seen. "Foliage" consisted of the ever desirable Indian-rubber plants, Tillandsias, graceful Kentias, Phoenixes, Livistonias, Pritchardias, Blechnums, Lomarias, gold and silver Gymnogrammas, Adiantums in variety and without number, Isolepis gracilis, Caladium argyrites, C. minus erubescens, &c. The numbers who visited the display numbered about 7000, and included the Marquis and Marchioness of Tavistock, Sir Julian Goldsmid, Bart., M.P. (President), and Lady Goldsmid; the Right Hon. the Lord Advocate of Scotland, the Right Hon. J. Chamberlain, M.P., Sir T. Lawrence, Bart., M.P., General Goldsworthy, M.P., Lord and Lady Sudeley, the Right Hon. Hanbury Tracey, the Earl and Countess of Darnley, Lord and Lady Dimsdale, the Hon. Percy Allsopp, M.P., and the Hon. Mrs. Moore, Lord Justice and Lady Denman, Lord Justice and Lady Chitty, Lord Justice Hawkins, Colonel and Mrs. Cornwallis West, Colonel and Mrs. Grant, W. T. Dyer, Esq., C.M.G., F.R.S., D. Morris, Esq., F.L.S., N. Sherwood, Esq., and Mr. and Mrs. Protheroe. The Marchioness of Tavistock and Lady Goldsmid were each presented with a handsome bouquet of Orchids by Mr. T. A. Dickson, Covent Garden.

The Duke of Bedford, who was unfortunately unable to attend the fête, kindly contributed to the funds by a donation of £100. The sum placed in the collecting boxes, which were watched over by twenty-eight young ladies, raised the total to over £227—a very welcome and satisfactory addition to the funds of the charity.

The acting committee consisted of the following gentlemen, who worked most assiduously from first to last, viz.:—Messrs. Deal (Chairman of the Fund), Assbee (Market Superintendent), Richards (Fête Secretary), Barron (Hon. Secretary of the Fund), Walker, Pontpart, Head, May, Evans, Roupell, Messer, Lewington, Nicholson, Wotton, Gregory, Sharman, Poulton, Rochford, Turner, Hayes, Hawkins, Dean, Dickson, Herbst, and Laing. It is



FIG. 94.—*PINUS CANARIENSIS*, SHOWING CONE, MALE CATKINS, BUDS AND FOLIAGE, ETC.: NATIVE OF THE CANARY ISLANDS. (SEE P. 723.)

also satisfactory to note that, notwithstanding the great crush of visitors during the evening, all passed off in a thoroughly satisfactory manner without accident.

In illustration of the spirit with which this most interesting and agreeable spectacle has been carried out we may, in conclusion, quote the words of one of the most earnest of the promoters—a man whose hard daily toil and general surroundings would not predispose one to credit him with much fine feeling, but beneath whose rough exterior it is evident there beats a heart that can feel for another:—"Sir," said he—we were conversing with him on the matter—"we all like to do a little good to others when we can." This is the spirit in which this novel enterprise has been carried out, and we heartily congratulate the promoters on the results.

It may be stated that the salesmen in the market have not had a better demand for their goods this season than on Thursday morning after the *fête*.

INSTITUTE OF FRANCE.—Dr. M. T. MASTERS, Editor of this Journal, has been elected Corresponding Member of the Institute of France—Botanical Section—in place of the late Professor ASA GRAY.

THE "BOTANICAL MAGAZINE."—In the number for June are the following plants:—

Catagium Bungeothii, a complete description and figure of which appeared in our issue for January 29, 1887, and which was supplied by a plant in the possession of Mr. TAUZT, of Studley House, Shepherd's Bush. It appears that the species is subject to considerable variation, the varieties aureum and Pottianum differing slightly from each other, and both again from Mr. TAUZT's plant. The specimen figured is from a plant that flowered at Kew in October of last year, and which has pale greenish-yellow flowers, and is destitute of the sharp toothlets on the margin of the lip, though there are traces of them.—Venezuela.

Kempferia secunda.—Stems erect, loosely tufted, 6—10 inches high, slender, simple, sub-cylindric, leafy all the way up. Leaves 3—3½ inches long, the lower smaller, membranous, obliquely lanceolate or elliptic-lanceolate, caudate-acuminate, base narrowed, sessile on the sheath, which is slightly compressed, and terminates in a broad obtuse membranous appressed ligule, bright green above, paler beneath. Spike terminal, few flowered. Calyx tubular, slender, split above. Corolla tube nearly an inch long. Lateral staminodes broadly oblong, or rounded, spreading, and rather reflexed; lip rounded, shortly bifid at the extremity; colour rosy-purple.—Khasia Mountains.

Huernia aspera.—A tropical African member of a genus that has been known hitherto to occur only in South Africa. It closely resembles a *Stapelia* in habit. Stems straggling, procumbent, purplish-brown, with ascending divaricate, green cylindric or fusiform branches, 1½—4 inches long. Leaves minute, toothlike. Flowers few in a sessile cyme, pale purple coloured veins; corolla nearly 1 inch in diameter.

Paleourea nicotianafolia.—A shrub with branches terete or nearly so, all parts but the upper surface of the leaves clothed with a very fine tomentum. Leaves opposite, elliptic-lanceolate, 5 to 9 inches long, and 2 to 3 inches wide, acuminate, rather membranous, bright green above, yellow below, with twelve to fifteen stout arching nerves, midrib reddish, nerves above are yellow, base narrowed to a petiole a quarter of an inch long. Thyrsus terminal or from the upper axil, 4—7 inches long. Flowers two-thirds of an inch long, shortly pedicelled and tubular, slightly swollen at the base, colour greenish-yellow.—Brazil.

Cassia coquimbensis.—A shrub with glabrous or finely, sparsely haired branches, and leaves on the under side. Leaves 2—4 inches long, leaflets four to six pairs, one-third to two-thirds of an inch long,

sessile, pale green. Cymes axillary, many flowered, sub-corymbose. Flowers 1—1½ inch in diameter, orange-yellow. Sepals oblong, obtuse, green, half the length of the petals.—Coquimbo.

THE "JOURNAL OF BOTANY."—The issue for June contains a portrait of the late ASA GRAY, together with an appreciative and sympathetic summary of his life's work, by the Editor. The other important papers are a synopsis of Tillandsia, by Mr. J. G. BAKER, and "Notes on the Botany of Northern Portugal," by the Rev. R. P. MURRAY.

CAULIFLOWERS FROM FINISTERRE.—It is stated in the *Revue Horticole* that for the last fortnight there have been sent away from the railway stations of Saint Pol-de-Leon, Roscoff, and Plouéman, to all parts of France and of Northern Europe, from seventeen to eighteen wagonloads of Cauliflowers daily, each wagonload weighing 4000 kilos. It is calculated that the total quantity sent away during the sixty days of the Cauliflower season will reach 4080 tons, which, at the rate of 85 francs per ton, equals 346,800 francs, and the wholesale selling price of these by the dozen heads, at 2.50 to 4 francs per dozen, will realise 1,105,000 francs.

THE ALEXANDRA PALACE.—It is proposed to hold fruit, vegetable, and Potato shows during the present season, and a Chrysanthemum show in November at the Alexandra Palace. The new company, which has taken over the place, intends to be liberal in the matter of prizes, there being no want of funds.

PEOPLE'S PALACE.—On Friday and Saturday, the 1st and 2nd inst., a small exhibition of flowers, &c. was held at the People's Palace, Mile End Road, E., which must have been a welcome sight to many of the visitors. Messrs. J. LAING & SONS, Forest Hill, S.E., sent a very large group, 90 by 13 feet, which occupied the centre of the show hall; some cut blooms of their Begonias attracted much attention; various Palms, Caladiums, and Aracaria excelsa, formed the main items here. Cut Roses were sent by Mr. W. RUMSEY, Waltham Cross, N., who also showed some excellently grown Adiantums in variety, including *A. Farleyense*. A bank of hardy cut flowers was contributed by Messrs. BARR & SON, Covent Garden, W.C., which included many things of bright and gay colours, as Irises, Paonies, Parrot Tulips, &c., and a head of Allium Karatavensis with pink flowers. Market bouquets of very tasteful arrangement, and baskets of cut blooms of double white Narcissi, scarlet Ixias, Scilla nutans, and grasses were sent by Messrs. HOOPEN & CO., Limited, Covent Garden. Groups of market plants of good quality were shown from Mr. WILKINSON, Mile End Road, E., and Mr. CROSS, Leytonstone, E.

BRITISH TOBACCO.—At the Fenchurch Street bonded warehouse there has been held a small show of British grown Tobacco, under the auspices of the London Chamber of Commerce. Very fair samples of leaf were to be seen, there being twelve lots, but not yet ripe enough for use. The prize of £50 was awarded to Messrs. J. CARTER & CO., High Holborn, who had a good quantity of leaf; other exhibitors also had equally good leaf, but not so large a quantity. Sir E. BIRKBECK, Bart., M.P., Norwich; Mr. W. E. WIGAN, Maidstone; and Mr. J. GRAVES, Skirbeck, Boston, Lincolnshire, were recommended for the second, third, and fourth places respectively.

MYOSOTIS DISSITIFLORA ALBA.—We have received from M. ERNEST BENARY, Erfurt, flowers of a white Forget-me-Not—*Myosotis dissitiflora alba*. It is the exact counterpart of *M. dissitiflora*, and it is stated to come absolutely true from seed. A valuable addition to these much employed spring flowers.

ARISTOTELIA RACEMOSA.—Shoots of this plant have been kindly sent by Mr. F. W. BURBIDGE, Trinity College Botanic Gardens, Dublin, who says that the

plant is now flowering there, as a hardy shrub, on a south wall, at five years from seed. It is 3 feet in height. It is not showy, but is a shrub of clean, bright, and pleasing aspect, and it does not seem to be very common in gardens. The foliage sent quite bears out Mr. BURBIDGE's remarks as to its aspect.

HOSE-IN-HOSE MIMULUS.—Messrs. H. CANNELL & SONS send some exquisitely coloured flowers of Hose-in-Hose Mimulus, the colours running chiefly on rich velvety-brown and bright shades of yellow and crimson, fine for pots, or beds in half shady places.

ROSE SHOWS IN 1888.—The following list of shows up to date has been sent us by Mr. EDWARD MAWLEY, Rosebank, Great Berkhamsted:—

Tuesday,	June 26—Boston.
Thursday,	" 28—Brockham and Ryde.
Saturday,	" 30—Eltham and Beigate.
Tuesday,	July 3 { Bagshot, Canterbury, Diss, and Hereford.
Wednesday,	" 4 { Croydon, Dursley, Farnham, Hitchin, and Richmond, Surrey.
Thursday,	" 5—Bath, Farningham, and Norwich.
Friday,	" 6—Sutton.
Saturday,	" 7—Crystal Palace (National Rose Society)
Tuesday,	" 10—Gloucester, Ipswich, and Oxford.
Wednesday,	" 11—Ealing and Tuenbridge Wells.
Thursday,	" 12 { Birmingham, Carlton-in-Lindrick, and Winchester.
Saturday,	" 14—New Brighton.
Monday,	" 16—Newcastle-under-Lyne.
Tuesday,	" 17—Leek and Ulverstone.
Wednesday,	" 18—Birkenhead.
Thursday,	" 19—Helen-burgh.
Friday,	" 20—Darlington (National Rose Society).
Saturday,	" 21—Manchester.
Tuesday,	" 21—*Christleton and Tibshelf.

* Not yet finally decided.

In the above list the only exhibitions not held by the National Rose Society or by societies in affiliation with it, are those at Birmingham, Boston, Carlton-in-Lindrick, Dursley, Manchester, Newcastle-under-Lyne, and Richmond. In the case of Birmingham and Boston, where the shows extend over two days, the date of the first day's exhibition only is given.

NON-GUARANTEE CLAUSES.—At a largely-attended meeting of the National Seed and Nursery Trade Association, held in Edinburgh on Wednesday, 6th inst., Mr. WATT, Carlisle, presiding, a resolution that the meeting entirely disapproved of the non-guarantee clauses of seedsmen, &c., was unanimously adopted.

A NEW NURSERY VENTURE.—The various nurseries belonging to Mr. R. H. VERTEGANS, Chad Valley; Mr. HANS NIEMAND, Harborne Road, Birmingham; and HEWITT's Nurseries, Solihull, will shortly be incorporated as a limited liability undertaking, under the title of VERTIGANS & HEWITT (Limited).

CROYDON HORTICULTURAL SOCIETY.—At the show of the above Society, to be held on July 4, a competition, open to all England, for gentlemen's gardeners and amateurs only, a special prize for thirty-six Roses (distinct) will be awarded, consisting of a Rose trophy, value 25 guineas, and the National Rose Society's Gold Medal. This trophy to be held by the winner for the year. If won by the same member for two consecutive years it will then become his property. A special prize for six Roses (distinct) will also be competed for by gentlemen's gardeners and amateurs within a radius of 4 miles of the Town Hall, Croydon, a Rose trophy, value 7 guineas and the National Rose Society's Silver Medal, being the awards, the former to be held by the winner under the same conditions as the higher award above mentioned.

BANANA CULTURE IN CENTRAL AMERICA.—From two Consular Reports recently received—the first from Carthage and Santa Martha, and the other from San José, Costa Rica—it would seem that the cultivation of the Banana is receiving a considerable amount of attention in Central America

At Rioficio, some 15 miles beyond Cordoba, the land is described as being very fertile, and with the prospect of the railway shortly connecting this locality with the port of Santa Martha, the Banana cultivation has been started with the view of exporting the fruits to the United States of America, where there is an ever-increasing demand for them. This particular cultivation is said to have the great advantage that the Cocoa tree can be planted beneath its shade, and by the time the Banana begins to degenerate and has to be cleared away, a valuable Cocoa plantation is there to replace it. The lands of Rioficio are also especially adapted for the successful production of Cocoa. The report from Costa Rica says:—"The Banana grows best in the lowlands, hot and even marshy plains, where the tropical rains most abound. There are large tracts of land on the Atlantic coast in the plains of Santa Clara through which the railroad runs from Carillo to Port Lemon—a distance of about 70 miles—which a few years ago was forest land, but now for the most part is cultivated with Bananas. This forest land can be bought at from £1 to £2 per 2 acres, the cost of cleaning is about £3, and eighteen months or less after planting the sucker the Banana tree bears fruit. Beyond keeping the land free from undergrowth the trees require but little attention. At present the fruit is bought, delivered alongside the railway, at 43 cents, or 1s. 4d. a bunch of nine hands, and 2½ cents, or 8d. per half bunch of seven and eight hands."

THE COLCHESTER AND EAST ESSEX HORTICULTURAL SOCIETY.—The above Society will hold a Rose Show on June 30, at which liberal prizes will be offered to amateur competitors.

PINUS CANARIENSIS.

THE remarkable Conifer of which we are now able to give a representation (fig. 94, p. 721), thanks to the courtesy of M. Naudin, is one which in this country we rarely, if ever, see out of the conservatory, our climate presumably not suiting it. Nevertheless, there are warm corners near the sea, as in the Channel Islands, where it might be tried, and numberless localities in our broad empire where the tree would find the requisite conditions for its growth. It is a native of the sides of the mountains of the Canary Islands—indeed, it is peculiar to them, not being known elsewhere. Possibly it may at one time have extended over a wider area, whence geological changes have expunged it. Although the natives have done their best to extirpate it, it still forms, we believe, a component element of the forests above the line of the Laurels, at an elevation of between 5000 and 7000 feet. Moreover, it has been introduced so freely into other countries, that we trust we are not likely to have to figure it as the last of its race, as we did lately with the St. Helena Psiadia. The Pine in question is fully described in botanical works, especially by Webb and Berthelot, and our illustration tells its own tale so completely, that we need add but little of botanical detail; but as points to be specially noted, we may mention the greyish-lilac bark, the yellowish shoots, the lanceolate, deeply-fringed scales at the base of the "needles," which scales are the primary form of the leaves. The secondary leaves, or needles, are of a grass-green colour, and in tufts of three, like the American Tæda. In section the leaves are triangular, the lower side very convex, the other two sides not concave as usual in Pines, but also slightly convex. Beneath the skin is a very thick layer of strong wood cells (hypodermis), which enables the leaf to resist the violent winds to which the tree is subjected.

The two resin-canals are deeply imbedded in the substance of the leaf—a character of much importance as regards the discrimination of the species. The densely woolly buds will also be noticed, as also the large oblong mass of yellow catkins constituting the male inflorescence. The cones are at first ascending or horizontal, but subsequently pendulous. In the works

referred to, some remarkable specimens of the tree are alluded to, and the power which the tree has of resisting the violent winds and drought to which it is subjected—a power the explanation of which is partly afforded by the minute structure of the leaf above explained, and partly by the strong root development. The roots penetrate the crevices and fissures of the volcanic rocks to a great depth, and derive moisture from sources which are little apparent on the surface. The robust guarded habit of the tree assorts well with the rugged character of the rocks amid which it grows. M. T. M.

NOTICES OF BOOKS.

JOURNAL OF THE BATH AND WEST OF ENGLAND SOCIETY.*

The recently issued number of this Society's *Journal*, which we find has now been established more than 110-years, contains several very able and practical articles in connection with agriculture and horticulture; in fact, the book teems with useful information.

Our limited space will allow of but a short notice on the two articles more particularly bearing on horticulture, viz., "Insects Injurious to Apple and Pear Crops," by Charles Whitbread, F.L.S., F.G.S.; and "Fruit Farming in Small Holdings," by W. Weldon Symington, of Rockside, Okehampton.

1. INSECTS INJURIOUS TO APPLE AND PEAR CROPS.

The author says the serious destruction to the Apple crop in certain seasons by the Apple-blossom weevil (*Anthonomus pomorum*) is hardly realised, or at least is generally attributed to other causes—as the weather, for instance, and moths and saw-flies. In seasons in which the development and growth of the Apple blossoms are retarded by cold nights and white frosts this insect has great opportunities, and does not fail to avail itself of them. On the other hand, when the blossoms come out quickly, and fructification and the formation of the Apples follow on without let or hindrance, much of the risk is diminished, because it takes some time for the eggs of the weevil to hatch after being placed upon the buds, and the most important harm is occasioned in the early stages of the blossoms. Also, when the petals expand the larvæ of the weevils are deprived of necessary shelter from sunshine, wet, cold, and possibly white frosts, and are unable to pursue their evil courses.

PREVENTION.

"Most difficult it is (says the author) to devise effectual methods of checking and preventing these very tiny creatures, endued as they are with doable means of locomotion, taking up their quarters in the hearts of the buds, from which they cannot be dislodged. After a bad attack, the stems and limbs of the Apple trees for some distance beyond the forks should be well scraped and washed over, with a mixture of lime-wash and paraffin oil, in the proportion of half a pint of oil to 1 gallon of wash, well stirred together and well brushed in. A little soft soap, or size, might be added to make the composition adhere to the bark. Carbolic acid may be used for paraffin, in the proportion of a pint to 5 gallons of wash. . . . It is most desirable to keep the grass very short all round the trees in orchards—either fed close by sheep or mowed off, and to remove all stones, rubbish and weeds. With regard to Apple trees upon cultivated land; they should be dug round as deeply in the late autumn as the proximity of the roots to the surface will allow, and hoed deeply in the early spring with lime, lime-ashes, or earth, ashes or sawdust steeped in paraffin oil or carbolic acid, dug or hoed in."

REMEDIES.

No practical remedies can be suggested for adoption in the case of orchards and plantations. In

* *Journal of the Bath and West of England Society and Southern Counties Association*. London: Edward Stanford, Charing Cross, S.W.

gardens, it might be possible to dislodge the beetles, before they could lay eggs by shaking the espaliers, half-standards, bush-trees, and cordons.

THE PEAR SAW-FLY (SELANDEIRA CERASTI).

All fruit-growers and gardeners have remarked the action of a curious-looking insect resembling a slug upon the leaves of Apple, Pear, Cherry, Plum, and Damson trees. Though to all appearance it is but a mere lump of slime or dirt upon the leaves, it nevertheless soon eats away their soft green tissues, leaving only the nerves or ribs, so that the leaves become mere skeletons. This insect, the larvæ of a saw-fly, is most repulsive to behold, having a disproportionately large head, and a dark, slimy, viscid fluid covering its body. It is not at present one of the often recurring pests of fruit trees, like the *Hyponomota padella* and the Gooseberry saw-fly, though serious attacks have been reported, and it constantly attacks single trees here and there, both standards in orchards and gardens, as well as espalier and wall trees in gardens.

PREVENTION.

"As it is evident that the chrysalids cannot be far away from the fruit trees upon which the larvæ were reared, it would be well to dig the ground all round thoroughly, and to hoe it well with prong-hoes in the spring, taking care that the clods and lumps are well broken. . . . Upon grass orchards, and upon cultivated land, quicklime might be scattered round infested trees just before the general final change in chrysalids takes place, in order to kill them if they ventured into it."

REMEDIES.

Fine particles powdered upon the slimy bodies of the larvæ of this saw-fly renders existence burdensome to them. Thus, clouds of very fine quick-lime could be sent up by means of a machine like that used in Kent for putting sulphur upon Hop plants for mildew—at least upon the smaller trees and the lower branches of the larger trees. Except in the cases of Cherries this would not affect the fruit to a great extent. And with regard to Cherries, as a rule, these would be picked before the larvæ had done much mischief. In America, powdered Hellebore, mixed with water in the proportion of 2 lb. to 100 gallons, is syringed over the trees with good effect. Hellebore is, however, a far too deadly poison to be sprinkled upon fruit. If the fruit has been so injured as not to be worth picking, washing with soft soap and water, with the extract of 2 lb. of tobacco added to 100 gallons of water, put on with a washing engine, would effectually kill the larvæ, or make the leaves unpleasant to them. It is clearly most difficult to apply remedies to trees when the fruit upon them is plentiful and valuable.

Notices are also given upon five different kinds of moths, the Apple and Woolly Aphis, and the Mussel Scale (*Mytilaspis pomorum*).

2. FRUIT-FARMING FOR SMALL HOLDINGS.

The writer after stating his own experience in the work goes on to say:—"At the present moment, all those who have the welfare of the nation at heart are carefully searching for information as to the best means of finding employment for our now much over-crowded labour market, and also for a profitable means of utilising agricultural land now out of cultivation."

The popular cry has been for small holdings and allotments, so as to bring the rental and working expenditure within the reach of those who have only very small capital at their command; but it is quite impossible to work holdings, say up to 10 acres, for stock or corn-growing at a profit, unless the tenant has some other occupation than farming. . . .

Small holdings to be a success must be farmed in such a way that the tenant will be able to support himself and family; then any extra work he may do will be profit. This, it is stated, may be done by fruit farming. The author does not advocate the growing of fruits such as are imported from abroad, and will have to bear long carriage; but such small

fruits as Strawberries, Currants, Raspberries, and Gooseberries, and which are not liable to competition. If attention is turned to the cultivation of those fruits only that are natural and almost indigenous to our soil, success would follow, and foreign competition defied, but if unsuitable crops are grown failure must be expected.

The author, however, concludes with the remark—"There is, however, no necessity for small holdings to be idle with an industry like this within the reach of willing workers, moderate intelligence, and small capital."

THE GARDENERS' RECEIPT BOOK. W. Jones. (Groombridge, London.)

Under this title is compiled a little manual for the use of persons who possess a garden; it contains generally reliable information, but it is marred by some receipts which are, to say the least, of doubtful efficacy. The author's acquaintance with the life habits of the American blight insect might be extended with advantage, as he does not appear to be aware of the existence of the insect in the soil about the roots of the Apple, and feeding on the latter. He is very free in advising the use of Nuxvomica and other poisonous substances as means for the destruction of insect life, and in such large quantities, too, that we assume he is ignorant of the provisions of the Sale of Poisons Act. At the end of the book there is given a vile method of destroying forest trees by means of a certain poison, and which we hope no reader of the book will ever be induced to put into practice.

HANDBOOK OF THE AMARYLLIDÆ; including the *Alstrœmeriæ* and *Agaveæ*. By J. G. Baker, F.R.S., F.L.S. (G. Bell & Sons, York Street, Covent Garden.)

We have here a handbook of great value from the hands of a botanist who has made Amaryllidæ, Liliacæ, and allied genera, objects of especial study; and we are enabled to perceive, by a very cursory glance at the contents, that as a book of reference it will be of great value. We shall have pleasure in returning to the subject shortly.

EARLY MULCHING OF FRUIT TREES.

THE highly beneficial effects of mulching are now generally known and admitted by most gardeners, but it is seldom that the operation is carried out in time to be of the great service it otherwise would be, as when deferred much of the moisture that might have been retained in the ground has evaporated, but when a mulching, even of a very slight nature, is put on, evaporation is intercepted, as the searching winds are prevented from acting on the surface and causing it to crack and gape. This being so, it will at once be seen how important it is to get the work done early, and especially is this so in the case of fruit trees and Strawberries, as not only does it save much time and labour in watering, but it keeps weeds down, and may be carried out more expeditiously now than when Strawberries get more forward, as the foliage spreads more then, and the stems are borne down by the weight of the fruit. As the lays on the mulching, the most suitable thing to use is clean straw, or fresh stable litter, which latter, if applied now, becomes washed and sweetened by the rain and air, and is not objectionable in any way when the Strawberries are ripe. Where Fern or Bracken can be obtained, and slugs are troublesome, that forms perhaps the best of all protectors, as it breaks and splinters up, forming very sharp edges and fine pointed ends, against which the slugs cut or pierce themselves, and soon beat a retreat. Bracken has also another advantage, in that it lays lightly and dries quickly, which is much in favour of the Strawberries, which, on an unsuitable bed, soon taint from mould, and rot if the night

dews be heavy or the weather wet. Market growers and others near towns often use tan, which generally may be got for a mere nominal sum, and a very good mulching it is, but when done with it should be all cleared off the ground, as to dig it in is harmful till it has become decomposed. As to the fruit trees, half-rotten manure answers well, but almost any rubbish may be given, the chief object being to shade the land; and prevent any washing when water is given. In regard to Peas and Scarlet Runners, these should always have a good mulching along each side of the rows. For flower-beds, cocoanut-fibre is most excellent, and may be had cheaply; and leaf-mould and old Mushroom-dung are both excellent for the same purpose, and good afterwards for forking into the ground. J. S.

THE BROWN WEEVIL.

Will you allow me to call the attention of fruit growers and gardeners to this enemy, which has hitherto been overlooked by cultivators. It is a small earth-brown beetle, which, being nocturnal in its habits, is not often detected. Its habit is to climb up the trees and bushes in the twilight, and to devour the young buds as they appear. In May, until the buds sprout the weevils will eat away the bark from the ends of the shoots, more especially from the sharp angles left in pruning, leaving the ends bare. Its attentions are not confined to one kind of tree, as it may be found upon all fruit, nut, and many ornamental trees, which in isolated speci-

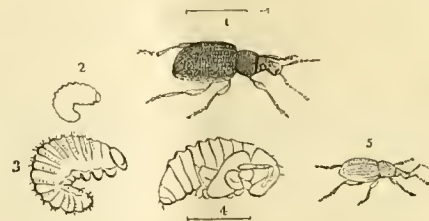


FIG. 95.—WEEVILS IN VARIOUS STAGES OF DEVELOPMENT.

mens it will denude of its buds, so that the trees appear dead. It also affects Roses, and can be found on Rhododendrons, Laurels, and such large-leaved evergreens, where it confines its attention to young tender leaves, which afterwards assume a jagged appearance. It is not a new insect, but is indigenous, and is spread over the whole country, and my object in calling attention to it is to state that tar and similar substances placed on the bark will not arrest its progress, and the only effective remedies are:—1. To catch them by night. One man carries a lantern, and another holds under the trees a net or white cloth, and the other throws the lantern on the tree, when they at once fall; the remainder (in the shady parts) will fall on a smart tap being given with the hand. The insects can then be collected and killed with hot water. They are so tenacious of life that none of the usual remedies will kill them. In fact, by accident, some were shut up in a tin box for twelve months, and then came forth lively. 2. They may be killed in the earlier stages by ramming the soil tightly round the stem of the tree or bush, and thus smothering them, but as they become perfect insects they are tough, and will stand a great deal without injury. 3. The soil round the trees may be made smooth with the foot, and a few flat stones or clods of earth may be laid on it. The insects will crawl under this in the daytime, and can be caught by lifting the clods and watching the soil; at first none may be seen, as they are so near the colour of the soil, but they will soon move to get away from the light, and then can be detected and caught. In my opinion the orchards suffer most when a plantation of Raspas, Currants, or berries, have been removed, as the insects then concentrate their efforts on the remain-

ing trees. As a rule they are not so abundant in grass orchards; cleanliness is very important, as they winter in tufts of grass, &c.

It only remains for me to say that its Latin name is *Otiorhynchus tenebriosus*, and its allies, *O. picipes* and *O. sulcatus*, are also found on the same deadly work in its company; the latter is occasionally troublesome in vineries. As the insect is now at work, prompt measures should be taken, as they will soon pair and lay eggs. Like other insects, it passes through an egg state, a larva or grub state, a chrysalis, and emerges as a perfect insect, or imago, in April or May, according to the weather. In the grub state it also does much damage to the roots of trees and plants. *George Bunyard, The Old Nurseries, Maidstone, May 12.* [We reproduce, as many times before, an illustration (fig. 95) of these insects, of which we receive numerous specimens for naming each year. Figures of the insect, with suitable description, should be hung in every village school-room. En].

TREES AND SHRUBS.

THE MANNA OR FLOWERING ASH (FRAXINUS ORNUS)

is now beautifully in flower in the grounds at Hollydale, in Kent. What a pity it is that so distinct and beautiful a tree is not oftener met with in gardens. It is a miniature common Ash (*F. excelsior*) in general appearance, except in the sweet-scented panicles of greenish-white flowers. The tree at Hollydale is about 30 feet in height, perfectly conical in shape, and at present heavily laden with flowers. Near it is a Mulberry—the contrast between the now expanding leaves of the one and the loose open flowers of the other being very marked. The tree is not particular as to soil provided it is not peat; it likes good drainage, and abundance of moisture. *A. D. Webster.*

THE HOP HORNBEE.

Few popular plant names are more appropriate than the above, for the leaves can hardly be detected from those of the Hornbeam, while the female catkins resemble those of the Hop in a very marked degree. There are two species, one hailing from North America, *Ostrya Virginica*, and the other from Europe, particularly from the south and south-eastern parts. As seen in this country the Hop Hornbeams are trees of a most distinct and pleasing appearance, and as they flourish well in various descriptions of soils, may be seen in good form, particularly in some of the southern English gardens. It is no uncommon occurrence to find specimens of the Continental *Ostrya vulgaris* of from 40 feet to 60 feet in height in this country, and with a head proportionately bushy. A medium-sized specimen of 20 feet in height when seen in full flower is certainly a pretty sight, the long drooping catkins being borne in great profusion. We cannot remember having seen the Hop Hornbeam in better form, or more ornamental in appearance, than recently in a friend's garden, where it was planted in front of a majestic specimen of the common Yew, in which position the singular catkins were shown off to the best advantage.

A strong loam seems to suit the wants of the European *Ostrya*—at least, in such soil may be seen some of the best-furnished and most healthy-looking specimens in the South of England; although from this we by no means wish it to be inferred that this tree will only succeed satisfactorily in such, for it may be seen growing vigorously in rather poor soil, as note the almost unique specimen at Kew.

The North American species, known in its native country as Ironwood and Leverwood, is likewise well worthy of attention, and is in every respect a fitting companion for the latter. We would strongly recommend any one in search of distinct and ornamental low-growing trees to procure specimens of the Hop Hornbeam. *A. D. Webster.*

CUPRESSUS LAWSONIANA LUTEA.

This variety is of graceful habit; the primary branches being sufficiently far apart and divergent to

break what would otherwise be a too uniform and less pleasing pyramidal surface of golden-green. Coloured or parti-coloured Conifers are doubtless useful in the economy of garden art; and this one, possessing, as it does, many excellent qualities, must take a first place among the many forms now available. Though evidently lacking in chlorophyll, it is nevertheless hardy in this country, and well deserves the name of a thrifty grower. It will be found to show to least advantage in rather dry, light soils, or others more substantial but impoverished by over-cropping, as in typical English "shrub-beries," and in open windy positions, the general effects of which are premature defoliation, and stunted sickly coloured branches.

It is most amenable to the professional propagator's desires. In the interests of non-professional cultivators who would care to increase their stock of this variety, I may state that strong cuttings of two years old growth, 6 to 9 inches long, made early in October or in March, and placed at once slantingly in moist soil, and made firm, in the shade and under the shelter of a wall facing north or east, will, with little or no future care, form roots. In this position they should be allowed to remain undisturbed for at least two years.

I knew an old gentleman, some years ago, who possessed a very select collection of trees and shrubs which he greatly admired. He was most successful in propagating many of them in the way, and under the conditions, above described. But this, I think, was in a measure due to his being an amateur in the original and literal sense. *Geo. Syme.*

DAPHNE CNEORUM.

This is one of the very best of hardy plants for growing on raised banks or rockwork, positions for which it is specially adapted on account of its habit, which is spreading and trailing; and when it does well, as may be seen in a few places, it covers a large piece of ground, and clothes the soil with rich beauty, as it flowers most freely, the beautiful pink blossoms being borne on the ends of each shoot. The soil best suited to the wants of this lovely sweet-scented *Daphne* is that which is light and sharp, and if not naturally of this description, it will be found a good plan, before planting, to dig out a large hole, and in refilling the same to mix in some road-scrappings, or trimmings in which the plants will be found to root freely and flourish. The readiest or surest way of propagating *Daphne cneorum* is by layers, and it is only necessary to bury any of the side-branches to get them to strike; but unless regularly attended to with water during the summer, to keep the ground always moist, it takes two years before the layers are forward enough to be severed from the parent plants, and this should be done just as growth begins in the spring. *J. S.*

USEFUL INVENTIONS.

NEWTON'S METHOD OF ROOF GLAZING.

On a recent visit to Hitchin, we called to inspect some glasshouses erected by Messrs. E. & F. Newton, of Hitchin, on their "patent principle." A great deal of merit is claimed for new systems of glazing, which are often not sufficiently tested to prove their utility; this one, however, seems to differ essentially from any others we have hitherto seen. At the garden of W. T. Lucas, Esq., Foxholes, Hitchin, a greenhouse has been erected about two years; it is placed on the brow of a hill, exposed to the full force of the wind from all points of the compass—a very severe test, and the results are fully satisfactory, inasmuch as no squares have ever slipped or cracked. The gardener, Mr. Sheppard, stated that he had no difficulty in keeping up a night temperature in winter of 65°, although in such an exposed situation. The bars, which are of a special shape, being corrugated below, to give additional strength with lightness, and are constructed to carry

away all water arising from condensation, whether the roof be flat or otherwise.

The method of giving rigidity to the roof by means of corrugated bars of galvanised steel, made entire or otherwise, and strained up by hook-bolts and sliding plate attached to galvanised iron wires, are points of economical constructive arrangement worthy of special regard. There is also a moveable slide on the bars, which permits of a roof-trellis of wire being put up for training Vines, &c. The space between the bottom pane of glass and the wall-plate is about a quarter of an inch in depth, and this space can be closed in cold weather by a moveable strip of wood or felt, or it may be left open, and thus afford ventilation to the plants near the glass, and hinder the scorching of the foliage. The house erected in Mr. Newton's garden has no rafters between the two ends; it is extremely strong; the roof is carried by the sash-bars, which are strong enough to carry the glass and workmen also when necessary; no putty is required, and painting the iron-work is optional.

Another novelty we saw at Messrs. Newton's was a method of using roller-blinds for outside shading, which are so arranged that they do not come over the ventilators of the roof, and are worked by means

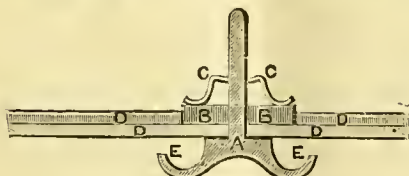
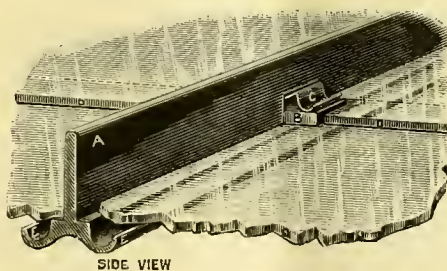


FIG. 98.—NEWTON'S METHOD OF ROOF-GLAZING.

A, Iron bar; B, Lead-clips; C, Copper springs; D, Glass; E, Condense gutters.

of a pulley from inside the house, attached to a cog-wheel on a roller outside. This house, with the novel roller-blinds, was roofed over with glass and steel as above described, and afforded the greatest amount of light obtainable, and was certainly of cheap but enduring material, the side-walls and staging being of galvanised corrugated iron. Market growers have commenced using this glazing, being convinced of its economy in cost of erection and after-repairs. The use of metal is often objected to by reason of the temperature of the house rising suddenly during outbursts of sunshine, and falling as rapidly in frosty weather; but here there is such a small amount of metal used, that the difficulty of controlling the temperature is reduced to a minimum.

VEGETABLE PRODUCTS IN BARCELONA.

THE following notes from a report on the trade and commerce of Barcelona during the year 1887, may be interesting in view of the great International Exhibition now being held in that city:—

RAISINS.

This fruit is now shipped in considerable quantities to America as well as to England. The better kinds shipped to the United States are now usually packed in layers, Malaga style. Valencias and Malagas are

the produce of the same variety of Vine—the Muscatel—the difference in appearance and flavour being solely due to the processes employed in curing. Whilst Malaga fruit is, when cut, simply exposed to the heat of the sun, the Valencia Grape is dipped for a moment in a boiling alkaline solution, which cuts the skin of the berry—an operation needful, as the sun's rays are less powerful than in Malaga.

The cultivation of raisins in California is yearly of increasing importance, and threatens soon to prove a formidable rival to European growths.

ORANGES.

The very severe frosts in early January and the second week in February almost entirely destroyed the fruit still remaining in the Ribera; nevertheless, in spite of their utter worthlessness large shipments of frozen Oranges were made to the United Kingdom, and, deservedly in many instances, only realised the cost of freight, 1s. 3d. to 1s. 6d. per case. The *huerta*, or orchard land of Gaudia, being more sheltered, escaped with little or no injury. Mandarins have been much neglected this winter, and there can be no doubt that the extensive plantations lately made, both here and in the Ribera, and which are only now beginning to bear, will prove far too large for the production of Mandarins, the markets for which are restricted; the only remedy for which is the conversion of the area now under Mandarins to the growth of ordinary Oranges, the demand for which is practically unlimited.

TOMATOS.

Perhaps the most noteworthy feature of the year has been the shipment of Tomatos to England. Although this vegetable has always been largely grown here its consumption has been limited to the French and Peninsular markets. This year, however, eight steamers loaded Tomatos for the United Kingdom, chiefly in skeleton cases containing sixteen boxes of 3 kilos each.

At Tabernes, 10 miles north, the specialty is a small Strawberry—not larger than those found wild in English woods; still these again are most highly cultivated. They are cultivated for the Madrid market, their sale ending on San Isidor's Day (May 15). Attempts have been made to introduce finer qualities, such as are grown in England and elsewhere; but slugs and snails, whilst patriotically respecting the native product, attack the aromatic foreign fruit before maturity.

THE SEED TRADE.

HERBS.—The time just passed is that in which, in fair seasons, herb seeds are generally sown. A herb garden forms a part of every kitchen garden having pretensions to size, and in the cropping of which general utility is considered. The demand for herbs is constant in large establishments, and it is the province of the gardener to see that an adequate supply is maintained. But after all, the leading herbs might be confined to some six sorts or so, for not many more are now required for household purposes. If a large collection be grown it will be found that many are rarely required, and the unnecessary sorts employ time and land unprofitably. It is said on reliable authority that "the herbs that retain their ancient popularity are more largely used than ever they were, for the good reason that people have learned to live well, and the gardener is bound to supply quantities of Mint, Thyme, Savory, Basil Borage, Lavender, Tarragon, and Marjoram. A few of the popular herbs, such as Mint, are never grown from seed, or, at all events, those who venture on the pastime might certainly do better. But a certain number—such, for example, as Basil, Borage, Burnet Chervil, Dill, Fennel, Marjoram, Marigold, and some others are grown from seeds, in some cases of necessity, and in others because it is the easiest way of ensuring a crop."

Balm is one of the principal herbs grown in the present day; but it is not nearly so much grown in private gardens as by market gardeners, and that is

probably why it is that it does not find a place in the list of herbs above. "Balm," says one writer, "comes from fertile Arabia—the land also of frankincense and myrrh. From Arabia the Balm-tree was first carried to Judea, as Josephus assures us, by the Queen of Sheba as a present to 'Solomon;' but this was no doubt that fragrant shrub *Amryis*, which yielded the celebrated Balm of Gilead—a precious gum which, at a very early period, the Ishmaelites, or Arabian carriers, trafficked in. The sweet-herb Balm is a native of the South of France, and was introduced to this country in 1573. The large majority of the Balm grown in this country is used for making Balm-tea, a cooling drink much appreciated in some parts of the country. It is also employed in giving flavour to a weak factitious wine. The herb has a weak, roughish, aromatic taste, and a pleasant smell, somewhat of the Lemon kind, and hence it has been called Lemon Balm. Large quantities of seed are annually imported to this country from various parts of the Continent.

Another leading herb is Sweet Basil, a fragrant and favourite herb, having fine aromatic properties, and therefore much employed for flavouring dishes. The leaves in small quantities are sometimes mixed in salads, or used as a flavouring ingredient in soups. Mr. Folkard tells us that "Lord Bacon, in his *Natural History*, states that if Basil is exposed too much to the sun it changes into wild Thyme, although the two herbs seem to have small affinity." Culpepper says that this herb and Rue will never grow together. Gerard says that the smell of Basil is good for the heart and the head. Fennel, which is grown almost entirely in private gardens, is much used in the present day for fish sauces. [A little of it is very good chopped up, and stewed over cooked young Potatoes.] It is a plant of very ancient date, and although probably not a native of this country, it has become naturalised, and grows well on chalky soils. The branches of Fennel were employed by the ancients in the composition of wreaths, worn by victors after the games in the arena. The gladiators mixed this plant with their food, to increase their strength. Evidently the ancients believed that the use of Fennel gave strength to the constitution, and made fat people grow lean. If the Hyssop mentioned in Holy Writ (*Capparis spinosa*) is the same as that grown in the present day—which is perhaps doubtful—then it can lay claim to being a very ancient cultivated plant. *Hyssopus officinalis* is a native of the southern parts of Europe, and was first introduced to this country in 1596, by Gerard. Now, it is mostly employed in mixing with other herbs for flavouring purposes. Sweet Marjoram is one of the principal culinary herbs, and perhaps more largely grown than any. Especially in the northern districts of the country; it is a useful, fragrant herb, held in general esteem, and was introduced to this country about the end of the sixteenth century.

Owing to the flowers of this plant growing in close knotted-like heads, it is also known as Knotted Marjoram. Pot Marjoram is only sparingly grown now. Sage is largely used for flavouring, both in a green and in a dry state. It is a well-known herb in gardens, and though of a hardy perennial character, it does not last above three or four years without degenerating. This aromatic herb is chiefly used with the more strong and oily kinds of food, as a mixture in stuffings and an ingredient in sauces. The leaves are sometimes introduced into cheese. "In mediæval times, the plant, on account of its numerous good properties, obtained the names of *Officinalis Christi*, and was reputed to have been blessed by the Virgin Mary. So wholesome was the herb considered, that the School of Salerno summed up its surpassing merits in the line—

"How can a man die who grows Sage in his garden?"

Probably this saying gave rise to the piece of advice contained in the old English proverb—

"He that would live for aye,
Must eat Sage in May."

Parkinson remarks that "Sage is much used in the

month of May, fasting, with butter and Parsley, and is held of most to conduce to the health of man;" and Turner says that "it restores natural heat, and comforts the vital spirits, and helps the memory, and quickens the senses. It is very healthful to be eaten in May with butter, and also to be drank in ale. (Folkard.)

Of all the herbs Thyme is the only one which furnishes an English seed crop. Large breadths of Thyme are grown in Essex. The plants are cut over every season for seed, and a plantation will last for a long time. The common English Thyme, as it is sometimes called, is a native of Spain and other parts of Southern Europe; indeed, the climate of Spain appears to be well suited to the growth of all kinds of sweet herbs. This popular plant was introduced into this country certainly before the middle of the sixteenth century, but how long previously is not ascertained. It is one of the best known of our sweet herbs. There is a species known as the Lemon Thyme, a trailing evergreen, and remarkable for its smell, which resembles the rind of Lemons, hence its distinctive common name. With the Greeks Thyme was an emblem of activity, and as this virtue is eminently associated with true courage, the ladies of chivalrous times embroidered on the scarves which they presented to their knights the figure of a bee hovering about a spray of Thyme, in order to inculcate the union of the amiable with the active. There is a Thyme known in the seed trade as the French, but it has a much narrower leaf than the common form, and is less aromatic, hence not so valuable for flavouring.

Of all the foregoing, large quantities of seeds are imported from abroad, excepting in the case of Thyme. Such herbs as Rue, Rosemary, Lavender, Tarragon, are in much less demand, though employed in various ways.

It may be stated of herbs generally that they require a warm dryish soil and a sunny situation. Mint may be excluded from this category, because a moist soil suits it best; but, as a rule, herbs will grow as well, and probably better, in a poor than in a rich soil; still, they are not very particular. But the herb garden is not unfrequently placed in some odd corner of the garden, where the plants are left to take care of themselves, instead of being well cultivated, as they deserve to be. Seeds of herbs are generally sown in March and April—in the former month when the weather is favourable, and, as a rule the seeds are sown where the plants are to remain. All that is required is to thin out the plants to the necessary distance apart, and keep the ground free from weeds. Large quantities are cut for drying for winter use. The best time at which Mint, Balm, Thyme, Sage, and other culinary and medicinal herbs can be cut for bunching is just as their flowers are opening. At that period of growth they are found to contain more of the essential oil, on which the flavour depends, than at any other. *Pisum*.

NOTES ON THE NATURAL PRODUCTS OF FLORENCE.

CONSUL-GENERAL COINAGHI has recently furnished to the Foreign Office an interesting report, from which the following notes are taken. Olives are described as being cultivated on the hills exclusively. The culture, it seems, has been entirely abandoned in the Trans-apennine district, and has decreased in the district of the Mugello on account of the frosts. The plantations of Mulberry trees are important in the Val d'Arno, and in the Val di Nievole, less so in the Mugello and the districts of Pistoia and San Miniato. In the Trans-apennine districts they are extensively grown whenever the climate permits. The trees are generally planted near the farmhouses, or in rows in the fields. In the more recent plantations the "Morettiana," with unlobed leaves, is found. The oldest trees belong to the variety known as "Araucina." The Mulberry is cultivated entirely for its leaves. The trees are generally polled at the end of the autumn, after the second crop of leaves has been gathered for cattle.

Among fruit trees the Gingiola (*Zizyphus vulgaris*) is often found on the hills, either planted amid the Vines and Olives in rows, or scattered about the farms. Oris-root, the rhizome of *Iris florentina*, is produced in quantity. The plant is grown along the walls which support the terraced fields on nearly all the farms of the lower hills. The Oris is an exhaustive crop, and cannot be grown with other plants. It appears to be cultivated in fields of some extent on very poor soils unsuitable for other growths, rather in the province of Arezzo than in that of Florence. The Oris-root cultivation is said to have increased of late years. It is used in perfumery on account of its violet odour and as an ingredient in tooth-powder. Oris root of commerce is furnished by two other species of *Iris* besides that mentioned here, namely, *I. germanica* and *I. pallida*. The rhizomes are dug up in August, trimmed, peeled, and dried in the sun, after which the pieces are selected into different qualities. It is exported chiefly from Leghorn, Trieste, and Mogador.

Referring to forest produce it is said the coppice woods grown to supply faggots, of Oak, Hornbeam, and Ash, are common only in the Trans-apennine district, and are cut every five or six years. In other districts the Broom and other shrubs are cut for faggots. The southern slopes of the Apennines and of their more important branches in the lower portion of the mountain zone, are still covered, in large part by Chestnut woods, which may, perhaps be roughly estimated as occupying one-third of the wooded area of the province. As Chestnuts form a principal article of food with the labouring classes, and the woods yield a fair profit to their owners, they are kept with some care. There are many varieties of the domestic Chestnut, which differ from each other both as regards the size of the fruit, the quality of the flour obtained from it, as well as their greater or less resistance to cold. Their names differ from province to province, and even from commune to commune. The Marroné is considered the most valuable tree, from the size and quality of its fruit. As it prospers in a mild climate, it is cultivated wherever excessive winter cold does not prohibit its growth. The Chestnut trees are pruned every one or two years; the roots, when exposed, are carefully re-covered with fresh soil, and new plants are substituted when old trees have to be cut down, sometimes by cultivating one or more shoots, at others by grafting a new plant. The Chestnuts are often sold and eaten fresh, but the greater part of the crop is dried and ground into flour. This flour, as is well known, is largely used in Tuscany for making cakes.

HOME CORRESPONDENCE.

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

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

POPE'S GARDEN AT TWICKENHAM.—Reference was made in a recent issue of the *Gardeners' Chronicle* to Pope's taste and judgment in matters relating to gardening. In the course of a very delightful article on the translation of Homer in the May number of *Scribner's Magazine* Mr. Austin Dobson makes due reference to Pope's garden. And from this source we learn that when the poet removed to Twickenham in 1717 or 1718 the house in which he was to spend the remainder of his days was simply a tiny building, with two conventional parlours on either side of a stone-paved entrance-hall and bedrooms above to correspond. In front there was a pleasant little lawn sloping to the water; at the back, the house looked upon the highway from London to Hampton Court. On the other side of this road stretched the garden, which was entered from the lawn by a sub-way. This garden was Pope's greatest delight. According to John Searle, his gardener, who published a plan of it in 1745, there "were not ten stick in the ground when his master first took the house,"

But with the aid of Bridgeman and Kent, the architect, and the amateur counsels of Lord Peterborough and others, supplemented by his own sleepless ingenuity and genius for landscape-making, Pope managed to twist and twirl his "scanty plot of ground" into a perfect paradise of "artful wildness" and "pleasing intricacy." "I am as busy"—he wrote to Lord Strafford in 1725—"in 3 inches of gardening as any man can be in 3 score acres. . . I have a theatre, an arcade, a bowling-green, a grove, and what not, in a bit of ground that would have been but a plate of sallet to Nebuchadnezzar." Besides these there were an orangery, an open temple "wholly composed of shells in a rustic manner," a quincunx, and a wilderness. As time went on an obelisk, ringed with Yew and Cedar, and inscribed to "the best of mothers and the most loved of women" terminated the vista. "Pope's villa," we may add, no longer exists in reality, but the ground upon which it once stood is now covered by the residence of Mr. Labouchere, M.P. *W. R.*

RHODODENDRON FALCONERI.—As you have referred in your last issue to *Rhododendron Falconeri*, I think it may interest your readers to know that I have a plant in my conservatory at Stanmore Hall, Middlesex, which is now, and for the first time, in full blossom. It is about 10 feet high, and was raised from seed given to a late relative of mine by Sir Joseph Hooker. *John R. Holland.*

—With reference to Messrs. Howden & Co.'s notice of this plant flowering in Scotland, I beg to say that it was flowered by Standish and Noble (I believe for the first time in Europe) somewhere about 1850, and a wax model, beautifully coloured, was made and deposited in the museum of the Royal Botanic Garden, Regent's Park. The plant was propagated rather largely, and sold freely for some years, but gradually the Sikkims have gone out of cultivation, my own stock of them finally disappearing in that terrible winter of 1860-1861, when the *Araucarias* were killed by hundreds in this part of the country. *Charles Noble, Bagshot.* [We saw recently a fine plant of this species in the wood at Woolverston Park, by the estuary of the Orwell. The leaves were of noble proportions, and the plant was showing for bloom. Mr. Sheppard, the gardener, had not previously known it to flower. *En.*]

HELLEBORUS FÆTIDUS.—We grow this *Hellebore* in the borders for its leaves, which are of value in a cut state for the outside fringe of bouquets in vases, where they have a light appearance, drooping as they do in the right direction, and being of a deep green colour. Grown from seed, as ours are, the plants are sturdy, about a foot high, and no mean objects in the herbaceous borders during the winter and early spring months, when the majority of other border plants have not commenced to grow. Ours is a strong soil, in which there is much chalk, which has been artificially mixed with it. *S.*

ILEX HODGENSI AUREA.—Since writing to you recently about the origin of the above-named Golden Holly, I have ascertained that I was in error in supposing that it was identical with the golden sport which originated in Mr. Hodgson's nursery at Clogh-jordan, Co. Tipperary, and which was distributed under the name of *Ilex Lawsoni*. It seems that the plant, the stock of which was recently disposed of at the Lawson Company's sale, differs materially in character from *Ilex Lawsoni*, and that it did originate in the Bangholm nursery. *W. E. Gumbleton.*

POPULARITY OF ALPINE PLANTS.—Three sorts of exhibits were the most popular at the great Whitsuntide Show at Manchester. These were the Roses, the fruit, and the alpine. The fruit was the only exhibit that had the extra attention of a policeman, and it was almost impossible, at times, to get within seeing distance of the alpine, to say nothing of smelling proximity to the Roses. It is hoped that the many exhibitors of the aristocratic Orchid and the middle-class stove and greenhouse plants and gorgeous *Rhododendrons* and groups skilfully grouped for effect, will not be offended at our placing the more humble and democratic alpines in the forefront of popular esteem. Alpines also seem really better—notwithstanding the hairy Lady's Slipper and many other plants of even doubtful hardness and with yet more doubtful claims to the character of alpine. But as there was scarcely a collection without one or many of those doubtful plants the jurors exercised a rare discretion in awarding the prizes to the best groups before them, giving due weight to those that were

most true to the alpine type. Perhaps there is no remedy for this until the question of what is an alpine is satisfactorily and authoritatively answered. But the popularity and not the character of alpines is my present theme and assuredly it was most gratifying to find that the former is a growing quantity. Some critics have characterised the alpines as weakly, if not weedy this Whitsuntide. Such exacting critics could hardly have passed the winter and spring in England. Those who have done so must be well aware that to have so many alpine plants in such forward condition this May, most of them must have been grown on under glass, and that the latter, however skilfully or sparingly used, tends to draw alpine plants out of form and robs them more or less of their natural charms and beauty. In addition to these large collections there were several smaller lots shown by amateurs and others. There were also many fine hardy plants shown in the collections of hardy herbaceous plants and bulbs exhibited by Mr. Dickson, of Chester, and others, all of which commanded the attention and excited the admiration of the general public. *D. T. F.*

CLEMATIS GEORGE ELLIOTT.—This is one of a batch of fine new varieties of the patens section, raised and distributed by Mr. Charles Noble, Sunningdale Nurseries, Bagshot. It is a vigorous grower, and produces large and finely-formed flowers of a deep violet colour with wine-red bars. As the flowers age the violet pales to mauve, and the red bars are withdrawn to take the form of red tips to the petals. At any stage it is a beautiful variety, and a decided acquisition to the section. *R. D.*

SOUTH AFRICAN PLANTS.—I lately saw a letter sent home from Barberton, South African Republic, Cape of Good Hope, written by Mr. George Thorncroft, who with much kindness offers to send home to any genuine garden amateur—but to amateurs only—seeds of plants which grow out in that locality, and which Mr. Thorncroft thinks have not been largely exported by European collectors, as travellers have seldom crossed the Kaap Valley, a district little known until the discovery of the goldfields there. Mr. Thorncroft mentions that he is no botanist, but that his love for plants has been stimulated by numerous Sunday visits to Kew Gardens when he was a resident in London. Natal he mentions as being very rich in Ferns, and he refers to one noble Tree Fern seen on the road up to Barberton, the stem of which could be encircled only by a man's arms, the tips of the fingers just touching. That would represent a stem 6 feet in circumference. He offers also to collect and press Fern fronds which may be found out there. The Kaap Valley was by the Dutchmen given the reputation of a deadly fever district, but it has been found very healthy, and so luxuriant and rich is the pasturage that oxen employed in labour have to be kept hard at work or they soon become too fat and lazy. Having regard to the state of the labour market at home it seems like a romance to learn that carpenters are receiving from 20s. to 25s. per day, but of course no information is given as to the cost of living. The Kew authorities will be interested to learn that the influence of those gardens has been of so much benefit to a real amateur horticulturist. *A. D.*

A COLONY OF ORCHIS MORIO.—On reading Mr. Webster's note (p. 692) I was induced to take a ramble on the downs here in quest of a handful or two of this *Orchis*, and proceeded to where I had found it in abundance in days gone by, thinking to have a few dozen spikes in a very short time; but I was disappointed, and found only one or two puny specimens where on my last visit they were abundant. However, this was not more than what was to be expected, knowing the vagaries of the species; and going on about half a mile I met with a few straggling spikes, which I supposed to be the fringe of a colony. Such eventually proved to be the case, for the farther I went the more numerous the spikes became, till at last a good handful could be gathered without moving a step, some with as many as fifteen flowers on a spike, and varying in colour from light rose to dark purple, some with the lip densely spotted, others again self-coloured; one, however, is worthy of special notice. The sepals light pink with half-a-dozen parallel green lines, petals of lighter shade, column deep rose, throat nearly white, and lip pale salmon—a grand spike, nearly 1 foot high, with fifteen flowers. There must have been at least

from 20 to 30 acres; but although so numerous this year it is quite possible that next year only a few spikes may be met with. *Orchis ustulata* and *Senecio campestris* were also found, the latter in abundance. *J. Horsefield, Heytesbury.*

CLEMATIS MONTANA.—This fine old species can now be seen to great advantage at Chiswick, where it forms dense wreaths of blossoms on horizontal wires at the point where the path to the great viney leaves the main walk to the south. Mr. Barron has an octagon shaped framework with Clematis, Roses, and other creepers trained against the main supports, and then carried along wires in the form of festoons. Here *C. montana* is indeed a picture, and fully justifies its employment for the purpose. *R. D.*

FRUIT PROSPECTS.—Several flattering accounts have appeared of these, but it is feared the results will not come up to early promise. Apples have bloomed so late that every one has hoped, and is still hoping, the best from them. In not a few localities however, these hopes have wholly vanished, as many of the trees have shown little or no bloom; others are thin, and nearly all are paler than usual. The latter I have noted as a bad sign for years, though what relation there may be between imperfect setting and a lack of colour, it may prove difficult or impossible to explain. Lord Suffield and a few others are full of bloom, and as high-coloured as usual; but those only make the general lack of colour more conspicuous by its absence. Pears are also scant of bloom, though, on the whole, they show better than Apples, for being always white, the lack of substance or colour in them is less apparent, but not a few of the Pears have a delicate look, that bodes indifferently for a full crop. Plums, which one reads of as being white as sheets elsewhere, are, on the whole, a scant crop, Gages, Golden Drops, and nearly all the finer varieties having shown but little bloom. Cherries, Peaches, and bush fruit promise to be the crops of the season. Strawberries are irregular, having lost their leaves in some localities and retained them in others. The result of this loss is also widely different. In some gardens the bloom seems to have perished with the leaves; in others the loss of the major part of the foliage seems hardly to have affected the prospects of a full crop of fruit. *D. T. F.*

PRIMROSES IN RURAL DISTRICTS.—If "R. D." could see the Primroses when in flower here (South Hants) in the woods, he would be convinced that there is no danger of the common Primrose being lost; such a large number of roots are there that it would be decidedly risky to say how many acres could be reasonably planted from this one spot alone, and this in spite of a branch of the Primrose League existing in the neighbourhood. It may be that close to some towns roots often are taken away in great quantities from their natural habitats, but I think far too much fuss is made annually in the papers about the annihilation of Primrose roots. The woods here are mainly composed of Hazel, Beech, and Ash, which are cleared off every ten years, and are intended for supplying wood for hurdles, and hoops for barrels, of which many thousands are made annually. The timber trees are mainly Oak, which stand thinly in the woods. The year following the cutting of the underwood the Primroses spring up plentifully, while the following three or four years, owing to increased vigour following the ingress of more light, the soil becomes covered with them. As the undergrowth gets higher and thicker, the Primroses gradually dwindle down to small plants until the cutting process comes round again, when almost instant rehabilitation takes place. *M.*

REPOTTING LILIES.—At p. 558 we are told that "plants of *Lilium auratum*, &c., which have made a few inches of growth should now be turned out of their pots," and "the old soil shaken off their roots before repotting." I hardly know what effect these lines had upon some Lily growers, but I read them with dismay. As a matter of fact it would be difficult to select a more critical season for such an operation in the whole year than that stated by Mr. Ward above. With the advent of a "few inches of growth" both the basal and stem roots in healthy bulbs will be most active, therefore to attempt to shake off the old soil at such a time could only be done at a great sacrifice. A worse time could not possibly be selected. Those of your readers who grow Lilies in pots will be aware that the new roots will then be through the ball of earth and against the sides of the pots, therefore to shake off the soil

and repot at that stage would be one of the greatest errors possible in their culture. Where Lilies are grown in pots repotting annually is not necessary. If the plants remain healthy shift into larger pots as required, taking away the drainage and preserving all roots possible. Taken as a whole there is no better time for potting or repotting Lilies than the autumn, and as soon as the flowering is complete and the stems show signs of decay it is at this time that basal root action invariably commences. *E. Jenkins.* [Will Mr. Ward kindly explain? Ed.]

FRUITING CONIFERÆ.—At the May exhibition at the Sydney Gardens, Bath, Mr. Alderman Cuffin produced from his garden, The Grange, Chalcombe, Bath, sprays of *Abies nobilis* and *Cupressus Lawsoniana* bearing male catkins in profusion. The specimen of *Abies nobilis* is 30 feet in height, and was planted twenty-two years ago, and this was the first time the Alderman had known it produce male catkins. They were so profuse that they clustered thickly upon the undersides of the sprays, were about half an inch in length, and of a bright claret-colour. Mr. Cuffin stated that the tree presented to view a remarkable sight, as the catkins were not confined to one part, but distributed generally over it. *Cupressus Lawsoniana*, *Thuopsis borealis*, and *T. Lobbii* were also covered in the same way. Possibly the hot dry summer of last year had something to do with the production of catkins. *R. D.*

TO CARPET THE GROUND UNDER THE BEECH.—The Beech has more than once been likened to a factor who thrives himself, but takes good care that no one under him does so. How far this may be true we have never had a chance of knowing, but this much we do know, that it is a somewhat difficult undertaking to successfully carpet the ground beneath Beech trees. Not long ago a correspondent asked the question, What shrubs would succeed beneath the shade of the Beech?—and in reply we may say that very few will grow in a satisfactory way, yet we have found the following to be fairly well suited for such a position, particularly if the branches of the Beech do not come too near the ground. The St. John's Wort (*Hypericum calycinum*), the two Vincas, *V. major* and *V. minor*; *Gaultheria shallon* and *G. repens*, the common Ivy, and Butcher's Broom (*Ruscus aculeatus*). The latter plant, if in suitable soil, can eke out an existence even in the densest shade; indeed, I question much whether there is any other shrub in cultivation that could exist under similar conditions to the Butcher's Broom. We were perfectly surprised, not a week ago, when trimming in some overgrown *Rhododendron* bushes, to find a plant stuck right in the centre, where it could never for the past half-a-dozen years at least have got a gleam of sunshine, nor even one-half the amount of light generally thought needful. Beneath a dense Yew tree, whose branches swept the turf, we found another plant of the Butcher's Broom, not a meagre and ill-foliaged plant either, but one that was quite capable, so far as healthy appearance went, of being planted side by side with some choice *Rhododendrons* just then received from the Knap Hill Nurseries. The Periwinkles (*Vincas*), from their procumbent and wandering habit of growth, are peculiarly well suited for planting in the shade; which may also be said of the Ivy in its numerous forms, although for the purpose under consideration we have found the common variety to be preferable to any other, and of the most rapid growth. *A. D. Webster.*

WINTER FLOWERING CARNATIONS.—It is sometimes stated that these useful autumn and winter flowering plants do not bloom so freely, and are not generally so useful, as they are represented to be. It may be that some varieties are on the whole better doers, are more profuse of bloom, and show greater persistency than others; but a great deal depends upon the treatment. I have been greatly struck with the usefulness of the winter flowering Carnations by what I saw at Gunnersbury Park during the past winter. Mr. Roberts had a house of plants that began to flower late in October, and they continued to bloom right through the winter. It should be stated that Mr. Roberts keeps the temperature of the Carnation-house during autumn and winter both closer and warmer than is generally recommended for winter blooming Carnations; but this is explainable on the ground that he has to guard against a deadly foe in the form of London fogs; the effects of which are sometimes lamentable, and can only be appreciated by those who have had

to contend with them. It is true that in a close atmosphere the plants are apt to become a little drawn; but it is not altogether a disadvantage; the warmth encourages growth and the production of flowers; while constant cutting corrects to some extent the free development of the plants. A closer atmosphere than is usually recommended occasionally develops greenfly; but the act of fumigating soon gets rid of the pest. Mr. Roberts allows his plants to grow to a larger size than is usually the case. Instead of striking cuttings in early spring, as is generally recommended and practised, he puts in cuttings in October, rooting them in a little heat, and getting them potted off and nicely established in pots by mid-winter; they are wintered in a pit from which frost is excluded, and in spring potted into 32 or 24-sized pots, according to their strength. They are then grown in a cold frame during the summer, and when near blooming time they are taken into the house. The plants that are now blooming will shortly be planted out in the open and form a kind of hedge. Mr. Roberts believes they will make a good growth, and come into flower again at the end of the summer, following the ordinary Carnations and Picotees; and will give him a supply of bloom until those in the house are ready. Mr. Roberts depends upon a few good varieties. Two especially deserve to be named: one is Brunette, dark maroon-crimson; the other, Irma, pale rosy-pink, both of good dwarf habit, and remarkably free. *R. D.*

A NEW USE FOR COCOA-NUT SHELLS.—Now that the time for thinning out seedlings has come round, it occurs to me that some of the readers of the *Gardeners' Chronicle* may possibly be interested to hear of a device which has saved the lives of many of my young transplanted annuals, even of Poppies and *Eschscholtzias*, which do not take kindly to being moved. I find that nothing does so well as a protection for newly planted out seedlings as empty Cocoa-nut shells neatly sawn across, so as to form two cups. After being soaked in water these little brown nuts (which are not unsightly, being the colour of the soil) effectually shield the young plants under them from the scorching rays of the sun, and keep them fresh and moist till they get accustomed to their new position. After the first twenty-four hours the covers may be removed, but in very dry weather it is safer to keep them on for another day or so, taking them off at night to give the plants the benefit of the dew, and to prevent their becoming sickly from want of light and air. I may add that I have tried these Cocoa-nut shells with great success to keep the frost from newly planted *Gladiolus* bulbs, and also to cover newly sown seeds, which we are told ought to be kept moist and in the dark till they germinate. True, a good many shells are wanted, but, packing as they do one in another, they take up little room, and can easily be stored when out of use. I have a large stock, having received a boxful from a friend in Tobago, and if any gardener would like to try them, I shall be most happy to make him a present of a couple of dozen, if he will apply to me for them through the editor of the *Gardeners' Chronicle*. *G. Layard, The Crescent, Leatherhead.*

RUFUS POTATO.—From a cross made a few years ago between Beauty of Hebron and Woodstock Kidney, I got, with some other excellent kinds, this one, Rufus—a large, flattish, red-skinned sort, and not unlike the Vermont Beauty we knew pretty well some twelve years since. Coloured Potatoes seldom obtain popularity, the Vicar of Laleham being perhaps the most popular of all coloured forms; but Rufus is less robust though the more suited for a garden, as it is very superior in quality. Some time since I took some tubers of it from a box where they had laid with the old stock exposed to the air all the winter, and had them cooked, and found when put on to the table a dish which no one could have refused to admit might be Paterson's Victoria, so floury and nutty-flavoured were they. Now it is not an easy thing to obtain good Potatoes so late in spring as the middle of April, especially after such a season as was that of last year, and therefore it is worth publishing that in the most readily despised novelties in Potatoes we have some which are first-rate keepers, and of the best quality. Rufus does not stand alone in this respect, but I mention it specially because it is so little known. If gentlemen who are proud of that prince of vegetables, a dry eating Potato, would but insist upon their gardeners providing them with diverse varieties frequently, not only would the change prove acceptable, but many a fine eating variety now ignored would soon be brought to light. The great mass

of Potato consumers—those who are dependent upon the supplies of the markets—know little of the interest found in eating home-grown tubers, especially when these comprise a good selection of the best eating kinds in commerce. *A. D.*

SUTTON'S PERFECTION TOMATO AS A WINTER CROPPER.—Last October I planted the side-beds of a Melon-house with this variety. The house was previously got ready by removing the old soil, and washing down the walls, woodwork, &c. The manure which had been under the Melon-bed still retained its heat, and was allowed to remain, and fresh soil and a liberal quantity of lime-rubble was placed thereon. The plants were put out at about 15 inches apart, and trained up the house as single stems. Fruit set at every joint, and by the end of November the stems were nearly at the top of the house. The first ripe fruit was cut on December 25, and from that time onwards we have been able to send to the kitchen on an average two or three good dishes per week from the fifteen plants planted out. This last week, wanting the house for Melons again, I decided to pull them up, and cut from the plants 8 lb. of good fruit. A dish of Tomatoes is always much appreciated in the winter, and any gardener having the convenience to grow the plants in winter should not fail to do so. *C. Flack, Cholmondeley Castle.*

PLANT NOTES.

CYATANTHUS OBLIQUUS.

THERE is an exceptionally fine example of this handsome Cape bulb now in flower in the T range at Kew. It is composed of a mass of large brown bulbs, each larger than a man's fist, and each bearing several broad leathery strap-shaped leaves 2 inches across and a foot or more long. The flowers are on an erect scape 1½ foot or more high, and there are from eight to fourteen flowers in each head. The arrangement of the flowers is in the form of a drooping umbel, similar to what is seen in *Clivia nobilis*. Each flower is 3 inches long, tubular, slightly curved, the tube widening upwards to the mouth, where it is 1 inch across. The colour is soft yellow, with a band of orange, and a tinge of emerald-green near the mouth. The Kew plant bears seven strong flower-scapes. It is considered the strongest example ever seen in England of what is well known to horticulturists as a difficult plant to manage.

ABELIA FLORIBUNDA.

This is much the finest of cultivated *Abelias*, but it is not quite as hardy as *A. rupestris* and *A. triflora*. As a cool greenhouse plant, however, it is as charming as the beautiful *Cantua*, recently so well shown at one of the Royal Horticultural Society's shows from Pendell Court, and it has the advantage over that plant in being much easier to manage. The habit is that of a loose bush, and the flowers are axillary near the ends of the branches. A well flowered specimen with numerous clusters of these flowers which are nearly 3 inches long and bright rose, could not easily be beaten for beauty. Plants of it are now in flower both in the Temperate-house and the greenhouse at Kew.

FAOALEA ZEYLANICA

is a large flowered, interesting stove shrub, with the habit of a *Clusia*, and terminal heads of long tubular flowers, not unlike *Lilium longiflorum* in size and shape; but creamy yellow in colour. A plant of it is in flower in the T range at Kew. Grown in a 9-inch pot, and treated liberally in regard to heat and moisture, this species forms a shrub 3 feet high in as many years, and it is certainly attractive enough to be worth including among popular flowering stove plants. In Ceylon it forms bushes 12 feet high. It is figured in the *Bot. Mag.*, t. 6080.

NYMPHÆA "ADELE."

A pretty little Water Lily is now in flower at Kew under the name of *N. ortgiesiana* var. "Adele." It was obtained through seeds under this name from M. Todaro, of Palermo, but it is certainly not in any

way related to *N. Ortgiesiana*. This latter is a supposed hybrid of Continental origin, but so near *N. Lotus* var. *rubra* as to be scarcely distinguishable from it. *N. "Adele"* is a form of the African *N. stellata*, probably a seedling from the purple-coloured variety known as *rosea*. It bears small flowers 3 inches across, with narrow-pointed petals, four green sepals, and a bright yellow cluster of stamens. The leaves are irregularly notched and mottled. They open at about 10 o'clock in the morning, and remain open for the remainder of the day. They are sweet-scented. *W.*

SCOTLAND.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE ordinary monthly meeting of this Society was held on the 5th inst., at 5, St. Andrew Square, Edinburgh, Mr. Alex. McKinnon, Scone Palace Gardens, in the chair. Mr. Williamson, Tarvit, Cupar Fife, read a paper on "Flower Shows and Judging thereat." The paper traced briefly the history of flower shows, pointed out their influence on horticultural progress in the past, and while speaking hopefully of their power for good in the future, considered that horticultural societies should bestir themselves.

On the subject of judging, Mr. Williamson held that greater care should be exercised by committees in the selection of men specially qualified to discern the merits of the subjects on which they were appointed to adjudicate. He thought much more accurate and satisfactory awards would be made if a uniform system of judging by marks and points were adopted, and gave tabulated illustrations of his views on the subject as applied to the judging of Grapes and other classes of fruits, vegetables, and flowers. In the discussion which followed considerable divergence of opinion was exhibited, but all agreed in approving the general purpose of the paper, which, as was announced from the chair at the conclusion of the discussion it was the intention of Mr. Williamson to publish in pamphlet form soon, for circulation amongst those interested.

An interesting collection of specimens of greenhouse shrubs was exhibited by Miss Owen, Knockmullen, Gorey, Co. Wicklow. All were cut from the open air, and were perfectly flowered and fully developed, showing how well they were adapted to outdoors decorations in some mild parts of the country. Among others, we noted *Ilakea linearis*, *Grevillea rosmarinifolia*, *Swammerdamia glomerata*, *Choisya ternata*, *Azalea indica*, double flowered varieties; *Raphiolepis*, and several other China and New Holland genera.

A remarkable spike of *Cypripedium Stonei* bearing three flowers of unusual size, came from Mr. A. E. Grant, St. Leonard's Hill, Dunfermline, to which was awarded a Cultural Certificate. Mr. Mark King exhibited a clump of *Scilla verna* in a 6-inch pot, showing extraordinary vigour; and Messrs. Dicksons & Co., a collection of cut blooms of *Calceolaria*, which were much admired.

VEGETABLES.

VARIETIES OF BROCCOLI.

For producing beautiful white close compact heads the Leadsham is the best grown here. The flavour, too, is very mild. I have grown it for the last four years, and so far, for hardness, &c., I find it equal to any other variety I am acquainted with. The leaves fold well over the heads, protecting them from late frosts until they are large enough to be cut. In short, I consider the Leadsham a real gem. Lauder's Late Goshen I have also grown for the same period, and have proved it to be a capital variety, and deserving of extended cultivation. It is also protected by its heart leaves, which on bursting

expose a fine white, solid head of good quality. Knight's Protecting is so well known that its merits need no comment here. Of Gilbert's Victoria I have a good breadth planted, but not having grown this variety before I cannot speak with confidence about it. The plants at present look well, and promise later in the season to furnish a good supply; and should the quality of this variety prove to be better or equal to that of the Leadsham Latest of All—and from the reports of it which have from time to time appeared in the various gardening papers, I have reason to believe it will do so—then it will be without doubt extensively grown. Snow's Winter White cannot be spoken of too highly. We are generally using this variety some weeks before any other is fit for table. *H. Markham, Mereworth Castle.*

NON-WATERING OF CELERY.

The season of 1887 was a difficult one in which to raise creditable supplies of Celery, the drought being chiefly to blame. Hard cold water, such as we have here, is almost as ruinous to many gardens as drought, and is known to many as a most destructive agent, and especially is this the case with Celery. I think that plants are better without such water, and even if the crops were left to themselves they would be better in the end. Last season was the driest in my recollection, and we had no water to spare for outdoor crops; a little was given to the plants when placed in the ground, but none afterwards. There were three successions of Celery—the sorts being chiefly, Incomparable and Major Clarke's Red—amounting to about 1500 heads. The losses were nominal, and consisted of a few which were stunted before being planted; and on March 18 we had still several hundreds of solid well blanched stalks, which had had no protection during the past winter. The whole crop was planted on the surface of the ground in rows, four on each bed. The great depth of the soil and the good mulching afforded at planting time were conducive to the excellence of this Celery. *Scot.*

THE WEATHER.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JUNE 16. (AVERAGE OF FORTY-FOUR YEARS.)

June 10	60°·1	June 14	60°·6
" 11	60°·2	" 15	60°·7
" 12	60°·4	" 16	60°·9
" 13	60°·5	Mean for the week ...	60°·5

THE PAST WEEK.

The following summary record of the weather for the week ending June 4, is furnished from the Meteorological Office:—

"The weather has varied greatly in different parts of the kingdom. Over the greater part of England it has been generally fine, and at times warm, but over Ireland, Scotland, and the northern districts of England the conditions have been cold and dull, and some heavy falls of rain have occurred. During the latter part of the period a great deal of snow fell in some parts of Scotland.

"The temperature has been 4° below the mean in 'Ireland, N.,' and 'England, N.W.,' and 3° in 'England, E.,' while in Scotland it was from 5° to 7° below; in the other districts, however, it has either equalled or been slightly above its normal value for the time of year. The highest of the maxima (which were generally recorded on June 3 over England, and on various dates in Ireland and Scotland) ranged from 57° to 61° in Scotland, from 64° to 70° in Ireland, and from 66° to 84° over England. The maxima over Scotland on June 2 and 3 were extremely low; at some stations the thermometer on the 3rd did not exceed 38°. The lowest of the minima (registered on somewhat irregular dates) ranged from 35° to 42° over England, Ireland, and the west of Scotland, but in the north and east of Scotland they were as low as from 27° to 29°.

"The rainfall has been considerably more than the mean in the Irish and Scotch districts, and

rather more over the north of England, but less over southern, central, and southern-eastern England.

"Bright sunshine shows a general decrease, especially in the west and north. The percentage of the possible amount of duration ranged from 19 in 'Ireland, S.,' to 44 in 'England, E.,' 49 in 'Scotland, S.,' and 51 in the 'Channel Islands.'"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending June 4.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	
0. SCOTLAND, N. ...	7 below	25	13	— 83	+ 202
1. SCOTLAND, E. ...	7 below	33	11	— 134	+ 187
2. ENGLAND, N.E. ...	3 below	55	0	— 130	+ 73
3. ENGLAND, E. ...	2 above	100	0	— 146	+ 154
4. MIDLAND COS. ...	0 (aver.)	92	0	— 171	+ 150
5. ENGLAND, S. ...	1 above	100	0	— 227	+ 204
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 below	39	0	— 145	+ 107
7. ENGLAND, N.W. ...	4 below	80	0	— 163	+ 117
8. ENGLAND, S.W. ...	0 (aver.)	89	0	— 242	+ 254
9. IRELAND, N. ...	4 below	53	0	— 153	+ 87
10. IRELAND, S. ...	0 (aver.)	87	0	— 160	+ 113
— CHANNEL ISLANDS	0 (aver.)	98	0	— 206	+ 154

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Teeths of Inch.		Ins.		
0. SCOTLAND, N. ...	10 more	109	17.4	29	27
1. SCOTLAND, E. ...	13 more	90	11.8	25	29
2. ENGLAND, N.E. ...	4 more	78	9.0	32	28
3. ENGLAND, E. ...	2 less	75	7.6	44	29
4. MIDLAND COS. ...	1 less	67	7.3	44	27
5. ENGLAND, S. ...	2 less	89	8.7	49	28
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	13 more	77	16.5	22	31
7. ENGLAND, N.W. ...	3 more	79	8.2	22	28
8. ENGLAND, S.W. ...	2 less	76	10.8	37	34
9. IRELAND, N. ...	6 more	83	11.9	21	27
10. IRELAND, S. ...	5 more	74	13.2	19	33
— CHANNEL ISLANDS	4 more	94	11.1	51	38

VARIORUM.

ORCHARD PRODUCTS AND WHAT BECOMES OF THEM.—"They are eaten mostly," and if the roofs of the five million or more farmhouses in this country were lifted off some cold winter night, and the happy firesides disclosed, that answer to the inquiry would seem to be final. The orchard products are eaten—devoured by young and old, given to animals, sold in the market, while uncounted millions of windfalls and worm-eaten fruit rot on the ground, and return to the land somewhat of the valu-

able qualities the growing crop has so eagerly taken up. By the census of 1880 the value of the orchard products of the United States was nearly 51,000,000. This includes Apples, Peaches, Pears, &c. The special inquiry now is as to the Apple crop, which is, no doubt, the largest proportion of the above named sum. The export of Apples, dried and in barrels, reaches the very respectable figure of nearly 3,000,000 dols. in value—a boon, and a “boom” of no inconsiderable account to the farmer—while canned fruits exported aggregate a value of more than 500,000 dols. Many years ago, one Buchanan, a Scotchman, came to this country, and a few years later, with characteristic national foresight, devised the plan of sending American Apples to Europe. In 1845 he dispatched five barrels from Boston to Glasgow. The venture paid, and he repeated it until he had an established trade. The steamships then were half the capacity of those in our day, and took twice as many days to make the passage. The Apple export began from Boston; now the export is mainly from Boston and New York, the two cities doing five-sixths of all this business. *Mildura Irrigationist*.

PLUMS IN CHLOROFORM.—The *Pharmaceutical Journal* writes:—“A simple and easy way of keeping Damsons from season to season.—Into a clean and dry 40-oz. stoppered wide-mouthed bottle pour half a drachm of chloroform. Then pack in 1½ lb. of the sound fruits, and introduce the stopper, slightly vaselined. It is desirable to tie in the stopper with twine, or it may be sometimes blown out during warm weather. For a week or two the fruit retains its natural appearance; then drops begin to exude from the surface, which gradually collect into a perfectly clear richly coloured liquid, partially filling the bottle. The fruit at the same time shrinks a little. In this condition it may be preserved without further change for at least a year, and probably for a much longer period. When eaten raw the Damsons have a slight but by no means disagreeable flavour of chloroform, and would be a pleasant addition to the dessert table to be partaken of sparingly, like brandied Cherries. On cooking the chloroform entirely disappears, and the flavour is that of the fresh fruit. The quantities given above are those which have yielded a successful result; and I do not think that a less proportion of chloroform would suffice to keep the fruit. The experiment was, of course, suggested by the well-known inhibitive action of chloroform on the functions of microbes, and several other plans were tried, such as the use of chloroform water in which to keep the Plums, and of vessels vaselined over where the chloroform alone was used. Success, however, was only met with under the conditions given above, though no doubt others might be devised which would have the requisite effect of keeping in the chloroform vapour, and thus paralyzing the yeast cells and septic organisms. Probably other fruit and provision might be preserved in the same way, though in the case of animal food the solvent action of the chloroform upon that might interfere. The great advantage of chloroform over salicylic acid and other fixed antiseptics is that it is got rid of in the act of cooking.” *Indian Agriculturist*.

UTILISING WASTE FRUITS.—In all orchards a certain portion of the crop goes to waste, or for various reasons is not good enough to find a place amongst fair marketable samples. In taking a trip through the orchard and market-garden districts large quantities of fruits of various kinds may be seen lying under certain of the trees, and the condition of much of that fallen fruit attests that it will never be used. The policy of not marketing inferior fruit is unquestionably sound, but all fruit is worth something, and should be turned to useful account. Where Apples are in question they should be picked up at least three or four times a week, and be utilised so that the worms they contain may be destroyed, instead of being allowed to provide for a crop of descendants. Of Apples cider may be made, but if preferred they may be converted into vinegar,

the pulp being given to pigs. Damaged Plums, Cherries, Peaches, Apricots, and any other fruit, may be utilised in precisely the same manner. Vinegar, indeed, is a safe product, and it always commands a price in proportion to its quality. There are growers who systematically give the whole of their damaged fruits to pigs, and who allege that this method of disposal is the most profitable, producing a minimum expenditure of labour, a commodity which is largely in demand. *Mildura Irrigationist*.

Obituary.

MR. WILLIAM THORN.—It is with regret that many gardeners in England and Scotland will read of the death of the amiable late gardener at Newtondon, Kelso, N.B. He was an excellent fruit gardener, but this did not prevent him from taking an active interest in florists' flowers. The Dahlia and Hollyhock were both grown to perfection in the flower borders at Newtondon. He exhibited Dahlias and Hollyhocks successfully half a century ago, but had not exhibited for competition during the last twenty years. He was in his eightieth year, and had retired from active duties for some years.

NOTICES TO CORRESPONDENTS.

CATTLEYA MOSSIE: *Newsham*. A fine, large, attractive flower, above the usual size.

CELERY AND DWARF BEANS: *Pontypool*. Your plants are free from disease; the feeble growth, and slight curling and withering, is owing to some defect in culture.

COCKROACH: *E. H.* Is of foreign origin, and now common in stoves and Orchid-houses. Use phosphorus paste. Simple traps may be made by a large bell-glass with a saucer in the top, or inverting a flower-pot, over a saucerful of honey and water, or porter and sugar, sinking the vessel so that the top of the cover is level with the bed or soil.

CORRECTION.—In article entitled “Horticulture at the Glasgow Exhibition,” par. 2, col. 3, p. 690, for “balloon ventilators,” read basal ventilators.

CUT FLOWERS, &c.: *N. N. 1*. The number of bunches or species to be shown is usually stated in the schedule. If that is not stipulated, the prizes will probably go to the choicest collection, irrespective of quantity. 2, *Clematis polymorpha* and *florida* are white-flowered, and flower in April.

GODSEBERRY CATERPILLAR: *Caterpillar*. Remedies for the attacks of these creatures are repeatedly given in our columns. At this season there is nothing better than hand-picking, and shaking the bushes suddenly whilst a sheet is spread underneath. Tie tarred brown paper round the stems. On bushes which are not in bearing you may use hellebore-powder (poison) whilst the leaves are wet from rain or dew. When bushes have been attacked, in the autumn scrape away the soil beneath them to the depth of 2 inches, and burn every particle of it, thus getting rid of both eggs and chrysalids.

NAMES OF PLANTS: *C. Smith*. 1, *Coleogyne ochracea*; 2, *Maxillaria tenuifolia*; 3, *M. variabilis*; 4, *Viburnum opulus*.—*Pope & Sons*. *Philadelphus coronarius*, single flowered.—*C. H. Perkins*. What you have sent is *Laburnum Adami*, a bastard from *L. vulgare* and *L. purpureum*. At times it brings flowers of a reddish-lilac, and others of a yellowish tint, as in your case, and at the same time there may be flowers of *L. purpureum*. It is therefore of a very sportive nature, and grafts (buds) from it would be the same. The pure yellow flowers of *L. vulgare* sent are evidence of a return to one of the parents.—*R. G. B.* We cannot name from leaves only; send when in fruit. It is probably *Acer plantanoides*.—*C. E. F.* 1, *Saxifraga longifolia*; 2, *S. capillaris*; 3, *S. granulata*.—*J. P.* *Dendrobium moschatum*, *Odonoglossum Coradinei*.—*H. J. C.* *Vicia sepium*.—*A. F. S.* *Menyanthes trifoliata*.—*Fair*, *Lady of France*. *Saxifraga granulata*, double variety.—*A. M. A.* 6, *Cupressus macrocarpa*; 7, *Spirea bella*; 8, *S. hypericifolia*.—*Sir C. Strickland*. *Ber-*

beris vulgaris var. *brachybotrys* and *Jasminum suavisissimum*.—*G. P.* 1, *Spirea prunifolia*; 4, *S. hypericifolia*; 6, *S. ulmifolia*; others next week.—*T. B.* *Maxillaria tenuifolia*.—*N. S.* 1, *Thuilopsis dolabrata*; 2, *Pyrus aria*.—*Jack*. *Calycanthus floridus*.

PEAT: *W. H. T.* The peat is suitable for Ferns, stove herbs, and anything of quick growth, or that is annually repotted and shaken out. It might be suitable for New Holland plants in the youngest stage. With the addition of some fibrous loam and sharp sand it would do admirably for American beds.

PRICES OF ORCHIDS: *Brooker*. *Cattleya Trianæ* *Leeana* was stated to have cost 250 guineas; *Cypripedium Stonei platyanum* realised over that sum; *Odonoglossum Pescatorei* (excellens) *Knoxii* fetched 165 guineas; *O. crispum apiatum*, 160 guineas; and other *Odonoglossums* over 100 guineas each; *Cypripedium Morganæ*, at New York, about £150; *Saccolabium Heathii*, and a specimen of *S. Harrisonia*, considerably over 100 guineas each, and too many to enumerate similar prices.

ROSE SHOOT: *L. E.* It is the work of a small caterpillar, which you will find rolled up in the leaf. Pick off all affected leaves and burn them.

STRAWBERRY: *H. S.* Myatt's *Eleanor* (Crystal Palace).

COMMUNICATIONS RECEIVED.—*D. D.* Wakefield Paxton Society.—*F. Moore*.—*W. S.*—*C. Joli*.—*G. W.*—*J. S.*—*W. de H. S.*—*W. K.*—*E. Bovaria*.—*J. R. J.*—*H. E.*—*J. T.*—*T. C.* & Sons.—*C. L.*—*R. Veitch & Sons*.—*W. A. G.*—*Mrs. A. Dixon*.—*G. D.* (thanks).

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

MARKETS.

COVENT GARDEN, June 7.

SUPPLIES good, with a brisk business doing. *James Webber*, Wholesale Apple Market.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Aralia Sieboldi</i> , doz.	6 0-18 0	<i>Ficus elastica</i> , each	1 6-7 0
<i>Bougainvillea</i> , per dozen	9 0-12 0	<i>Fuchsia</i> , doz.	6 0-12 0
<i>Calceolarias</i> , dozen	4 0-9 0	<i>Heliotropes</i> , dozen	6 0-9 0
<i>Coleus</i> , dozen	3 0-6 0	<i>Hydrangeas</i> , dozen	9 0-13 0
<i>Cyperus</i> , per dozen	4 0-12 0	<i>Lily of the Valley</i> , 12 pots	12 0-18 0
<i>Deutzias</i> , per dozen	6 0-12 0	<i>Lobelias</i> , per dozen	4 0-6 0
<i>Dracena terminalis</i> , per dozen	30 0-60 0	<i>Marguerites</i> , doz.	9 0-12 0
— <i>viridis</i> , per doz.	12 0-24 0	<i>Mignonette</i> , 12 pots	4 0-9 0
<i>Ericas</i> , various, per dozen	9 0-18 0	<i>Musks</i> , dozen	1 6-3 0
— <i>ventricosa</i> , doz.	18 0-30 0	<i>Myrtles</i> , per dozen	6 0-12 0
<i>Euconymus</i> , in var., per dozen	6 0-18 0	<i>Palms</i> , in variety, each	2 6-21 0
<i>Evergreen</i> , in var., per dozen	6 0-24 0	<i>Pelargoniums</i> , doz.	9 0-15 0
<i>Ferns</i> , in var., doz.	4 0-18 0	— <i>lyr-leaf</i> , dozen	4 0-8 0
<i>Foliage plants</i> , various, each	2 0-10 0	<i>Roses</i> , dozen	12 0-24 0
		<i>Spireas</i> , dozen	6 0-12 0

BEDDING-OUT PLANTS.

By the box, 2s. to 6s.; or by the dozen, 1s. to 2s. Now coming good.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Anemone</i> , 12 bun.	1 6-4 0	<i>Prionies</i> , 12 bun.	6 0-12 0
<i>Arum Lilies</i> , 12 blms.	2 0-4 0	<i>Pelargoniums</i> , 12 spr.	0 6-1 0
<i>Azaleas</i> , 12 sprays	0 6-1 0	— <i>scarlet</i> , 12 spr.	0 3-0 6
<i>Bougainvillea</i> , per bun.	0 6-1 0	<i>Polyanthus</i> , 12 bun.	1 6-3 0
<i>Carnations</i> , 12 blms.	1 0-2 0	<i>Primulas</i> , double, 12 sprays	0 9-1 0
<i>Deutzia</i> , 12 bunches	3 0-6 0	<i>Pyrethrum</i> , 12 bun.	4 0-6 0
<i>Eucharis</i> , per dozen	3 0-6 0	<i>Ranunculus</i> , 12 bun.	2 0-4 0
<i>Forget-me-nots</i> , 12 bunches	2 0-4 0	<i>Roses</i> , Tea, per doz.	0 6-1 6
<i>Gardenias</i> , 12 blooms	1 6-4 0	— <i>coloured</i> , dozen	2 0-4 0
<i>Heliotropes</i> , 12 spr.	0 6-1 0	— <i>red</i> , per dozen	2 0-4 0
<i>Lilium longiflorum</i> , 12 blooms	3 0-5 0	— <i>Saffron</i> , dozen	0 9-1 8
<i>Lily of Val.</i> , 12 bun.	4 0-6 0	<i>Spirea</i> , 12 bun.	4 0-6 0
<i>Marguerites</i> , 12 bun.	3 0-6 0	<i>Stephanotis</i> , 12 spr.	2 0-4 0
<i>Mignonette</i> , 12 bun.	3 0-6 0	<i>Tuberose</i> , 12 blms.	0 6-1 0
<i>Narcissus</i> , double, 12 bunches	4 0-6 0	<i>Wallflowers</i> , 12 bun.	2 0-4 0
<i>Pansies</i> , 12 bun.	1 6-3 0	<i>White Lilac</i> , French, per bunch	4 6-6 0

*. Orchid bloom in great variety, but the demand not very good.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Apples</i> , ½-sieve	3 0-6 0	<i>Peaches</i> , dozen	4 0-12 0
<i>Grapes</i> , per lb.	3 0-5 0	<i>Pears</i> , per dozen	3 0-8 0
<i>Kent Cobs</i> , 100 lb.	40 0-45 0	<i>Pine-apples</i> , Eng., lb.	1 0-2 0
<i>Lemons</i> , per case	12 0-31 0	— <i>St. Michael</i> , each	2 6-5 0
<i>Melons</i> , each	1 0-3 0	<i>Strawberries</i> , lb.	1 6-5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d.	s. d.	s. d.	s. d.
Artichokes, p. doz.	4 0	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., bund.	1 0-5 0	Mustard and Cress,	
— English, 100	3 6-6 0	punnet	0 4-...
Beans, Kidney, lb.	1 6-...	Onions, per bushel	5 0-...
Beet, red, per dozen	1 0-2 0	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Potatoes, per cwt.	4 0-5 0
Cauliflowers, each	0 8-...	— kidney, per cwt.	4 0-5 0
Calery, per bundle	1 6-2 6	Rhubarb, per bundle	0 4-...
Cucumbers, each	0 9-1 0	Shallots, per lb.	0 6-...
Endive, per dozen	2 0-...	Spinach, per bushel	2 0-...
Green Mint, bunch	0 4-...	Sprue, per bundle	1 0-...
Herbs, per bunch	0 4-...	Tomatoes, per lb.	2 0-...
Leeks, per bunch	0 6-...	Turnips, per bunch,	
Lettuce, per dozen	1 6-...	new	1 3-...

POTATOS.—Old Potatoes unsaleable; new, from Jersey, making 5d. lb.

SEEDS.

LONDON: June 6.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market thinly attended, with but little business doing, quotations for Clover and other seeds are consequently without alteration. The accounts of the growing crops of red seed continue very unfavourable. There is an increased inquiry for both Mustard and Rape seed. Boiling Peas find buyers at full prices. Hemp seed is cheaper, owing to some arrivals. Canary seed keeps dull.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended June 2:—Wheat, 32s.; Barley, 28s. 1d.; Oats, 17s. 1d. For the corresponding week in 1887:—Wheat, 35s. 9d.; Barley, 25s. 9d.; Oats, 16s. 7d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: June 6.—Good supplies of green vegetables, &c., and trade good generally, except for old Potatoes, which are not in demand. Quotations:—Asparagus, 1s. 3d. to 2s. per 100 heads; Gooseberries, 4s. to 5s. per half sieve; Cauliflowers, 3s. to 5s. per tally; Cabbages, 2s. 6d. to 6s. 6d. do.; Spinach, 9d. to 1s. 6d. per sieve; Greens, 1s. 6d. to 2s. 6d. per dozen bunches; Carrots, 4s. to 6s. do.; Parsley, 1s. to 1s. 6d. do.; Mint, 1s. 6d. to 2s. do.; spring Onions, 1s. 6d. to 2s. 6d. do.; Turnip Radishes, 3s. 6d. to 6s. per tally; Mustard and Cress, 2s. per dozen baskets; Rhubarb, 1s. 6d. to 2s. per dozen bundles; Horse-radish, 10d. to 1s. per bundle; Seakale, 1s. 3d. per punnet; Endive, 4d. to 8d. per dozen; Beetroot, 6d. to 9d. do.; Cabbage Lettuce, 4d. to 6d. do.; Cos Lettuce, 1s. 6d. to 2s. per score of 22; foreign Onions, 4s. 6d. to 6s. per bag of 110 lb.; Carrots, 120s. to 140s. per ton; Mangels, 22s. to 24s. do.

STRATFORD: June 5.—Both trade and supply have been good during the past week. Quotations:—Cabbages, 5s. to 6s. per tally; Onions, Egyptian, 6s. to 7s. 6d. per cwt. bag; Gooseberries, 6s. to 9s. per bushel; Lettuce, 6d. to 1s. per score; Radishes, 4s. per tally; new Carrots, 1s. to 1s. 2d. per bunch; do. Turnips, 8d. to 1s. do.; Onions, 2s. to 3s. per dozen; Cucumbers, 3s. to 6s. do.; Cherries, 5s. per flat; Spinach, 1s. 6d. per bushel; Mint, 2s. per dozen; Parsley, 2s. do.; Rhubarb, 2s. to 2s. 6d. do.; Mushrooms, 9d. per basket; Asparagus, 1s. to 2s. per bunch.

POTATOS.

BOROUGH AND SPITALFIELDS: June 5.—For old Potatoes the demand is confined to best samples, and even these have a downward tendency, although assisted by the slow arrival and advanced prices of new. Quotations:—Old: Regents, 40s. to 85s.; Magnum Bonums, 40s. to 80s.; Champions, 26s. to 60s.; Dutch Rocks, 50s. to 55s. per ton. New: Malta rounds, 12s. to 13s.; ditto kidneys, 17s. to 19s.; Lisbon rounds, 12s. 6d. to 13s. per cwt.

COLUMBIA AND SPITALFIELDS: June 6.—Quotations:—New: Guernsey kidneys, 34s. to 36s.; Malta do., 18s. to 22s.; do., rounds, 12s. 6d. to 14s. per cwt. Old: Presidents, 30s. to 50s.; Regents, 30s. to 50s.; Champions, 20s. to 30s.; Victorias, 30s. to 40s.; Magnums, 20s. to 50s.; Imperators, 30s. to 50s. per ton.

Imports.—The imports into London last week consisted of 77 bags and 10,492 boxes from Orotava; 167 cases, 34 bags, 60 packages, 93 boxes, 51 sacks from Malta; 10,916 boxes from Lishon, and 50 bags from Hamburg.

"ARCHIMEDEAN"

AMERICAN LAWN MOWERS.



AWARDED
HIGHEST PRIZE

AT THE
Paris Exhibition, 1878;
and the JURY, in their REPORT
say:—

"The 'ARCHIMEDEAN' did the
BEST WORK of any Lawn
Mower exhibited."

ALSO AT
Sydney Exhibition, 1879-80
AND AT
Melbourne Exhibition, '80-1

Opinions of the Press:
"Far superior to any of ours."—
Vide The Field.

"Remarkably easy to work."—
Vide Gardeners' Magazine.

"The quickest, most simple, and
most efficient mower ever used."—
Vide Gardeners' Chronicle.

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our readers as one of the best mowers
we have as yet made acquaintance
with."—Vide Floral World.

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NETTING.—Buy your Netting direct from
the Makers. Write for sample piece, of our best quality,
waterproof, tanned and oiled, 4 yards by 50 yards, 8s.; second
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CONSERVATORY BLINDS made to order, of
Plain or Striped Material.

NEW CANVAS SHADING.—It is perfectly
rot-proof, keeps sound under conditions where other
fabrics have shown fungoid growth and incipient decay.

CRICKET, 1888.—A number of second-hand
small MARQUEES, from 20 feet by 12 feet to 35 feet by
17 feet, suitable for Clubs, Schools, or Private Use; in excellent
condition, nearly as good as new; a few larger Marquees for
SALE; also Canvas for Awnings, Booth Covers. Prices on
application to BENJAMIN EDGINGTON, Limited, 2, Duke
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NEW SEASON'S ARCHANGEL MATS.

Taganrog, Petersburg, and every other description
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Manures, &c. Cheapest Prices of
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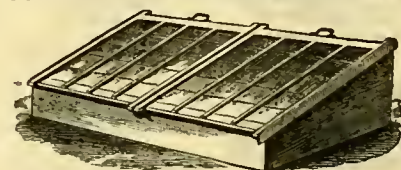
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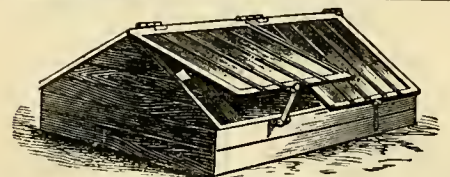
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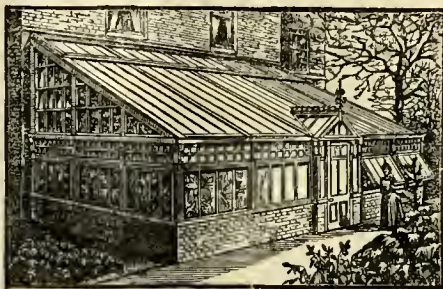
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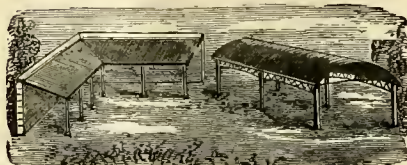
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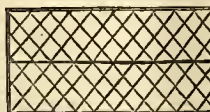


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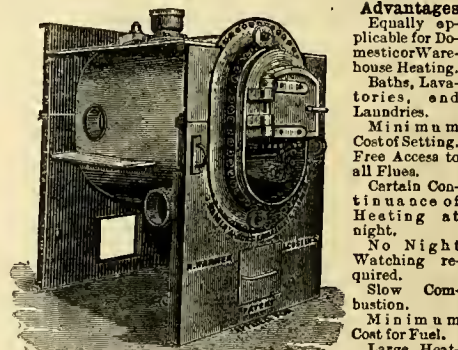
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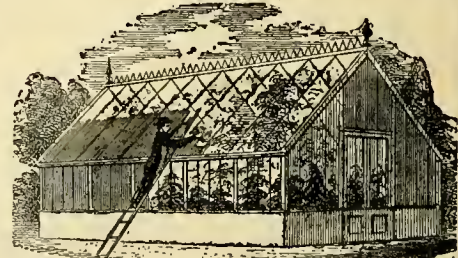
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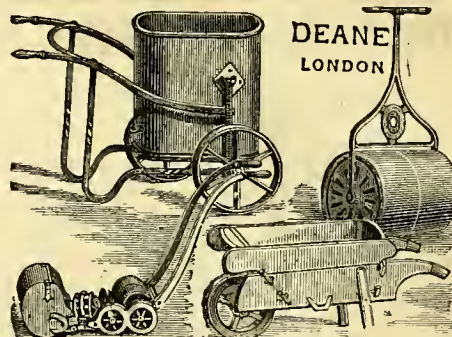
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1888.

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WANTED, an active, steady Man, quick,
willing, and accustomed to the general work of a Pro-
vincial Market Nursery. Wages, 16s. per week, with small
cottage, and good garden.—W. W. JOHNSON AND SON,
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WANTED, a CLERK, at a high-class Country
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WANTED, a WAREHOUSEMAN, for the
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stands Packing and Unpacking Flowers, as Store-
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ford Street, Bryanston Square, W. Good wages to a com-
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GARDENING APPOINTMENTS.

Mr. J. ROOERS, late Gardener to B. R.
LANGTON, Esq., Langton Hall, Spilsby, has been
appointed Head Gardener to R. PHIPPS, Esq.,
Buckenhill, Bromyard, Worcester.

Mr. GEORGE SMITH, who has been principal
Foreman at Mentmore Gardens for the last five
years, has been appointed Gardener to E. L.
ROWCLIFFE, Esq., Hall Place, Cranleigh, Surrey.

WANT PLACES.

Letters addressed "Poste Restante" to initials or to fictitious names are not forwarded, but are at once returned to the writers.

SCOTCH GARDENERS.

—JOHN DOWIE (of the late firm of Downie & Laird), Seedsman, 144, Princes Street, Edinburgh, has at present on his list a number of SCOTCH GARDENERS, waiting engagements. He will be pleased to supply full particulars to any Lady, Nobleman, or Gentleman requiring a trustworthy and competent Gardener.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

GARDENER (HEAD).—Age 36; varied and practical experience.—Full particulars, W. PINKERTON, Castle Hill, Eaglefield Green, Staines.

GARDENER (HEAD).—Age 31; five and a half years Head Gardener to the late Sir Alfred Ryder. Excellent character and testimonials. Abstainer.—C. HIGGINS, Wellswood, Torquay.

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GARDENER (HEAD), or where help is given.—Age 27, married, no family; twelve years' practical experience in Early and Late Forcing of Fruit, and Flowers, and Kitchen Garden. Can be well recommended from last and present situation.—W. A., 24, Hanover Street, Upper Sydenham, S.E.

GARDENER (HEAD); age 32.—W. T. SCARTH, Esq., Raby Castle, Darlington, Durham, will be glad to recommend James Tullett, who is at present Foreman at Raby Gardens, to any Lady or Gentleman requiring a thoroughly practical good Gardener. Sixteen years' good experience; nine years General Foreman.

GARDENER (HEAD); age 37.—Miss SHERIDAN wishes to recommend S. Pullman, who has been at Frampton Court, Dorchester, fourteen years (ten years as Head). Thoroughly experienced in all branches. Excellent testimonials. Had charge of Plantations. Personal character. Leaving through death.—Miss SHERIDAN, 77, Eaton Square, S.W.; or S. PULLMAN, Evershot, Dorchester.

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GARDENER (HEAD WORKING).—Understands the routine of all Gardening, also Stock, Land, &c. Wife good Laundress if required.—GEO. WESTON, Gaston Grange, Beotworth, Alton, Hants.

GARDENER (HEAD WORKING).—Age 38, married, no family; thoroughly understands his duties. Six years in present place; five-and-a-half years previous.—H. M., Biofield House, Byfleet, Weybridge, Surrey.

GARDENER (HEAD WORKING).—Age 30, single at present.—Lord RAGLAN wishes to recommend his late Head Working Gardener. Thoroughly up in all branches. Left from no fault. Six years' good character.—W. S., 17, High Road, Knightsbridge, W.

GARDENER (HEAD WORKING).—Age 39, married, one daughter (age 12); twenty-four years' experience in all its branches. Good references.—C. HENTY, 2, Oxford Street, Kingstown, Bristol.

GARDENER (HEAD), or **FOREMAN.**—Age 24; ten years' experience. Excellent references.—A. SPIBY, The Gardens, Sutton Bonington, Loughborough.

GARDENER (HEAD), or **FOREMAN** in a Nursery.—Age 39, married; well versed in detail in all branches of practical Gardening. Over nine years' character in present situation, and four years in Nursery Work.—Mr. HALL, South Villa, Inner Circle, Regent's Park, London, N.W.

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GARDENER, where another is kept, or good SINGLE-HANDED.—Age 30, married, three children; good knowledge of Stove and Greenhouse Plants, Vines, and Flower and Kitchen Garden. Four years in present situation. Good character.—R. S., 15, Russell Terrace, Ravenswood Road, Balham, S.W.

GARDENER, or good **UNDER** where two or three are kept.—Eleven years' practical experience in all branches. Highly recommended by W. & G. Drover.—Apply, G. AYLWARD, Union Street, Fareham.

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GARDENER (SINGLE-HANDED), or otherwise.—Age 26; single; experienced in all branches. Make himself useful. Excellent character.—G. L., 2, Merton Cottages, East Sheen, Surrey.

GARDENER (SINGLE-HANDED).—Practical experience in all branches; excellent references from previous and present employers. Leaving through property changing hands.—J. S., 46, Charles Street, Regent's Park, N.W.

GARDENER (SINGLE-HANDED), or as **UNDER** in a good establishment.—Age 26; two-and-a-half years in present situation.—F. FARRANCE, The Hurst, Coldharbour, Tonbridge.

GARDENER (SECOND OR SINGLE-HANDED).—Age 24; eight years' experience in all branches. Three years' good character. Total abstainer.—J. B., Shanklin, Isle of Wight.

GARDENER (SECOND), in the Houses.—Three years' experience of Stove and Greenhouse Plants.—H. B., Lucombe Pince, Exeter Nurseries, Exeter.

GARDENER (SECOND), where four or five others are kept, or good SINGLE-HANDED.—Age 26; good general experience of Early and Late Forcing, Plant Growing, Flower and Kitchen Gardening. Sober and trustworthy. Good character.—Address, stating wages, to H. G., 15, Ferrer's Road, Natal Road, Streatham, S.W.

GARDENER (UNDER OR SINGLE-HANDED).—Good experience Inside and Out. Five and a half years' good character.—A. J., 2, Surbiton Terrace, Victoria Road, Surbiton, Surrey.

GARDENER (UNDER, SECOND).—Four years' experience.—State wages, and premium required.—F. HARRIS, Cuddesdon Palace Gardens, Wheatley, Oxon.

GARDENER (UNDER).—Age 20; steady, respectable. Good experience. Good reference from last place.—E. P., 5, Orchard Place, East Acton.

GARDENER (UNDER), or help Gardener.—Age 19; no objection to Cows, or help in Stables. Highly recommended by Bishop Bromby.—C. THOMAS, Mootford, R. S. O.

GARDENER (UNDER).—Age 23; good experience in all branches. Five years with present employer. Good character.—A. WELCH, 7, Stanhope Road, North Finchley, N.

GARDENER (UNDER).—Age 21; five years' experience. Good knowledge of Indoor and Kitchen Garden Work. Can be well recommended.—R. CANNING, 1, Hartland Road, North Street, Isleworth, Middlesex.

GARDENER (UNDER) and COWMAN.—Age 28; single, strong, and willing to make himself generally useful. Good character.—W. DAY, Codicote, Welwyn, Herts.

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FOREMAN, in the Houses.—Age 24; recommended by Mr. King, Hillingdon House, Uxbridge, Middlesex.—C. M., Red Lodge, Swinley Park, Bracknell, Berks.

FOREMAN, in the Houses; age 24; eleven years' experience.—Mr. OFFER will be pleased to recommend to any Gardener in want of the above Alfred Smith.—The Gardens, Handcross Park, Crawley, Sussex.

FOREMAN, in the Houses.—Age 27; eleven years' experience in all branches in good places. Good references from present and previous employers.—G. LILLEY, Babraham Hall, Cambridge.

FOREMAN.—Age 29; well up in Mansion Decoration, and all branches of Gardening. Good references from last and previous employers. Filled two such places previously.—C. B., 70, Cale Street, Chelsea, S.W.

FOREMAN, age 25.—W. SUTTON, Gardener, Ashley Park, Walton-on-Thames, can highly recommend his Foreman, E. L. Jones, who has been with him two years, to any Gardener requiring the services of a steady, willing, and obliging young man.—Address as above.

FOREMAN, in the Houses, where two or more are kept.—Age 26; twelve years' experience at Norris Green, Triag Park, and other good establishments; two years as Foreman in present situation. Good reference from present and previous employers.—J. GARDNER, Thames Ditton House Gardens, Kingston-on-Thames, Surrey.

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PROPAGATOR, or PROPAGATOR and GROWER.—Age 23; well up in Market Stuff. Good reference.—H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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JOURNEYMAN, in the Houses; age 21.—W. KEMP, Gardener to Lord Hindlip, can confidently recommend a young man as above.—Doveridge Hall, near Derby.

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JOURNEYMAN, Inside and Out, in a Gentleman's establishment.—Nearly three years' good character from present employer.—C. BURT, 2, Cumberland Place, Kew.

JOURNEYMAN, in the Houses.—Age 23; three years' good character in present situation. Can be highly recommended by A. ALDERMAN, The Gardens, Effingham Hill House, Dorking.

JOURNEYMAN, or **SECOND,** Inside or Out, where three or four are kept.—Age 23; three years' excellent character from last employer.—H. BURBOROUGH, Bradfield, Reading.

JOURNEYMAN (SECOND).—Age 20; been in present situation nearly five years.—C. P., Bury Hill Gardens, Dorking, Surrey.

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IMPROVER; age 16.—J. WELER, Gardener, Alparkirk Hall, Boston, Lincolnshire, can recommend an active strong young man anxious to learn. Eighteen months' good character.

IMPROVER; age 17.—A Head Gardener wishes to recommend his son as Improver. Two years' experience Inside and Out. Premium given.—G. K. BROOM, Leys, Coalville, near Leicester.

ASSISTANT, in Gentleman's Garden.—Age 20; seven years' character. Willing to make himself useful.—WILLIAM GURD, Upper Coombe, Shaftesbury.

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TO NURSERYMEN and SEED MERCHANTS.—WM. NAPPER (discoverer of White Passion Flower) can successfully represent a Leading Nursery, Seed Merchant, or kindred business. Twenty years with late firm, being their sole and only Traveller.—9, Oxford Street, St. Thomas, Exeter.

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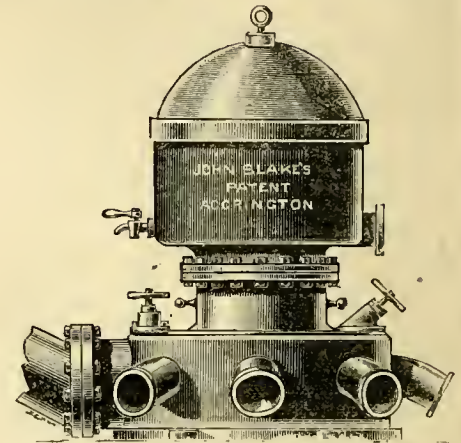
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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

Back Numbers of the "Gardeners' Chronicle."
NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

NOTICE TO SUBSCRIBERS.—All Numbers of the "Gardeners' Chronicle" from January 1, 1887, are still to be had.

Now ready, in cloth, 11s. 6d.
THE GARDENERS' CHRONICLE,
Vol. II., Third Series, JULY to DEC., 1887.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL BOTANIC SOCIETY,
Gardens, Regent's Park, N.W.
EXHIBITION of PLANTS, FLOWERS, and FRUIT,
WEDNESDAY, June 20. Gates open at 2 o'clock. The Bands will play from 2 to 7. Tickets, to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 5s., or on the day of Exhibition, 7s. 6d. each.

ALEXANDRA PALACE.
GRAND ROSE SHOW, JUNE 27 and 28.
The series of Shows promoted by the Alexandra Palace and Park Company, Limited, for 1888, will be inaugurated by a grand display of ROSES on the above dates. Liberal Prizes in all Classes of Roses for professional and amateur growers are offered. All Prize Money will be paid on the first day of the show. Treasurer, Mr. Shirley Hibberd. Excellent facilities are offered for Trade exhibits, Specialties and Appliances; and suitable Honours and Certificates will be awarded.
Full particulars and Schedule of Prizes may be obtained on application to the Secretary of Rose Show, Mr. R. BEALE, Alexandra Palace, London, N.

DURSLEY ROSE SHOW,
JULY 4, 1888.—Entries Close June 30. For Schedules apply to Messrs. SMALL and COOKE, Hon. Secs., Dursley.

CARTERS' FIRST-PRIZE PRIMULA.

CARTERS' FIRST-PRIZE CINERARIA.

CARTERS' FIRST-PRIZE CALCEOLARIA.
Seed of each, in sealed packets, price 1s. 6d., 2s. 0d., 3s. 6d., and 5s. per packet, post free.

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PRIMULA, Double White, 5s. per dozen,
35s. per 100.
Price for quantities on application.
Terms, Cash with Order.
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6000 COMTE DE BRAZZA White Double
VIOLETS. Fine strong plants, 7s. per dozen,
£2 10s. per 100. Cheaper by the 1000.
Apply to the HEAD GARDENER, Founds, near Plymouth.

CREEPERS FOR WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Most being in pots, can be sent and put out at any time. Descriptive LIST and advice Free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LARGE PLANTS FOR SALE.—Cyathea Beirichiana medullaris, &c.; Saribus oliviformis, Corypha, Kentia, Zamia, &c. Particulars on application. Address JOSEPH SPILTINCK, Harvenget par Harmignies, Belgium.

CHOICE FLOWERS and FRUITS.—Any quantity Disposed of at best Prices. Growers' references. SADDINGTON AND CO., 41A, Catherine Street, Covent Garden, S. & Co. are purchasers of large flowers of Malmaison Carnations, Gardenias, Roses, and Eucharis.

Surplus Cut Flowers.
HOOPER AND CO. (Limited) RECEIVE and DISPOSE of any quantity of above at best Market Prices. Boxes, &c., supplied.—Address, Commission Department, HOOPER AND CO. (Limited), Covent Garden, W.C.

SQUELCH AND BARNHAM,
North Row, Covent Garden, W.C., are OPEN TO DISPOSE of any quantity of MUSCATS and BLACK GRAPES, TOMATOES, CUCUMBERS, FRENCH BEANS, STRAWBERRIES, CHOICE FLOWERS, &c. Highest Market Prices obtained. Account Sales daily; Cheques weekly or as preferred by Sender. Baskets and Labels supplied. References given.

MESSRS. GREGORY AND EVANS,
NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

CHOICE FRUIT and FLOWERS.—Highest Market Prices guaranteed. Prompt cash.
HENRY RIDES (late Wise & Rides), Covent Garden, W.C.

SAMUEL HILL, Jun., COMMISSION AGENT, having had many years' experience in Covent Garden Market, is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantity. Best Market Prices returned weekly.—21, Charlotte Street, Fitzroy Square, W.

WANTED, Three or Four Large ALOES, good plants, not less than 6 feet high. Price, &c., to R. KNIGHTS, Bakenham, Virginia Water, Surrey.

WANTED, NEST of SEED DRAWERS.
State number, size, material, gross length, and height, &c., to
X. L., Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

WANTED, any Parts of "WILLIAMS' ORCHID MANUAL," Quarto, Coloured Plates. State price and particulars.
J. MAXWELL AND SON, Booksellers, Dumfries.

The Best Present for a Gardener.
VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 5s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

CHOICE NEW CACTUS DAHLIAS, including William Pearce, the new early yellow; Juarezii (crimson), Constance (white), Mr. Tate (white), Fire King (scarlet), Mrs. Hawkins (yellow, tipped white), Empress of India, King of the Cactus, Prince Imperial. Twelve varieties, including above, for 4s. 6d. per dozen.
DOUBLE, magnificent varieties, 12 kinds, 4s. 6d. per dozen.
SINGLE, magnificent varieties, 12 kinds, 4s. 6d. per dozen.
The above packed free and put on Rail for cash with order.
Carriage paid, 6d. extra.
CHARLES BURLEY, Nurseries, Brentwood.

FERNS! FERNS!!—50 Hardy Roots, 1s. 4d., carriage paid, 10 varieties, including Maidenhair, Ceterach, Rutamuraria, Adiantum, Polystichum (various), &c., packed in moss.
E. ANDREWS, Beaminstor, Dorset.

CHOICE CUT ROSES, Buds and Blooms, Tea and H.P., 5s. 6d. per 100. Cash with order, package free.
WILLIAM CAUDWELL, The Ivies, Wantage.

PALMS.—A pair of Chamerops excelsa, in good healthy condition, 5 feet 6 inches high, each twelve fronds, price £3 10s. A few smaller Palms, Latania borboica and other sorts. Cheap to clear.
GARDENER, Holly Lodge, Stamford Hill, N.

EUONYMUS.—20,000; all nice bushy well grown specimens, 9 to 30 inches, 15s. to £7 per 100; about 150 large ones, 3s. 6d. to 5s. each.
J. J. CLARK, Goldstone Farm, West Brighton.

ALTERNANTHERAS.—For Sale, Amabilis latifolia and pronychioides and other sorts. All in pots and very good plants.
WM. VAUX, Florist, 4, Somers Place, Leamington.

SUTTON'S FLORISTS' FLOWER SEEDS.
Begonia, Calceolaria, Cineraria, Cyclamen, Gloxinia, Primula, &c., the finest strains in existence. See SUTTON'S AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct from
SUTTON AND SONS, Reading.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland.—Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

BEDDING PLANTS, established, and so sure to give satisfaction.
CHRYSANTHEMUMS, the very choicest sorts, in good plants. DAHLIAS, an unsurpassed collection. Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Plant Now.
TROPÆOLUM SPECIOSUM, the well-known hardy scarlet Climber. Finest strong plants, with numerous strong growths, free and safe by post, out of pots, 1s. each; 9s. per dozen. Cash with order.
HOWDEN and COMPANY, The Nurseries, Inverness, N.B.

SIMPLE INSTRUCTIONS by which an abundance can be insured of delicious MUSHROOMS.
See Seed LIST, Free.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

New Sowing Rape and White Mustard Seed.
H. and F. SHARPE have to offer fine clean samples of the above-named Seeds, which they will be pleased to submit, with Lowest Prices, on application.
Seed Growing Establishment, Wisbech.

W. H. LASCELLES AND CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.
Plans and Estimates Free.
See large Advertisement on June 2, page 679.

SALES BY AUCTION.

Wednesday Next.—(Sale No. 7696.)
VALUABLE IMPORTED ORCHIDS.
CYPRIPEDIUM BELLATULUM.
" GODEFROYÆ, grand masses.
" SPICERIANUM.
DENDROBIUM FINDLEYANUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 20, at half-past 12 o'clock precisely, by order of Messrs. H. Low & Co., very large quantities of IMPORTED ORCHIDS, in the best possible condition, comprising several hundreds of *Cypripedium bellatulum*, many in flower; grand masses of *C. Godefroyæ*, just to hand by P. and O. steamer *Brindisi*; *C. Spicerianum*, from the original habitat; *Cologyne cristata*, *Aërides affine verum*, *A. Lindleyanum*, *A. Lobbi*, *Dendrobium album*, *D. chrysotum*, *D. Lindleyanum*, *D. Parishii*, *D. signatum*, *D. senile*, *Saccobium retusum*, *Vanda Cæthartii*, *V. Parishii*, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7695.)

SPECIAL SALE OF ORCHIDS IN FLOWER and BUD.
Aërides Schroderii, grand plant, with about thirty leaves and 100 blooms, in splendid health; *A. VEITCHII*, strong plant, with twenty leaves, and fine branched spike, a lovely variety; *MASDEVALLIA HARRYANA*, Ball's blood var., and other fine forms, splendid varieties of *ODONTOGLOSSUM ALEXANDRE*, *CATTLEYA MENDELI*, *C. SANDERIANA*, *C. WARNERII*, *ONCIDIUM MACRANTHUM*, &c., &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 20.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7696.)

VALUABLE ESTABLISHED ORCHIDS, &c.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, June 21, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a quantity of ESTABLISHED ORCHIDS, including 50 fine varieties of *Odontoglossum Alexandrie* in flower, good plants of *Agulosa Ruckerii*, *Cattleya imperialis*, *C. Gaskelliana*, with sheaths; *C. Mendelii*, in bloom; *C. Lawrenceana*, *Dendrobium nobile Sanderiana*, *D. Leechianum*, *Lælia Gouldiana*, true; *L. majalis*, *L. Perrinii*, *Odontoglossum Cervantesii roseum*, *Vanda Sanderiana*, *Cypripedium Germinyanum*, *Oncidium undulatum*, &c.

At the same time will be offered a great variety of choice IMPORTED ORCHIDS, consisting of *Aërides Fieldingii*, *Saccobium Blumei majus*, *S. guttatum*, a fine lot of *Odontoglossum nobilissimum*, *O. maculatum*, the rare and fine *Catasium Bungeothii*, *Cypripedium venustum pardianum*, *Cymbidium eburneum*, &c.

On view morning of Sale, and Catalogues had.

The Third and Concluding Portion of the Valuable COLLECTION OF ORCHIDS formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 18, at half-past 12 o'clock precisely, the Third and Concluding Portion of his valuable COLLECTION OF ORCHIDS.

For further particulars, see future Advertisement.

Unique and Valuable Water-colour Drawings of ORCHIDS, DRIED FERNS, &c.

MR. J. C. STEVENS has been favoured with instructions from the Executors of the late John Day, Esq., of High Cross, Tottenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 18, the Unique and Valuable Collection of Life-size WATER-COLOUR DRAWINGS OF ORCHIDS, by Durham, contained in 22 bound volumes, together with 44 loose Drawings, and 5 framed, ditto; also the famous Collection of DRIED FERNS.

Tuesday Next.

CATTLEYA BOWRINGIANA.

A very fine importation of this most useful winter flowering Orchid. The plants are in splendid condition, and there are many large and well-shaped masses of unusual size. Also

WHITE LÆLIA ANCEPS

In extraordinary masses—all the fine white forms are contained in this importation.

CATTLEYA MOSSIE.

A very fine lot, just received in very good condition; many nice masses are amongst them.

ODONTOGLOSSUM CITROSUM.

A grand importation of this lovely Orchid; the plants are in good condition, and many large pieces are offered.

Also a fine lot of *DENDROBIUM DENSIFLORUM*, *D. FIMBRIATUM*, *D. NOBILE*, in extra good order; *LÆLIA PURPURATA*, in very fine masses; *CYPRIPEDIUM STONEI*, *CATTLEYA CITRINA*, *ODONTOGLOSSUM CERVANTESII*, &c.

Also two very fine plants of *O. MACRANTHUM* in flower, and a splendid specimen of *CATTLEYA ERNESTI*.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, June 19, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday Next.

DIRECT IMPORTATIONS FOR UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., at half-past 12 o'clock precisely a fine importation of *VANDA TRICOLOR*, *V. LOWII*, *CYPRIPEDIUM STONEI*, *C. LOWII*, *C. JAVANICUM*, *CELOGYNE PANDURATA*, *DENDROBIUM VEITCHII*, *ANUM*, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA MENDELI.

MESSRS. PROTHEROE AND MORRIS are instructed by R. B. White, Esq., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 22, at half-past 12 o'clock precisely, a magnificent importation of *CATTLEYA MENDELI*, collected by Mr. Mellican in the same district as those sent home last year. They are in capital condition. Also 50 established plants of *CATTLEYA MENDELI* from last year's importation, all unfowered in this country. From the same importation, extremely fine varieties have already bloomed, one being described in the *Garden* on June 4 last; together with six semi-established plants of *SOBRALIA RUCKERII*, and ten plants of *SOBRALIA XANTHOLEUCA*, described in the *Orchid Album*.

The Sale will also include a quantity of *DENDROBIUM NOBILE*, *D. FORMOSUM*, *AERIDES FIELDINGII*, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.

EPIDENDRUM WALLISII.

ODONTOGLOSSUM HARRYANUM in Bud.

ALEXANDRE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Charlesworth, Heaton, Bradford, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 22, at half-past 12 o'clock precisely, a fine consignment of *EPIDENDRUM WALLISII*, in extra fine condition. This desirable species grows with tall leafy stems, producing numerous flowers, sepals, and petals, of rich golden-yellow colour, marked with crimson spots; lip white, striped with magenta-purple, flowering in the winter season, and lasting three to five months in perfection.

ODONTOGLOSSUM HARRYANUM, about thirty plants in bud, not previously flowered in this country; also a few semi-established plants. A few *ODONTOGLOSSUM ALEXANDRE*, in beautiful condition, TO BE SOLD WITHOUT RESERVE.

On view morning of Sale, and Catalogues had.

Monday, June 25.

ORCHIDS IN FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE OF ORCHIDS IN FLOWER will take place as above, for which they will be glad to RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Tuesday and Wednesday, June 26 and 27.

IMPORTANT UNRESERVED SALE of the whole of the well-known COLLECTION OF ESTABLISHED ORCHIDS formed by F. A. Philbrick, Esq., Q.C., who is relinquishing the cultivation of Orchids.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, June 26 and 27, at half-past 12 o'clock precisely, without reserve, the whole of this well-known COLLECTION OF ESTABLISHED ORCHIDS. The plants are in unusually fine condition, and the collection includes probably the grandest lot of Phalaenopsis offered for many years, beside a large number of specimens of hybrid and other *Cypripediums*. Among the principal items the following may be mentioned:—

Phalaenopsis amabilis, including large plant and many other fine varieties	<i>Cirrhopetalum Cunninghamii</i> , large plant
" <i>Dayana</i> (true)	<i>Sobralia macrantha superba</i>
" <i>grandiflora</i> , the best Java and Borneo varieties	<i>Aërides Lawrenceana</i>
" <i>Schilleriana</i> , including many magnificent and other grand forms	" <i>affine Godefroyæ</i>
" <i>casta</i> , three healthy plants	" <i>roseum magnificum</i>
" <i>penicillata</i> , fine variety	<i>Cologyne cristata alba</i>
" <i>speciosissima</i>	" <i>maxima</i>
" <i>tetrapis</i>	" <i>Chateworth var.</i>
" <i>violacea Schroderi</i>	" <i>Trentham var.</i>
" <i>Marie and others</i>	" <i>Lemoineana</i>
<i>Cypripedium Morganian</i>	" <i>barbatum</i>
" <i>Bartate</i>	" <i>Massangana</i>
" <i>Leeanum superbum</i>	" <i>tomentosa</i>
" <i>enanthum superbum</i>	<i>Odontoglossum crispum</i>
" <i>Williamsii</i>	" <i>gignum</i>
" <i>veixillarium</i>	" <i>Ruckeriana</i>
" <i>Sedeni superbum</i>	" <i>aureum</i>
" <i>barbatum grandiflorum superbum</i> (Henderson's)	" <i>Wilkeanum</i> and [other great forms
" <i>politum</i>	" <i>Pescatorei</i> , many fine varieties
" <i>selligerum majus</i>	" <i>polyanthum</i>
" <i>Schroderi</i>	" <i>blandum</i> , special dark variety described in Veitch's Monograph
" <i>marmorophyllum</i>	" <i>veixillarium albescent</i>
" <i>Spicerianum magnificum</i>	" <i>Cobbanum</i>
" <i>Veitchii</i>	<i>Cattleya Mossii Goliath</i>
" <i>Lowii superbum</i>	" <i>grandissima</i>
" <i>Chantini</i>	" <i>Skinneri alba</i> and <i>oculata</i>
" <i>punctatum violaceum</i>	" <i>fusta</i>
<i>Lælia anceps Dawsoniana</i> , with 5 breaks	" <i>Mardell</i>
" <i>Hilli Percivalliana</i>	" <i>Wagneri</i> (true)
" <i>Schroderi virginialis</i> , and other white varieties	" <i>Backhouseana</i>
" <i>ilicina</i>	" <i>exoniensis</i>
" <i>elegans</i> , many fine forms	" <i>Trianae</i> , <i>Clio</i> , and other fine varieties
<i>Saccobium bellinum</i>	" <i>Ouldiana</i> (true)
<i>Cymbidium Philbrickianum</i>	" <i>Mendeli superbiassima</i>
	" <i>Wallacei</i>
	" <i>Gigas Madeleine</i> , and other superb varieties
	<i>Lycaste Skinneri alba</i>
	<i>Masdevallias</i> , including nearly all the finest species and varieties

All large pieces to be sold by separate lots.

Also Bateman's "Orchideae of Mexico and Guatemala," elephant folio, 1843, Sir Titus Salt's copy; Williams' "Orchid Album," both series, in 6 volumes, half-bound in morocco, gilt; Bateman's "First and Second Century of Orchideaceous Plants," and Bateman's "Monograph of *Odontoglossum*."

Messrs. P. & M. desire to state that no plants will be sold privately prior to the Sale.

May be viewed on the premises by cards obtainable of the Auctioneers, or at the Sale Rooms on the morning of Sale. Catalogues may be had of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

The Downside Collection of Orchids.

PRELIMINARY NOTICE.

HIGHLY IMPORTANT EIGHT DAYS' SALE of the whole of this renowned Collection, including many plants matchless in point of rarity, and the whole remarkable for culture and condition, embracing unquestionably the most valuable and extensive Collection of

ESTABLISHED ORCHIDS.

that has ever been submitted to Public Competition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Wm. Lee, Esq. (who is Selling the Estate of Downside, and relinquishing the cultivation of Orchids), to SELL by AUCTION, on the Premises, Downside, Leatherhead, about 1 mile from either of the Leatherhead Railway Stations,

On TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 10, 11, 12, and 13, 1888;

and also on

TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 24, 25, 26, and 27, 1888,

at half-past 12 o'clock precisely each day,

the whole of this most valuable Collection of

ESTABLISHED ORCHIDS.

A List of the principal plants appeared in the *Gardeners' Chronicle* on June 9th last.

Messrs. P. & M. desire to mention that no plants will be sold privately, but that the whole will be submitted to public competition.

The collection may be viewed any day prior to the Sale, by cards, to be obtained of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C.

The Catalogue is in hand and will shortly be published. Copies can be obtained on application to the Auctioneers.

Important Sale of Specimen

STOVE and GREENHOUSE PLANTS.

MESSRS. N. EASTON AND SON are instructed by Sir Albert Rollit, M.P., to SELL by AUCTION, at Thwaite House, Cottingham, E. Yorks, on WEDNESDAY and THURSDAY, June 27 and 28, 1888, each day at 1 o'clock prompt, a portion of his STOVE and GREENHOUSE PLANTS, ORCHIDS, &c., comprising, amongst others, fine specimen Palms, Crotons, Ericas, Dipladenias, Allamandas, Stephanotis, and Tree Ferns, all in fine condition.

Catalogues will be ready in due course, and may be had on application to the GARDENER, Thwaite House; or the Auctioneers, Bowl Alley Lane, Hull.

WANTED TO RENT, on Lease, about 2 Acres of LAND with Glass; suitable for growing out flowers.—Address, A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

CAPITAL INVESTMENT.—For Sale, in Guernsey, the WHOLE or HALF SHARE of first-rate VINERIES, in full working order. Good cottage, charming locality and climate.—A. B. GLATEGUY, Esplanade, Guernsey.

FOR DISPOSAL, a FLORIST'S BUSINESS.

The main road, opposite Addison Road Station, and Irish Exhibition. Good jobbing connection. Satisfactory reasons for selling. Long Lease. Stock, Fittings, Fixtures, and all Working Utensils. Genuine Bargain.

Apply, 9, Hammersmith Road, W.

TO BE SOLD, a GLASS NURSERY, about 9 miles from Covent Garden, close to two railway stations and fashionable town. A reasonable price will be accepted. Stock optional.

For particulars apply S. C. CROWER, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Nurserymen and Florists.

TO BE SOLD, the LEASE of a well-established NURSERY, covered with Glass. First-class Jobbing Connection. Good Stabling.—W. A. C. Waverley Nursery, near "Eyre Arms," St. John's Wood, N.W.

South of England

LARGE GARDEN, 20 Acres, with Twenty Greenhouses and Vineries. £7000 has been spent on the property. Seven years' lease. Two cottages inclusive, £150 a year. ELDRIDGE, Portsmouth.

TO LET, a Small NURSERY and FLORIST'S BUSINESS, on the South Coast. Fine position. Doing an increasing trade. Rent £50 a year, no taxes.

F., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Nurserymen and Others.

TO BE LET, on Lease, or the Freehold of NURSERY, 21 Acres of good Land, partly cropped, with good saleable Stock, with good Dwelling House, 8 Rooms, plenty of good out-buildings, good water, &c. On main line of rails. Little over 1 hour's ride from London, in the healthiest part of South England. Incoming low, and bargain to anyone wishing to commence Outdoor Nursery Trade. Possession can be had at once, on completion.

DELTA, 41, Wellington Street, London, W.C.

TO BE LET, 1 to 10 Acres of GRASS LAND, on Lease for 7, 14, or 21 years. Rent from £3 to £12 per acre, with the option of the purchase of the freehold, within the first 7 years, near the main road, Enfield Highway, about 9 miles from London.

Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

FOR SALE, about 12 dozen ALTERNANTHERAS, good plants from single pots, 2s. per dozen. J. DOVEY, Broom Hill, Spratton, Northampton.

Carnations, Pinks, and Picotees, from Seeds.

The Flower of the Gods!!! (Dianthus: *dios*, divine, and *anthos*, flower).

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Royal Horticultural Society's Gardens, Chiswick, London, W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE COMMITTEE have the pleasure to announce the following Contributions to be added to the Subscription List of the Right Hon. JOSEPH CHAMBERLAIN, M.P., on the occasion of his presiding at the 45th Anniversary Festival, to be held on JULY 4, 1888:—

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SUMMER FETE will be held at the Royal Pavilion, JUNE 28. Schedules on application.

EDWARD CARPENTER, Secretary.
Secretary's Office, 98, St. James' Street, Brighton, June, 1888.
Grand AUTUMN SHOW, SEPTEMBER 12 and 13.

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BENJN. PEARSON, Secretary.
14, Milsom Street, Bath.

WOOD GREEN and DISTRICT HORTICULTURAL SOCIETY.

The THIRD ANNUAL SHOW will be held on FRIDAY and SATURDAY, July 6 and 7, in the Grounds of Bowes Manor, Bowes Park, kindly lent by Thomas Sidney, Esq. Special Prizes are offered for Gentlemen's Gardeners, and there is also an Open Class in which good Prizes are offered. Communications to
WALTER T. DEWDNEY, Hon. Sec.
3, Myddelton Terrace, Wood Green, N.

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For Best Twelve Plants, £15, £10, £5, £2 10s. Central Group for Conservatory Decoration, £20, £10, £5. Collection of Fruit, £5, £3, £1 10s. Twenty-four Roses, £3, £2, £1. Entries Close July 8. Schedules and full particulars from
W. B. TROUP, Sec., Northampton.

TRENTHAM HORTICULTURAL SOCIETY.

The FIRST ANNUAL SHOW of FRUIT and FLOWERS will be held in Trentham Gardens, by the kind permission of the Duke of Sutherland, on JULY 26, 1888. Upwards of EIGHTY POUNDS in PRIZES. Full particulars and Schedules of Prizes may be obtained on application to
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WHEN THE
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Tickets 21s. each.

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Gathering of Gardeners

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ON

FRIDAY, JULY 13, 1888, at 5 P.M.,

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NATAL EVEPLASTINGS (Helichryum adenocarpum), pink
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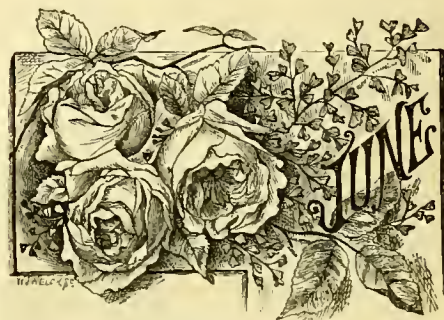
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TO THE
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FOR
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 16, 1888.

EARLY ENGLISH GARDENING.

GARDENING, like architecture, may be
termed the Art of Necessity; but it is, in
addition, like sculpture and painting, the off-
spring of elegance and luxury. The two first
named have much more in common than is
generally thought or considered, and to each the
observation of the Latin poet is equally applic-
able:—

"Hinc variae venire artes—labor omnia vincit
Improbis, et duris urgens in rebus egestas."

The desire of protection in the one case, and the
intuitive sense of beauty and refining pleasure in
the other, are latent germs which action quickly
carries into effect. To venture another simile,
the three leading principles of architecture and
gardening are identical, and resolve themselves
into the purpose, the material, and the climate.
We do not, however, propose in this place to
discuss the principles of gardening, but rather
to point out a few of the styles—or what passed
as such—the opportunities, and the booklore, in
our rapid review of the subject during the six-
teenth and seventeenth centuries.

There are very few landmarks in the early
history of English gardening; but if a careful
inquiry into the manners and customs of the
thirteenth and fourteenth centuries has any value,
we shall not hesitate to assign its birth to the
period of Chancer; but its dawn cannot be said
to have commenced anterior to the accession of
Henry VIII. Foreign complications and inter-
neine struggles had reduced the country to a
state of semi-barbarity, and men, in the making
and unmaking of kings, towns, and countries,
had no thought or care for the more ennobling
pursuit of literature, or the healthy recreation
of gardening; the intercourse with other nations
had war for its object, and devastation followed
as a natural sequence. The influence of such a

state of things was apparent on all sides, and in every line of life; but perhaps it crippled and stifled no young growth so effectually as it did that of gardening. The number of gardening books and treatises which appeared even at the end of the sixteenth century may be numerically represented by the fingers of one's hand.

Agriculture, as a matter of course, antedated gardening by centuries. The one was primary, the other secondary. The one supplied the most essential ingredients of everyday life, whereas the other was a desirable but not indispensable adjunct. Chaucer, than whom no more delightful word-painter of natural scenery ever lived, is almost the only source whence we can obtain authentic information relative to domestic life in the fourteenth century.

The agricultural population of his time may be divided into four sections, comprising the large landed proprietors, who lived upon and devoted their time to the cultivation of their estates; the smaller proprietors, or freemen, with small patrimonies of their own, or who rented portions of land from the large landlords; the villeins-regardant, or serfs, who, although belonging to the soil, had facilities or opportunities for acquiring a quantity of the soil; and, fourthly, the villeins in gross, or personal slaves, who occasionally became villeins-regardant, and even sometimes acquired the position of "copyholders," or small proprietors. But such movements as these just indicated were greatly accelerated in many ways, particularly by the Wat Tyler insurrection of 1381: and even before his death Chaucer must have witnessed and gloried in the great and irresistible movement by which England once for all rid herself of serfdom and slavery. This movement has an important bearing upon the subject now under consideration. The very natural outcome of it was the more extended cultivation of the herbs which centuries of tradition had declared, if they did not confirm, to be in possession of multitudinous virtues for various diseases and disorders. The fourteenth century may be regarded as the very granary of plant-life. The knowledge of the properties, or supposed properties, of herbs had up till then been in the sole and scattered possession of a large band of empirics; and so when opportunities extended the Englishman apparently resolved to cultivate his own herbs and to prescribe for his own ailments. It is an easy matter to draw an inference from an obvious fact; and, as the first gardening books were "herbals," so it may be accepted as an incontrovertible fact that the earliest phases of gardening resolved themselves into the cultivation of herbs.

Chaucer gives us examples for the four sections to which we have referred. The landlords and their agents are personified in the Franklin and the Reeve, or steward; the freemen are represented by the miller and the yeoman, whilst the unemancipated classes find a prototype in the Ploughman. The story which bears the last name, although undoubtedly not by Chaucer, is sufficiently *à propos* to our subject to consider it in conjunction with the tales that are authentic. The manor-house of Chaucer's period was generally moated, and had, according to its size, one or two courtyards, with gardens, fish-ponds, pigeon-houses, &c.; there was also the rabbit-warren, which supplied both food and fur, and the woodland, whence fuel for the hearth was obtained. The Franklin himself describes a very delightful garden; and, as there is no reason to assume that the picture is purely imaginary, we may infer that the gardens of the fourteenth century were much more delightful places than it is generally thought. The following, with all its quaint form of orthography, is the picture which Chaucer's "Frankelene" draws:—

"So on a day, right in the morwe tide,
Unto a gardeyn that was ther beside,
In which that they had made hir ordinance
Of vitale, and of other purveance,
They gon and plaie hem all the longe day;
And this was on the sixte morwe of May;

Which May had peynted with his softe schoures
This gardeyn ful of leves and of floures;
And craft of mannes hond so curiously
Arrayed had this gardeyn treweley.
That never was ther gardeyn of suche pris,
But if it were the verray paradis.
The odour of floures and the freshe siht,
Wold han y-maked any herte light
That ever was born, but if to gret sikanesse
Or to gret sorwe held it in distresse,
So ful it was of beaute and plesaunce."

But if Chaucer was not the first, he was, at all events, one of the earliest English authors to make distinct allusion to gardens. Mr. W. C. Hazlitt refers to the unpublished fourteenth century MS. in the library of Trinity College, Cambridge, entitled *John the Gardener*, and we heartily share in his regret that this work has never emerged from its manuscript condition. The same industrious author, in referring to the faith in astrology which prevailed in the fifteenth century in governing the operations of the gardener, quotes the title of a tract in the Porkington MS. as follows:—"A Treatise for a man to know which time of the year is best to graft or to plant trees, and also to make a tree to bear all manner of fruits of divers colours and odours, with many other things." Many very quaint and fanciful ideas are expounded in this little tract; and, if we forget for a moment the primitive character and mode of expression in the fifteenth century, we shall be puzzled to determine whether our forefathers managed to extract any grain from so much comparative chaff. One example, quoted by Mr. Hazlitt, may suffice to indicate the general tone of the advice given:—"Also, for to make that a pearl, or a precious stone, or a farthing, or any other manner of thing, be found in an Apple, take an Apple or a Pear, after it has flowered, and somewhat waxen, and thrust in hard at the bud's end, which one thou wilt of these things aforesaid, and let it grow, and mark well the Apple that thou didst put in the thing, whatever it be." The age was an age of marvels, wonders and monstrosities, so that it is not by any means surprising to find in this work full directions for the productions of Cherries without stones, Peaches with kernels like nuts, and Peach trees to bear Pomegranates. The author of *Gleanings in Old Garden Literature* alludes to a picture which one Alexander Neckam draws of a garden in the latter half of the twelfth century, and from this we learn that the cultivated herbs, fruit, and so forth, includes Fennel, Savory, Cresses, Melons, the Cucumber Poppy, Anise, Mustard, White Pepper, Wormwood, Peaches, Pears of St. Regle, Citrons or Lemons, Pearmaines, Oranges, Almonds, Dates, and Figs. The Orange has for many centuries been a great favourite in this country, and so far back as 1290 some were brought over from Spain and presented to Eleanor of Castile, the Queen of Edward I., and very nearly 200 years after this, ten fruits were sold for a silver penny.

The healthy interest which commenced to exhibit itself shortly after the accession of Henry VIII., may be traced to a variety of causes. In the first place, the internecine strife, to which we have already incidentally alluded, no longer obtained, and the rejoicings with which Henry's coronation was followed by three years' comparative tranquillity. War, it is true, loomed in the distance, but as yet the cloud was no bigger than a man's hand. The revival of the art in Italy during the latter part of the thirteenth and the succeeding century undoubtedly had an influence upon the minds of the Englishmen who, in the course of their Continental tour, after leaving college, visited the sunny South of Europe. Crescentius, as Hallam points out, dilated upon horticulture, and gave a long list of herbs, both esculent and medicinal. "His notions about the ornamental department are rather beyond what we should expect . . . and his general arrangements, which are minutely detailed with evident fondness for the subject, would, of course, appear too formal at present, yet less so than those of subsequent times; and though acquainted with what is called the topiary art—that of training or cutting trees into regular

figures—he does not seem to run into its extravagance." (Hallam: *Europe During the Middle Ages*, pt. 2.)

Up to the time of their dissolution, the monasteries of course were the most forward in matters pertaining to the cultivation of choice and rare vegetables and fruit. The fat, lazy, epicurean abbots had a weakness for the good things of life, and their orchards and kitchen gardens were proverbially well-stocked. The art of gardening was as perfect as it could be at that time in their hands, and the advantages which they possessed in this respect over laymen were great and important. As a general rule, however, kitchen gardening was much neglected until Henry VIII. commenced his long and memorable reign. As bearing out this statement, it may be mentioned that a bushel of Onions in the reign of Richard II. were worth about 12s., according to our present computation; whilst, during the last quarter of the fifteenth century, Apples were worth from 1s. to 2s. each. From the fact that Henry VIII. sent his gardener, who was a French priest named Woolf, on a tour on the Continent to obtain a fuller knowledge of the art, and to secure the most popular vegetables, it may be assumed that "bluff King Hal" was deeply impressed with the inferiority of English gardens. Woolf is said to have introduced a number of salads and pot-herbs, varieties of the Apricot, Musk Melon, the Kentish Cherry, and many other things, to the Royal gardens at the palace of Non-such, Surrey, in or about 1524.

The daybreak, which was witnessed in the fourteenth century, only developed itself into the dawn nearly two centuries afterwards. The movement which had like to have been utterly smothered on many occasions was too strong and too important to be overridden by contending influences, however powerful; and the knowledge which had been simply a verbal heirloom for ages became public property in 1563, when the first printed systematical treatise on gardening appeared from the famous press of John Day. The title is as follows:—"A Most Brief and Most Pleasant Treatise, Teachyng howe to Dress, Sowe, and Set a Garden." By Thomas Hyll, Londoner." This curious black-letter work is a very extraordinary and amusing book. The author derives all his theoretical explanations from the writings of the ancients. His advice for arrangement and hedging is given on the authorities of Varro, Cato, Palladius, and Columella; but in many instances it is given with evident reservation. Herodotus, as we all know, was very much addicted to the "it is said" principle when compiling certain portions of, and retailing particular stories in, his history; and his example was never better emulated than in the case of Thomas Hyll, Londoner. One example may, perhaps, suffice. "Ancient husbandmen affirme that if you burie a speckled toad closed in an earthen pot, in the middle of your garden, that he defendeth the garden from noxious wethers. And in the like manner, it is thought that he maye defend corne from such inconveniences"! Mr. Hill agreed with Varro in advising that a garden should be "near to the citie," that it should be near a "playne field," and that it should lie on a slope, whilst small courses of water through it would prove an additional advantage. The amateur is thus warned:—"beware that thou place not thy garden neare unto a barne, that chaffe and dust of corne, caryed abroad by the wynde, falle not upon the hearbes and so annoyne thy garden and hearbes much." He is further cautioned to "avoid ditches and stinckynge puddels." The "consideration and chusing out of good and excellent grounde," and the mode of enclosing and hedging the ground when selected, occupy two chapters of this quaint book. The long but exceedingly interesting list of herbs includes "Borage, Endive, Blete and Spynage, Lettys, Orache, Betes, Colewortes, Cresses, Percely, Sperage, Great Malowes, Savery, Lavage or Alisander, Fenell, Anise, Cummine, Colysander, Mustard Sede, Ceryll, Capers, Dyll, Rue or Herbe Grace, Isope, Mint, Tyme, Organny, Violets, Roses, Gilly Flowers, Petilius, Basyl, Leekes, Onions, Garlicke, Melones, all kinds of

Pompones, Cucumbers, the Gourde, the Artichoke, the Beane of Egypt, Radshe, Soote Marjoram, Sage, Parselane, Peneroyal, Lytle, Parsnyps, Yealow Carret, the Carnation." The cultural directions are most quaint and amusing; whilst the importance of observing the astrological positions and conjunctions of the planets, as regulating the favourable movements for sowing and planting, are duly urged. This book secured a great popularity, editions appearing in 1568, 1574, 1579, 1586, 1593, and 1608. Hill appears to have been a prolific writer, and quite an universal genius in a small way, for he published

YUCCA FILIFERA, CARR.

THE two illustrations of *Yucca filifera*, represented in our engravings (figs. 97, 100), are copied from photographs of the actual trees—the single headed one in North-eastern Mexico, between Rio Grande and Mexico, and the branching one from near Monterey, Mexico. This singular-looking tree is described as being about 50 feet high, with a trunk 5 feet in diameter.

Yucca filifera of Carrière is now referred to *Yucca baccata* var. *australis*, Engel. *Y. baccata* is well

Yucca, which, in the garden at Antibes, has a trunk more than a yard in circumference, and a height of 6 yards, is at this time in flower. The panicle is pendulous, a yard or more in length, and bears many hundreds of white flowers. The plant flowers every year.

HARDY ORCHIS IN FLOWER.

ORCHIS MACULATA when seen in good bold clumps along the margins of dampish woods is certainly a handsome plant—I mean just now, when in full



FIG. 97.—YUCCA FILIFERA: NEAR MONTEREY, MEXICO. THIS TREE IS ABOUT 50 FEET HIGH, WITH A TRUNK OF 5 FEET DIAM.

works on dreams, physiognomy, mysteries, astronomy, arithmetic, and so forth; but Hill is to all intents and purposes the first English writer on gardening. A portrait of him, *ret.* 42, is prefixed to "Phisiognome," (1572). *W. R.*

ESCALLONIA MACRANTHA.—This shrub is in grand flower, growing in a border and trained up the walls of the west front of the Hotel Ilfracombe, at Ilfracombe; it is also in the pretty grounds in front of same, in bush form; and it may also be found in good condition in many other parts of this picturesque seaside town.

known as the Spanish Bayonet, or Mexican Banana, in consequence of the large, juicy, edible fruit, which is such an important article of food to the Mexicans and Indians, much resembling a Banana in appearance. A figure of the fruit was given in the *Revue Horticole* for 1884, p. 53. The true species is found in Western Texas, New Mexico, to Southern Colorado and Southern California, as well as in Northern Mexico. Though in some positions it forms a thick woody stem, the wood itself is light, soft, and spongy. The leaves contain a coarse strong fibre, which is used in Mexico for making ropes.

We learn from M. Naudin that this enormous

flower. It often sends up the flowering-spike to between 2 and 3 feet in height, with large and conspicuous blooms. No plant is more readily grown than this pretty native Orchid, yet for all this it is seldom found even in positions where it might well take the place of some of our less showy hardy plants. Some years ago I sent a dozen of the biggest plants I could find to a friend at Edinburgh, and they have done well, as I had the chance of observing two years afterwards. The curiously spotted and speckled foliage renders the plant interesting, whether flowers are absent or present.

The *Tracy-blade* (*Listera ovata*), although not a handsome Orchid, is yet of so great interest to the

botanist, and at present the plant, with its curiously-shaped greenish flowers, may be observed in many of our woods and fields. The contrivances, or rather arrangement, of the flowers so as to escape self-fertilisation, and as first pointed out by Charles Darwin, is both curious and interesting, and well worthy of half an hour's study. Some of the plants in our lake wood at Holwood have beautifully variegated leaves, but this I have before noticed in one or two rocky woodlands on the coast of North Wales.

Well grown specimens of the Tway-blade frequently attain to a height of fully 28 inches, but 14 inches is about the average size under ordinary conditions. The rare little *L. cordata* I have not yet met with, but some fine specimens were sent from the Dublin hills by my kind friend Mr. Burbidge.

Cephalanthera grandiflora.—To-day, for the first time, I met with a bold clump of this rare plant. It was growing along the outskirts of a Beech and Birch wood, shaded from direct sunshine by the trees, the soil a rather stiff loam and leaf-mould. Some of the plants were 1½ foot in height, and bore about eighteen fully developed flowers. The flowers are highly ornamental, being of an unspotted white, except the labellum, which is faintly marked with sulphur, and an inch in length, by fully half an inch in width. It is interesting to know that so rare a native Orchid is yet to be found within a few miles of London. *A. D. Webster.*

NEW OR NOTEWORTHY PLANTS.

ÆRIDES FALCATUM (Lindl.) COMPACTUM, *n. var.*

ALL the varieties of *Ærides falcatum* (Larpenæ) which I have seen possess a more or less slender habit. The leaves are rather narrow, and of no very thick substance. The inflorescences are lax and many-flowered, and usually dependent.

Messrs. H. Low & Co. have imported a compact variety, with strong, very thick stems, short broad leaves, and short inflorescences. It stands near var. *Leonice*. After a long consideration, I think it best to propose the above-given name for it, after having had on three occasions very rich materials kindly sent at my disposition. *H. G. Rehb. f.*

CYPRIPEDIUM LAWRENCEANUM PLEIOLEDCUM, *n. var.*

Messrs. H. Low & Co., send an interesting *Cypripedium Lawrenceanum*, which has the superior area of the upper sepal white. As the uncommonly scarce coloured radii are very short, it has a distinct appearance in this time of varieties, and may be favourably regarded by the *Cypripedists*. *H. G. Rehb. f.*

THE BOTANICAL GARDENS, OLD TRAFFORD.

VISITORS to the great Whitsun show of the Manchester Botanical and Horticultural Society had an opportunity of seeing something of the change which has taken place in the gardens since the close of the Exhibition last autumn. Old Manchester and Salford is gone; all that remains is a reproduction in stone, instead of wood, of the Cross which stood in Market Sted Lane. The site of these imitative ancient buildings is now a delightful piece of green verdure with a broad walk running east to west, leading to a piece of rockwork, which Mr. Clapham, of Southport, has constructed on a portion of the site of Old Manchester, and which also serve the purpose of shutting out from view a rough corner of the gardens. What was last year popularly known as the "Grand Avenue of Approach"—the main entrance from the Chester Road—is now, as it was last summer, a spacious glass-roofed corridor, occupying the old annexe of previous years, and is now so much extended as to provide ample space for such exhibits as cannot be accommodated in the Exhibition-house; therefore a second tent is no longer necessary. The glass roof of the corridor has been reglazed, the

ground plan has been remodelled, and when the sides and centre of it have been embellished, as they will shortly be, with plants and flowers, the result will be a fine promenade, probably unequalled in any garden in the country. At the Chester Road end of the avenue, what was formerly the entrance-hall to the Exhibition has been converted into a fine dining-room. At the other end, nearest the point where the dome of the Exhibition still rears its head, is a spacious hall, calculated to seat something like 1500 people. A large orchestra has been erected for concerts; and access is had to the corridor by means of awing doors. At the sides of the hall are dressing, smoking, and refreshment rooms.

The Exhibition house has been thoroughly decorated, as its terra-cotta columns and sky-blue tops testify: and the decorations appear to be in harmony with the plants that fill it. A walk round the gardens reveals other changes. A considerable remodelling of the same was necessary; the work was undertaken and carried out satisfactorily by Mr. Clapham. The working of the immense fairy-fountain would have proved too great a strain upon the resources of the Society, and it was broken to pieces and the material employed by Mr. Clapham for other purposes. The hollow formed by the basin of the fountain is now a sunken rock garden, with seats ranged about it. The foundation *débris* of the fountain was employed to form the lower stratum of the rockwork. In constructing this Mr. Clapham imitated as closely as possible the natural dip of the new red sandstone in this locality. It dips from east to west, with thin white beds of white sandstone coming between the layers, sometimes of a few inches in depth, sometimes as much as 4 feet. The base of the rockwork is formed of "Claphamite," a special form of concrete manufactured by Mr. Clapham. It is kept as free as possible, and it is found that the roots of plants grow against and cling to it in the same way as they do to natural rock. Concrete in such formations is found to be considerably cheaper than the employment of blocks of stone, unless stone abounds in the neighbourhood—then it is used. The imitation rock is found to withstand the influence of smoke in places like Manchester better than the natural stone, and it is artificially coloured. The other main features observed in the construction of the rockwork are plenty of root-room and good drainage; all the moisture falls to the back, not to the front, and so there is none of the oozing forth of moisture to the front from crevices, which sometimes disfigures artificial rockeries. The line of Market Sted Lane as it appeared in Old Manchester is maintained, and it runs over the rockwork. In two or three years, when it becomes partially covered with vegetation, it will form a feature of great value in the gardens. Below is an archway, beneath which visitors can walk. Seats are placed there, and it will prove a cool and inviting spot in the hottest weather.

The various houses are filled with plants, all in good condition, and many of the Orchids were in bloom. The rock fernery, enlarged from time to time, and now well furnished, is always a source of great interest to visitors.

In the reconstruction of the gardens, 12,000 yards of new sods were employed. It was Mr. Clapham's desire to cover the walks with red gravel, but the expense was too great. The walks are surfaced with white Derbyshire spar, which is a little trying to the eyes on a hot day, but which will tone down in course of time. The gardens comprise some 16 acres; the walks, which have been considerably extended to furnish dry promenades in damp weather, cover 4 acres; the grass another 4 acres, the remainder being occupied by dwellings, plant-houses, shrubberies, &c.

That the recent exhibition served the purpose of extending a knowledge of the attractions afforded by the gardens is shown by the fact that the increase in subscriptions this year amounts to £3000. Musical promenades will take place three times a week during the summer, and Mr. Findlay will maintain a fine floral display in the houses and grounds, while occa-

sional exhibitions will take place. The Tulip show was held on June 6, a Rose show will be held in July, and there will be two exhibitions of fruit, one in September and the other in October, with a great display of Chrysanthemums later. The desire of the Council is to associate music with flowers; and while combining recreation and pleasure with floral displays, they are never forgetful of the main objects sought to be accomplished by the Society, and these are being steadily and successfully pursued. *R. D.*

KNAURS AND BURRS.

I WAS much interested in the article, on p. 560, having paid some attention to the subject some years ago, the results of my observations being published at the time in the *Proceedings of the Academy of Natural Sciences of Philadelphia*. I suppose, from the explanations of the nature of these organisations, as given in the paper above cited, my views have not been accepted; but after carefully weighing all that is there said, I still think my explanation less mysterious and more in accordance with recognised laws of vegetable growth.

If we start from the beginning, when the knaur is no larger than a pin's head, we shall find that it has nothing to do with the ordinary growth of the tree. It has no relation to a bud, and all speculations founded on "abnormally developed branches," or an "unusual multiplication of adventitious buds" have no foundation in fact. I enclose a few "youngsters" starting from the branch of an Apple tree, and it will be at once seen from their position in relation to the regular bud system of the tree that they can have no possible relation to such buds, and "adventitious buds" as applied to them is a term with absolutely no meaning at all.

To understand their nature we have to go back to the question of the formation of wood and of bark. I suppose it will be conceded that a bark-cell is nothing but a differentiated wood-cell. Wood is formed by the continuous germination during the growing season of daughter-cells from mother-cells. I prefer for popular explanation these popular terms to the more technical ones. In the spring of the year, or rather in early summer—for it is then, as I have shown in another paper, that the actual accession of new wood begins—the abundance of food results in vigorous cells; in a few days these mature and germinate, producing a new generation. These again produce another brood, and so on for—in this climate—about six weeks, during which the whole increase in the diameter of a branch is made. With each succession of brood-cells nutrition diminishes; and it is this fact only that permits us to distinguish the annual layers of wood in the trunks of trees. The earlier cells are larger, and their territory on the map, if we may so term a cross-section, more easily discerned. The last layer of this cell-growth is weaker than the rest, and becomes the back cell. So far, we may admit, that nutrition as suggested in the article cited, has a place in the explanation.

When active life commences in spring this outer layer is thrown off, just as a leaf is thrown off by the generation of cork-cells in the autumn, and the new growth of wood commences and proceeds between the mother-cell holding over from last year and the layer of bark differentiated from the wood cells, and thrown off as already described. I believe this theory of the formation of wood and bark is essentially my own. It is at least derived from my own experiments. I have taught it for years, and no counter facts have been adduced against it.

The value of a theory is often attested by its ability to clearly explain phenomena that others will not, and this explanation of the formation of wood and bark renders the formation of these knaurs a very simple affair.

The last series of cells formed during the growing season have not individuals all of equal vigour; some have managed to secure more nutrition than others. These refuse to be differentiated; they do not become bark-cells, but continue as wood-cells.

When the new additions to wood-growth commence in due season, this mother-cell does as the rest do, though surrounded by bark-cells; it increases as the other woody tissue does, thickening and enlarging in all directions, and making its annual layer of bark, just as good wood-cells should do. Some of these nodules as they grow will also have stronger cells than others, and make minute knaurs on the surface of parent knaurs. I enclose one divested of bark, which will show this. The little pedicle, or stalk to these knaurs is the first annual increment of wood-cell growth. The pedicle tapers in thickness from year to year. It is not thread-like, but rather funnel-formed. It is only after several years of increment on all sides that it takes rank as an actual knaur. The little ones I send you have been several years in reaching their present stage. Henceforth, their diameter would be proportionately larger. On account of the thin layer of bark formed around the knaur, they do not unite or graft with the main trunk as it grows. A smart blow with the head of an axe will knock out very large ones. They are simply held in position, and derive the moisture or food which supports them chiefly through the little thread or funiculus by which they have departed from the regular system of the parent tree.

There are of course other forms of protuberances resulting from insect or fungus attacks, parasitism, and so on, all of which would require some explanation wholly different from the above in detail, and yet with much of the same principles to start with. But the knaur proper—the excrescence that is not the result of external influences—is easily and, I trust clearly accounted for as I have described. *Thomas Meacham, Philadelphia, U.S.*

A MARKET ORCHARD.

How to utilise the soil to the best purpose beneath fruit trees in market orchards is one of the problems which has to be satisfactorily solved ere any successful effort can be made in fruit farming on a considerable scale. The ordinary farmer may feel content to have grass, because it gives little trouble. Grass is at least the most picturesque ground crop for trees, and gives to fruit culture the pre-est pastoral aspects. Still it can hardly be conceded that the growing of standard trees on grass is fruit culture in the best sense, and it is far from being fruit gardening. Farming in the abstract may mean utilising land in the simplest way, but gardening certainly signifies the getting out of the soil all that is possible through good culture. Now our metropolitan market gardens present very numerous and generally high-class examples of the way in which areas beneath trees can be profitably utilised. Thus we see in some directions the whole area devoted to flowers, in others flowers and bush fruits are combined, in others all bush fruits are seen, and yet in others—and these are seldom of the higher class—Potatoes and other vegetables are grown. Of course in the latter cases it is endeavoured to grow vegetables only where the trees are young, and have so far made no considerable top covering. The practice, except when limited to asals and dwarf Beans, Spinach, &c., is even then far from being a desirable one, as with such rough and ready cultivation of the ground as the plough gives trees invariably suffer somewhat. Still much depends upon the age of the top trees and of the width apart of the rows in which planted. A combination of bush fruits, Strawberries, Violets, and bulbs is not an unusual one, in the case of somewhat newly planted orchards; but as the bushes beneath spread, and the trees above give considerable cover, the Strawberries and flowers have to give place to the strouger fruits, and in time the entire area is but one mass of bushes below, with dense even rows of standard trees above. Such a combination of cropping is naturally exhaustive, and can endure for any appreciable time on strong land only; and yet it is remarkable for how many years such crops will continue to prove productive and profitable. The saw above and the

knife beneath are liberally used, the soil is annually forked over during the winter, but usually towards its end after the pruning has been completed, and a liberal dressing of manure has been added; the hoe is liberally applied during the summer; and, up to even beyond the twentieth year of planting, such orchards of fruits may be seen in first-rate condition, producing enormous crops of fruit. If so much care and space be given to the bush fruits, it is not to be regarded with surprise, for these often prove the salvation of the grower when top fruits run thin.

Bush fruits are fairly good crops three years out of four, whilst top trees may be relied upon about once in three years on the average. Of course there is always some fruit on them, but such produce is hardly esteemed a crop. Chiefly, however, owing to the great love for flowers which marks our vast population, growers prefer to cultivate these to bush fruits absolutely. The trees give some welcome protection from frosts, from cold winds, and later from scorching sunshine, whilst the soil, as a rule, need hardly be so stiff and holding as is the case when bush fruits are the chief bottom crop.

Amongst growers who favour flowers largely is my neighbour, Mr. E. B. He has four large gardens in diverse parts of the Feltham and Bedfont parishes, comprising, perhaps, on the whole, 120 acres, and in various stages of maturity, as far as the fruit trees and bushes are concerned. In some the trees are quite old; in one especially, a fine garden of some 36 acres, they are comparatively young—in fact, from ten to twelve years planted, and are now getting into their prime. The soil is deep, and holding, yet works fairly well; the garden has a somewhat eastern aspect, but is very flat all the same, and in wet winters rather subject to excess of moisture. Still, trees and bushes are in perfect health, and the whole is about as admirable an example of what a young Middlesex orchard should be as can be found in the county. Apples comprise first early kinds almost exclusively, viz., Early Juliens, and Keswick Codlins; these kinds not only fruit early in the season, and thus, by being early gathered give the trees early relief, but the trees begun to fruit when quite young—an important item in fruit gardening for market. The chief Pear is the Hessele, better known as the Hazel, a poor kind as far as quality is concerned, but a great and steadfast cropper. The trees are handsome, presenting half-standard heads of a drooping form and have been literally covered with bloom. Now and then may be seen a row of Williams' Bon Chrétien, or perhaps of the pillar-like Beurré de Capiaumont, and a few trees of the handsome Beurré Clairgeau have bloomed profusely, but the fruits on standards too commonly fall ere fit to gather, hence they are far from proving profitable.

Beneath the trees run one or perhaps three rows of Gooseberry or Currant bushes, chiefly the former, however. These are laden with prospective fruits, or with bloom, but sparrows have done great injury to the blooms on Gooseberries, and the complaint of similar harm seems prevalent in this district. A variety of Gooseberry not too well known, Merry Monarch, is pointed out which, whilst fruiting wonderfully, has larger blooms, and has not been injured. However, the injury done in other parts is serious, and may presently lead to a determined crusade against the birds. Then throughout the entire length of the intermediate spaces, which extend fully a quarter of a mile, are various flowers. Thus many of these long areas are filled with Wall-flowers, now just finishing; Violets, just divided and replanted; Narcissus, especially the old single poeticus and the double white form, probably the latest of all and perhaps one of the most serviceable. The double white, which is late this year, should give a wealth of flowers for the present season. This Narcissus, which seems to be one of the chief of flowers grown, is replanted every third year, the bulbs being laid after the plough and thus buried fully 4 inches. This deep planting generally results in later bloom and the bulbs are less affected

by drought. Paper-whites, which have got intermixed with the Pheasant-eyes, are cut separately, but are much less in request. Occasionally a few of the long breadths between the tree rows are planted with Coleworts or Lettuces, just to give a change for a year from flowers, but these latter prove by far the bulk of the ground crop. Wallflowers are almost ready to plant out now, as big plants and early heads of bloom are indispensable. Victoria Plum trees, the chief of the stone fruits, have not only bloomed abundantly, but are already literally studded with fruits, and if no more frosts come should stone well. So far there seems every indication of a moderate crop of Apples but plenty of Pears, Plums, and Cherries. *A. D., April, 1888.*

TULIP AND NARCISSUS CULTURE IN HOLLAND.

The Tulip has probably been longer cultivated in Holland than the Hyacinth; and the variety cultivated must have been the early flowering. There is a notice by C. Gesner of a Tulip flowering in the beginning of April, 1559, at Arysburg, in the garden of the learned and ingenious counsellor, John Henry Herwart. In 1611 they first appeared in Provence, in France, in the garden of the celebrated Peiresc. The Dutch merchants, who are fond of flowers, sent to Constantinople for Tulips as soon as they became known. The first Tulips grown in England were sent from Vienna about the end of the sixteenth century. These had been obtained from Constantinople in the first place by Clusius.

There seems to have been plenty of variety in the early-flowering Tulips when Parkinson published the *Paradisus Terrestris*. He gives the names of 15 white varieties, 16 purple, 11 red, and 7 yellow, all forms of *T. precox*. They seem to have been cultivated in English gardens from year to year, at that time, and our own experience now would lead us to believe that Tulips could be well grown in England, as they do not seem to need such sandy soil as the Hyacinth does. I noticed in travelling from Leiden to Noordwijk that the soil was not so sandy, and resembled the soil that might be found in many parts of England; and the Tulip succeeds better here than it did in some of the gardens near Haarlem. The vigour and health of the plants were most remarkable, considering the very unfavourable season. At any rate, I received the impression that, for Tulip and Narcissus culture, the balance was in favour of a less sandy soil than the Hyacinth delights in. The Tulip bulbs are planted closer than those of the Hyacinth, but not much; and such vigorous growth as they have could not be obtained without plenty of rich manure; and the prices they obtain are not such as is likely to yield a large margin for profit. The bulbs cannot be cut up for propagating the same way as the Hyacinths, but must be increased by the slower process of offsets. The Tulips grown in quantity are those most popular in England.

The Duc van Thol varieties are grown in most gardens, and are the first to bloom. The most popular varieties are La Reine or Rosamundi, blush; Yellow Prince, White Pottebakker, Proserpine, purplish-rose; Joost van Vondel, dark red, white flame; Keizerskroon—this was very fine—large crimson flowers with yellow margin; Vermillion Brilliant; Wouwerman, purple, large flowers.

Amongst varieties not plentiful or not so well known I noted, as very desirable varieties to cultivate in England, the following:—Dussert, scarlet; Rembrandt, also scarlet; Lac Backhuia, lake, tipped white; Gladstone, carmine—large, well formed flowers; Purple Crown Improved (variegated foliage) has well formed flowers of a blood colour; Jan Linken, rosy-carmine, marked with white on the back of the petals; Fisser, best dark blood-red, large size, and fine form.

NARCISSUS.

The Polyanthus Narcissus had suffered very much from frost, both as regards the leaf and flowers, so

that it was not possible to decide on the respective merits of the different varieties. The ordinary forms of *Narcissus* had not suffered from frost, and many of them were well in flower with the *Hyacinths*. *N. princeps*, *N. Horsfieldii*, *N. obvallaris*, *N. spurius*, *N. "Golden Spur," N. maximus*, are grown in very large quantities. Of Emperor and Empress there were good beds in the leading nurseries; while Sir Watkin and a few others of lesser fame were being rapidly increased. The bulbs are in some cases allowed to remain as many as three years in the ground without being removed, and the third year they make splendid growth, with immense leaves and large handsome flowers.

There is a very large collection of choice varieties of *Narcissus* in the nursery of M. De Graaf, at Leyden, and the popular varieties were grown in quantity. I had not sufficient time to make notes, but this is the less to be regretted as the best of M. De Graaf's seedlings have been exhibited in London during the season by Messrs. P. Barr & Son, of King Street, Covent Garden. Madame De Graaf, exhibited at the Crystal Palace on May 12, has large creamy-white flowers, as large as an ordinary *Horsfieldii*. It is well figured in *Gardeners' Chronicle*, vol. ii., 3rd series, p. 111. *Glory of Leyden*, also raised by M. De Graaf from the same parentage, is also a remarkable variety. So also is *Gloria Mundi*, an incomparabilis variety of great beauty, which was, I believe, also raised in the great Leyden nursery. I saw some beds of seedlings in flower and other new varieties being propagated which will some day become famous. I was also in time to see the last blooms of the *Hippeastrums*: they were growing in a hothouse, the temperature of which was similar to that I have recommended in the *Gardeners' Chronicle*. The pots containing the plants were plunged over the rims in spent tanner's bark, and better or more healthy vigorous plants no one could wish for. The few flowers I saw were well formed and distinct in colour. Immense quantities of hardy plants are grown in this nursery, the *Hellebores* being represented by a very large collection. The demand for hardy plants of all kinds is very large, but it would need to increase, as the supply of plants in all the leading nurseries at home and abroad is very large now, and seems to increase year by year. *James Douglas*.

SAXIFRAGES.

The plant represented by our little woodcut (fig. 98), though only an improved form of the well known *S. cotyledon*, is a great advance on that species, and is certainly one of the most popular of this large genus. Dr. Engler in his monograph makes *Euazoonia* his Section 13, which includes *lingulata*, *Aizoon*, *cristata* and many other well known species. The forms of *Aizoon* in gardens now-a-days are legion; many of them are really very beautiful, and all are useful for rockeries, and other similar phases of alpine gardening. *S. florulenta* is a species introduced in large quantities some few years ago, and which baffled all the efforts of cultivators to keep it in a thriving state for any length of time. The last piece we saw, and which was probably the last of the importation, was eking out a miserable existence on the roof of an outhouse at Brosely, a place famed for rare plants, many of them being in excellent condition. *S. longifolia*, the nearest ally to the above, is, with the exception of *pyramidalis*, the most beautiful of this large section. It may be cultivated with the greatest ease where it can be accommodated in the niches of rocks and large stones, where its roots can penetrate and keep themselves cool in summer. When *S. longifolia* flowers it dies, but if carefully looked after it usually forms good seeds, and this is by far the easiest way to establish it in our gardens. We find it safest, too, to sow the seeds as soon as we gather them, and the following season we find the seedlings ready to plant out. In the course of three or four years the rosettes will have attained a good size, when these again will flower, and the same process will have to be gone through again. *S. Hostii* comes next; it is a fairly common plant in collections, and noted for its prettily marked flowers. It is often grown under the name of *elatior*, *rhatica* and *tristis*,

being slight varieties. The most handsome of the *Hostii*, however, is one called *Macnabiana*; it is said to be a hybrid between *Hostii* and *cotyledon*, but after long and close examination I have quite failed to detect any *cotyledon* blood whatever, and have come to the conclusion that it is simply an improved garden form of *Hostii*, none the less beautiful because it may not claim a hybrid parentage. The flowers are larger, and the bright purple spots larger and more numerous than in any of the plants of this section. A most useful plant for pot culture, and a lovely subject for greenhouse and conservatory. *Crustata* and *altissima* are closely allied to *Aizoon*, though perhaps distinct enough for a specific place. *S. lantoscana*, a form of *S. lingulata*, was figured and described in these pages for January 22, 1881. Other forms are *catanica*, *australis*, and *cochlearis*—distinct varieties, all useful for variety. *S. pyramidalis* is largely grown now for Covent Garden Market, in small pots, and the rapidity with which it finds a market tells more forcibly than we can how it is appreciated by the public. It produces numerous offsets from the base of the large rosettes, and the strongest of these are chosen for the next year's supply, simply potting them off in good rich



FIG. 98.—*SAXIFRAGA PYRAMIDALIS*.

soil, and keeping them in cool frames, free from drip. In spring, when sending up their flower-stems, the liberal use of liquid manure will greatly improve the plants. *D.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM CAPILLIPES.

This old though beautiful *Dendrobe* deserves more attention than has hitherto been given to it. Considering the number of plants that have been imported by various firms, and the low price at which they are offered, it should soon become generally cultivated. The bulb resembles a pigmy form of *D. albo-sanguineum*, and usually attains a height of 5 inches, and produces from the upper nodes short spikes of bright yellow flowers. It is of easy culture, and succeeds best upon a block. Some grand examples of this species are now flowering at the Vineyard and Nurseries, Garston, Liverpool. *F. Ashton*.

DENDROBIUM HIRCOGLOSSUM.

This is a small-growing but floriferous *Dendrobe*, very nearly allied to the Chinese species, *D. aduncum*. The delicately coloured flowers are a little over an inch in diameter, and are produced from the upper nodes of the old pseudobulbs. The sepals and

petals are of a pale rose colour, the curious, somewhat saccate lip being of a lighter shade. The most conspicuous part of the flower is the apex of the column, which is very deep purple—almost black. The species was discovered in Malacca, and was introduced by Mr. F. Sander; a description by Professor Reichenbach appeared in the *Gardeners' Chronicle* for October 16, 1886. It is certainly one of the prettiest of the smaller growing *Dendrobes*, and is flowering at the present time in the Kew collection. It should be grown in a shallow basket of peat fibre and moss, near the glass in the warmest house.

BLETIA HYACINTHINA.

Notwithstanding the plethora of Orchid bloom at the present time, there is no inmate of the Orchid-houses which does more to heighten the general effect than this old favourite. The colour of the flowers, varying from light rosy-purple to quite dark purple, is always bright, and shows up against the long, graceful, light green leaves with great distinctness. The freedom with which it blooms well repays the small amount of attention it requires. After flowering it is advisable to remove the plant out-of-doors, and by plunging the pots in ashes there will be less trouble in keeping them sufficiently moist at the roots. As winter approaches they should, if space will allow, be placed in a cold frame, where they may stay (requiring little or no water) until early spring. When the growing points appear through the soil any plants that require it should be repotted, and the whole stood in a cool house; ample waterings will then be required. This Orchid thrives in a compost of loam, sand, and leaf-soil.

EPIDENDRUM BICORNUTUM.

This Orchid, although better known under the above name, has, along with a few other species, been separated by Benthams into a fresh genus—*Diacrium*. The pseudobulbs are cylindrical in shape, and hollow; they are said frequently to be occupied by the native ants, which enter by a small hole at the base of each, formed, apparently, by the contraction of the sides. The flowers are pure white, with a few spots of crimson on the lip. A very distinct and superior form is now in flower in the warm Orchid-house at Kew. The *Orchid Growers' Manual* states that "spikes of sometimes ten or twelve flowers are produced;" the plant under notice has, however, no fewer than twenty-two open and unopened flowers on one spike. The difference in habit, too, is very marked; usually the leaves are four or five in number, and situated at the apex of the pseudobulb, but in this instance they are distributed alternately at each node down to the base. Professor Reichenbach, when at Kew, was struck by the distinct character of this plant.

Considering the great beauty of this Orchid, it is a pity that there is any difficulty in keeping it in a continuously healthy condition. To attain the best success it must be grown in the warmest and moistest position available—if possible, suspended over a water tank. *W. B.*

CYPRIPEDIUM BELLATULUM.

We now give a figure (fig. 99—see p. 747) of this new species of *Cypripedium*, of which a full description, by Professor H. G. Reichenbach, was given in our issue for May 26 last. The plant was shown by Messrs. H. Low & Co., the importers, at the meeting of the Royal Horticultural Society on May 22, being then Certificated. It was again shown by the same nurserymen on the 12th inst. at the Society's meeting, and in some variety, a rose-tinted specimen obtaining a First-class Certificate. The flowers are very varied in their marking, and on opening have a greenish tinge.

ROYAL APPOINTMENT.—Messrs. E. H. Krelage & Son, Haarlem, inform us that they have received from his Majesty the King of the Netherlands the warrant of appointment as Royal nursery and seedsmen.

GLADIOLUS THE BRIDE.

THERE are few plants probably among so-called hardy bulbous plants that can equal, much less surpass this one in its chaste and lovely blossoms. The variety of circumstances to which it adapts itself in so charming a manner are far too numerous to give in detail, but may be summed up in one brief passage, that careful and judicious workers cannot misplace it in any floral arrangement. Its picturesque and pure white blossoms may be brought into pleasing contrast with so many other flowers that it is really an indispensable article with the florist. Some years ago, in a note to the *Gardeners' Chronicle* respecting this plant, I referred to its adaptability for early forcing, by which I meant, not forcing as may be generally understood with respect to early Grapes, Peaches, and certain vegetables, or the like; but by bringing it on in gentle heat, say, for example, a temperature of 50° to 55° up to the middle of April. I further suggested that, consequent upon its being so nearly akin to evergreen, the earliest flowered batches might, with careful treatment, be made to flower twice in the year. I stated my intention of testing this, with the hope that some others might do likewise, and in turn record the result. Since that time I have carefully tested them with a view to bring about the above result, but without success. The earliest batches, say of this year are, if allowed to remain undisturbed, ready to start into active growth by the middle of August ensuing; they look promising enough at first, but after a reasonable time they fail to gain the necessary strength requisite, and ultimately only produce a considerably weakened growth. This is perhaps due to the hasty manner in which they are made to flower in a foreign temperature; and consequently in a proportionate degree does the maturation of the new corms for the next season's flowering suffer. Such is my experience of this plant when used for producing flowers prior and up to the season of Easter. After this time they may be had without undue forcing.

Of this very useful plant the question is often raised, "Is it perfectly hardy?" and my reply is, that those who value their stock will always protect it from either winter or spring frosts. It is not sufficient because this or that plant squeezes through a severe winter, that it should be pronounced "hardy," as is too often the case; it is rather a question of what follows this extreme test, and whether it is generally more useful to the majority; for instance, *Lapageria alba* may just get through a winter, but will it produce a vine the following summer fifteen or twenty feet long, and produce a score of its waxy blossoms in a raceme? If not, where is the use of exposing it to such hardships? Again, take *Primula obconica*, which in certain favoured localities may be hardy, but can it under these conditions be expected to yield the endless quantities of blossoms which come in such rich profusion when grown as a greenhouse plant during the winter months? The answer is obvious to all; and so, in a corresponding degree, does this affect the *Gladiolus*; and those who are anxious of preserving it to the utmost, cannot do better than plant it out in a cold frame in prepared soil; any light, fairly rich sandy loam suits it admirably, in a sunny position, where the lights may be taken off entirely when spring frosts are gone, till they have a good stock of it; and after it has stood a couple of years undisturbed, the crop will be a surprising one to those unaware of its reproductive capabilities. Given good corms for planting in the first instance, and with the treatment I have just advocated, one might take out at the end of two years from eight to twelve corms for every one planted, besides being enabled to cut a goodly quantity of flowers meanwhile; it is quite a common occurrence with frame culture to take out five and six as the result of one, while an ordinary average return is seldom below three.

Spring frosts are very destructive to this plant, and if planted on cold, clayey soils, so much the

worse; the chief points, therefore, are, a light, warm soil, sunny position, complete protection from spring frosts, and, above all, let wireworm be kept away, or they will soon riddle them with holes. It may not be generally known that there are two white forms of this plant—*Colvillei The Bride*, and *Colvillei alba*; the first has pure white flowers, and sulphur-white anthers, while the latter has flowers not quite so pure, and violet-coloured anthers; notwithstanding which, they are frequently regarded as synonymous in many bulb catalogues. *E. Jenkins*.

FLORISTS' FLOWERS.

NEW GOLD-LACED POLYANTHUS.

THERE reached me some days ago from Mr. A. Mottershead, Brockhurst, Didsbury, some examples of new gold-laced *Polyanthus*, which he thought would interest me. *Black Knight* (First-class Certificate, Manchester, 1888), which might be generally described as in the way of *Cheshire Favourite*, good well-formed pip, black ground, fine and regular lacing of pure gold, slightly darker in the centre; promising to make a valuable exhibition variety. *Regina*, a very fine variety of the style of *George*



FIG. 99.—*CYRIPEDIUM BELLATULUM*: PURPLISH-BROWN SPOTS ON A WHITE GROUND. (SEE P. 746).

IV., ground colour black-red; fine clear deep golden centre, lacing good; full-sized pip, of fine form. *Black Cap* (First-class Certificate, Manchester, 1888), black ground, deep golden centre, pure and solid, the lacing bright gold, finely laid on; good well-formed pip. *Mrs. F. D. Horner* (First-class Certificate, Manchester, 1888), also a fine and promising black ground, good clear golden centre, and regular lacing, finely formed pip; first-rate. *Ensign*, dark red ground, good colour, and fine lacing; and *Seedling No. 1*, black ground, also a promising flower. All these, I believe, are seedlings raised by Mr. Mottershead, and that three of these should be deemed worthy of Certificates at Manchester, where the properties of gold-laced *Polyanthuses* are fully understood, attests to their high-class quality. *R. D.*

THE HOLLYHOCK.

All plants should be well established out-of-doors by the middle of June, and the permanent stakes placed to them, in order that no future disturbance of the plants shall take place. Driving a stout stake into the ground close to the stem of a plant may do harm at a later date, by disturbing and injuring the roots. As they increase in growth see that the stems are not too firmly tied to the sticks, but sufficiently so to prevent them from swaying about. The side growths will soon push out, and as these make excellent cuttings, they may be utilised for that purpose. A lateral growth will have one, two, or three eyes at the base of the leaves nearest the main

stem. At the base of the other leaves there will be flower-buds, but every one of the leaf-buds may be used to produce a plant. They are merely cut off with about an inch of stem attached to them, and planted in small pots. It is not necessary to plunge them in bottom-heat; they soon root in cold frames if shaded from the sun. Any growth from the base of the main stems not needed for flowering may also be used for cuttings. With careful management a large stock of plants can be obtained. During the summer months I dip all the cuttings overhead in soapy water, in which some flowers of sulphur has been dissolved, and to which some tobacco-water has been added. The last-named ingredient will destroy any red-spider that may be on the leaves; soap and sulphur alone will destroy thrips, green-fly, and mildew, but is not certain to kill "spider."

The incipient stages of the Hollyhock fungus may be checked, and the pest destroyed, by the use of sulphur and soapy-water. The old-established plants ought to be syringed daily, directing the force of the water underneath the leaves. I may add, the plant is a gross feeder, and luxuriates in a rich, deep soil, with plenty of manure-water supplied during growth.

THE DAHLIA.

If the plants are backward there need be no hurry to plant them out. I like to have good substantial plants in 6 or 7-inch pots; and there is no need to plant them out before the second or third week in June. As I write now there is a dry east wind blowing; and such tender plants as Dahlias fully exposed to it might be much injured. They should receive much the same kind of treatment as Hollyhocks, but being more tender they cannot be planted out so early, and to give them a good start I dig out a hole large enough to hold about two spadefuls of prepared soil, and in this the Dahlias are planted. I also prefer to put in the sticks at that time. A little decayed manure placed on the soil round each plant prevents much evaporation of moisture, but retains heat about the roots, causing a more rapid and steady growth. I well remember the difficulty we had in a bleak part of the lowlands of Scotland near the Cheviot Hills, to get in the Dahlia blooms for exhibition by the middle of September. It could not be successfully accomplished except by growing the plants on in frames and planting them out late. Early autumn frosts were also a source of anxiety. I have seen white frosts by the second week in September, and the flowers had, of course, to be protected at that date.

THE ANEMONE.

I have grown this year a large number of named varieties of the best double forms, and they have greatly improved on what they were last year in vigour of constitution. Mr. Barr sent me a number of selected forms from the Riviera—single, of course; but they were very pretty, of the fulgens form, and of lilac-purple hues. The double varieties are rich in brilliant scarlet, and also quieter shades of pale rose, cream, slate, and blue, with many intermediate shades, and are equally pretty. They began to go out of bloom just as the leaves showed signs of decay, and in two weeks it will be time to take them up and store them away in a dry place.

THE PHLOX.

This is one of the sweetest hardy plants in cultivation for those who do not care to be troubled with glass-houses or frames in their garden. I do not know anything in the flower garden more easy of cultivation, or that can be propagated with greater facility. I have in previous numbers recommended propagating cuttings in small pots over a hotbed early in the year. These cuttings produce one strong spike, which will flower very strongly in 5 or 6-inch pots, and are excellent for greenhouse decoration. We have treated the cuttings in a more simple manner this year. They were taken off about the end of May when they had grown about 6 inches high, and planted out-of-doors in a shady border; the shoots were slipped off with a heel, and they are

already established and growing; every plant of them will form a good flowering specimen for next year. They may be planted either in October or early in March where they are to flower. Let them stand 18 inches apart in deep rich soil. After planting cover the surface with decayed frame manure, and if this is objectionable, use cocoa-fibre refuse, a material excellent for retaining moisture in the soil, and quite as good as manure where frost has to be kept out.

THE PINK.

This sweet little plant is not likely this year to throw its delicate perfume round the garden before the first week in July. The growth is healthy and quite strong, proving conclusively that cold weather is not in the least injurious to it. The cold dry east winds pinch up and cripple the Carnation and Picotee, but will not in the least injure the Pink. I noticed years ago how easy it is to grow Pinks well in Scotland when Carnations and Picotees succumb to the weather. The propagation of the Pink by pipings must be attended to from the middle to the end of this month, and they will take best if the work of propagation is performed in showery weather. At that time they may be planted in a shady place out-of-doors, but if the weather continues dry and hot they will succeed better in a frame or under handlight. They should be shaded from the sun until they have formed roots. The aim of the cultivator is to produce good strong plants for setting out in beds about the end of September or early in October.

THE FORCINO PINES

that were propagated from pipings in the month of April will now be ready to plant out and grow into substantial clumps, which by the end of September may be dug and potted into 6-inch pots for forcing the following season. The old plants that were forced during the past season make excellent subjects to plant in the herbaceous borders, where they speedily form large plants, which will give fifty or more fine blooms next season. Let them have good rich soil to grow in. *J. Douglas.*

THE ALPINE GARDEN.

LITHOSPERMUM PROSTRATUM.

THIS, as its specific name implies, is a plant of low growth, rising only a few inches in height, but when in bloom it is a striking object, its blue flowers rivalling the Gentians in the intensity of their hue. These are about the size and shape of those of the well-known Forget-me-not, and are borne, on healthy plants, in great profusion. Unfortunately this *Lithospermum* is what gardeners term "miffy," and yet now and then it is met with growing in the freest manner, but this is in situations where the soil and position are both suitable. Where it does best with us is in a sheltered place, fully exposed to the sun, where the ground is loose and sandy, and there we have a plant quite 3 feet across. The shoots are hard and wiry, but they will root readily if layered in sandy loam or peat, or cuttings may be struck from the young, half-ripened wood if put in and kept close and shaded under a hand-light or bell-glass in the open. *J. S.*

CAMPANULA ALLIONI.

Like many other rare alpine, this plant is flowering this year more freely than usual. It is flowering best under peculiar conditions, which I think it as well to mention. We growers of alpine are generally so much afraid of having plants of delicate growth smothered by their coarser neighbours that we are liable to run into the opposite extreme of leaving them too bare. The straggling habit of *Campanula Allioni* would suggest an inclination to run amongst dwarf herbage. I observe that in one of my raised borders there is a compact growth of *Primula integrifolia* which has grown from seed, and covers the ground very thickly. *C. Allioni* has run

into this and has pushed a dozen detached shoots through it, every one of which bears one or more flowers. One shoot is three-flowered—a thing I never saw before in this garden. My chief grievance against *C. Allioni* is the colour of the flower, which is here dull purple, and by no means equal to what I have seen in Mr. Ewbank's garden in the Isle of Wight. But it does not generally flower freely here, one flower to ten barren shoots being about the average. *C. Wolley Dod, Edge Hall, Malpas.*

FRUIT REGISTER.

GRAPE GROS MAROC.

WE have here growing, in one of the vineries, a Vine of this noble-looking Grape. It is worked on the Black Hamburgh, and makes strong growth, and produces an abundant crop of not large, but very compact bunches, and especially on the young rods. The berries generally grow to a capital size, and finish well. But, after having said this, there is nothing more to be urged in its favour. From some cause unknown to me, I have never been able to cut from this Vine a single bunch with good flavour, and it is one of the worst in that respect that is grown here. The bunches hang for a time fairly well, then the skin becomes tough as leather. Is this the character generally of this variety? If so, intending planters should think twice before getting it. It may very probably be valuable as a market variety, being something that will catch the eye of the buyer. *H. Markham, Mercworth Castle.*

APPLE FOR COLD SOILS AND EXPOSED SITUATIONS.

I have under cultivation about sixty varieties of Apples, and on going over the orchards I have been struck by the vigour and fruitfulness of the Scotch Bridget. This Apple is well known in Lancashire, especially near Preston, but is not found in the catalogue of any Midland or Southern nursery. For exposed situations it has no equal in hardness; its growth is rapid, and it bears after the third year. The fruit is of a fair size, Codlin-shaped, and of excellent quality for culinary purposes. It is fit for use at the beginning of October, and will keep much better than Warner's King or Stirling Castle. The tree has one fault, and I suspect this is the reason that it is not a favourite in the nursery: the branches have a tendency to grow downwards, which, no doubt, gives trouble in training good-looking trees for sale purposes; but this faulty habit should not prevent its extensive cultivation in places it is well adapted for. *James Ellis, The Gynsills, Leicester.*

FORESTRY.

DAMAGE DONE BY CROSSBILLS.—In a recent contribution of mine to the pages of the *Gardeners' Chronicle*, regarding the injury done to Spruce Fir trees here, I attributed the destruction to these birds picking out the buds of the young shoots, although then not actually having seen them engaged in it. My views have since, however, been fully confirmed by these birds—crossbills—having been seen busy at their depredations on Spruce Firs, and strewing the ground with young shoots under them, which seems to me conclusive evidence that these are the birds which have done so much damage to Conifers at this place during the past spring.

Judging also of the time when the forests here were so much overrun by squirrels, and when they were destroying *Pinus sylvestris* by thousands in young plantations of trees from 20 to 30 inches high, none of the Spruce Firs were seen to be touched, does not the same idea strike those who adhere to the belief that the squirrel is the sole depredator when they are plentiful and always around them, that they have not been seen at similar work in former years, and making use of these buds as their natural food? I admired the playful nimble action of these little quadrupeds as much as any one, until their destructive habits became unbearable in forests and gardens. In the latter department they made

free in carrying off and destroying a considerable quantity of both Apricots and Plums, and this havoc was a reason their death warrant was proclaimed.

While on the subject of crossbills I may mention that on looking over Elgin Museum along with a friend on Saturday last I observed a nest of a crossbill which the keeper informed me was recently brought in by a school-boy from the woods at Gordon Castle. Inside of the nest was a fine specimen of a male bird, and an egg of the same species by the side of it. The nest was made up of small Larch twigs at the bottom, and the sides were well lined with fine dry grass. *J. Webster, Gordon Castle Gardens.*

PLANTS AND THEIR CULTURE.

HARDENBERGIIAS AND KENNEDYAS.—The majority of these plants will now have done flowering, and attention should be given to thinning, training, and regulating the young growths, cutting out all weak and superfluous shoots, so that every part of the plant may receive a fair share of light and air, as it is only when these plants are afforded a maximum of these that the best results are attained. They are not well adapted for pot culture, but few other plants are more effective when in flower when planted out and trained up a rafter, pillar, or light end of a greenhouse. The soil best suited for them is a light loam, but if the loam be heavy the addition of leaf-mould or peat and sand will be beneficial. Old-established plants had better have the surface-soil removed, the remainder carefully pricked up with a fork, and have a sprinkling of some mild manure applied, finishing with a top-dressing of the compost recommended. They are all easily propagated. Cuttings of the half-ripened wood, if inserted round the edges of small pots, filled with sandy compost, and stood in an ordinary frame or in the greenhouse, under a handlight, carefully shaded and watered, will be nicely rooted in a few weeks, when they should be potted off; but as most of the species produce seeds plentifully, this offers the best mode of increase; moreover, the plants raised from seeds usually grow freer than those raised from cuttings.

Of *Kennedya*s, *K. prostrata* and its beautiful variety, *Marryatæ*, are two of the best, both being bright scarlet, with a yellowish-white blotch at the base of the petals; *K. rubicunda* is a strong growing species, with dull red, dark-coloured flowers; *K. australis* or *coccinea* is similar to the last, but has much brighter coloured flowers; *K. nigricans* has deep violet or purplish-black flowers, and is very distinct.

Of *Hardenbergias*, *H. monophylla* is perhaps the best known; it has a much closer and compacter habit than the *Kennedya*s. The same may be said of *Hardenbergia ovata* and its variety, *O. alba*. These two sorts are quite distinct from *monophylla*, the leaves being broadly ovate, acuminate, and the flowers in larger racemes than *monophylla*, and which has more or less cordate oblong lanceolate leaves. There is a distinct dwarf growing species called *H. lilacina*, with lilac flowers; *H. Comptoniana* is the strongest grower of the group. Cool greenhouse temperature suits all the species.

Bouvardias.—Plants intended for winter flowering should now be encouraged to make all the growth possible, consistently with due regard to the future ripening of the wood. During the summer months *Bouvardias* are better grown without fire heat in cool pits or frames fully exposed to the light. The pits should be shut up early in the afternoons, at the same time syringing the plants, and allowing the temperature to rise considerably. It is, however, advisable to put on a small chink of air at the highest part of the structure early in the evening. A variety of composts suit the plants, but when it is remembered that they are fine-rooted hard-wooded plants the cue is given to the kind of soil required—that is, one composed of one half loam, the other half leaf-mould, thoroughly decayed manure, peat and sand, varying in quantity according to the quality of the loam; and above all things make the soil rich. Different growers fancy different varieties. I like *Vreelandi*, *Alfred Neuner*, *Prædant Garfield*, and *elegans*.

Chrysanthemums.—These should not be allowed to become much pot-bound before being put into their flowering pots. In potting up the collection it may happen that some sorts, through being late struck, or other causes are not ready to be potted, it will, therefore, be best to put all such to one side

for the present, as nothing is gained by moving them until they really require it. A rather strong and rich loam is the best kind of soil to use, but success may be attained by using almost any kind of soil, and if it is of too light a description ram it very firmly into the pots, using plenty of sifted decayed manure and bone-dust; if it be heavy add sand and brick rubbish and not ram it quite so firmly. In all cases provide good drainage, and do not use pots of too large a size—for single plants 9-inch pots will be sufficiently large, it being better to give liquid manure, when the pots become full of roots, than to overpot them. If two or three plants are to be grown in one pot then possibly 11-inch pots would not be too large. After potting a sheltered position where the plants can be well exposed to the sun with the pots plunged in coal ashes, sawdust, or similar materials suits them well. In such a position they are not liable to become drawn, and with due attention to watering the wood gets so thoroughly ripened that good flowers generally follow. On warm evenings the plants are much benefited by being well syringed or engined. In arranging the plants in their summer quarters' care should be taken that every plant gets a full share of light and air and avoid crowding.

Pelargoniums which are going out of flower, if they are to be kept for another year, require to be further attended to for a few weeks by being watered, and if they have become weakened by being placed in unsuitable positions when in flower they will be benefited by being shaded from the sun's rays for a few days, but immediately they are sufficiently recovered they should be placed out of doors and fully exposed, the object being to well ripen the base of the shoots before cutting them back. Plants thus treated break away with nice sturdy shoots. If there is any deficiency in the spring-struck stock put in more cuttings, choosing shoots from the flowered plants and which have not flowered, or at all events have not been much exhausted by flowering. Pinch and pot them on as they require it, and the young plants previously struck should be placed in cool frames and kept free from green-fly. Remove the saashes from them in fine weather. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

BEDDING PLANTS.—Any planting that yet remains to be done should be pushed forward and brought to a close quickly, even though it be at the expense of some less important work in other departments. Sub-tropical plants which have been gradually hardened off should be planted out forthwith, loosening the roots lightly with a pointed stick where they have become matted together—i.e., of soft-wooded species raised from seed the current season—not forgetting also in case of partial dryness at the roots to give them a thorough watering beforehand, and stake and tie all tall growers as the work of planting proceeds. Where bedding-out was finished in good time certain plants will require attention in regard to pegging down; of such are *Verbenas*, *Heliotrope*, and *Petunias*; and if a display of bloom is not demanded for another week or two, it will be advantageous to pinch off all flowers that are open at the present time, and also to pinch out the points of the strongest shoots; by so doing the plants will gain vigour, cover the surface more quickly, and afford a better show of bloom at a later period. Early planted *Cerastium* and *Sedums* should also be looked over, and have all flowers cut off and the growth trimmed and regulated as often as occasion demands—i.e., in carpet beds. In the event of dry weather, attend assiduously to the watering of late planted stuff, which is best done in the evening.

Wallflowers.—Young plants raised from seed sown last month should now be put into their summer quarters, giving them a distance of 6 inches in the rows and 9 inches between the rows, preference being given to an open position, when it is a matter of choice. We prefer to grow these plants in poor soil, and never dig in any manure for them, and the result is sturdy, thrifty plants for transplanting in October in their flowering quarters, and which are well able to withstand the rigours of a severe winter. Do not allow the young plants to suffer from want of water, and through the ensuing months keep the surface-soil between the rows well stirred with the Dutch hoe. Cuttings may now be put in of the old double yellow and dark red varieties. Cuttings taken off with a heel, and inserted in a sandy com-

post in a shady situation, will root in due time. Prick out also young seedlings of *Sweet Williams*, and treat them in the same manner as *Wallflowers*.

Chrysanthemums.—Old plants that were planted out in March, and are intended to flower outside, and such as were repotted and plunged in open borders, as advised in the *Calendar* for March 10, should now be looked over, all weak and spindly shoots being removed, leaving about eight or nine of the strongest only. The staking and tying of the most forward and vigorous plants ought not to be further delayed. Examine the points of young shoots for aphids, and where such are found dust them over with tobacco-powder, the plants to be syringed overhead immediately beforehand if dry at the time. Do not stop the shoots, but allow them to grow unchecked.

Bor Edging.—This may now be clipped, and put into order, sheep-shears being found the best things to be used for the purpose. Although, in itself a simple operation, it may easily be spoiled if left to unpractised hands, and when the men happen to be new to the work, it is as well to give them a "lead," at the same time impressing upon them the importance of not cutting into the old wood, which would cause a stubby and unsightly appearance for the remainder of the summer. *J. Horsfield, Heytesbury.*

THE HARDY FRUIT GARDEN.

STRAWBERRIES.—The plants of early varieties on warm borders, are swelling off their fruits rapidly, and should the weather continue very dry a thorough soaking of pure water may be given, but apply no manure-water whilst fruits hang on the plants—it is a nasty practice. After watering, the framework on which the nets will be suspended should be erected. Nets merely spread over the surface of the beds, will in some gardens suffice to prevent the fruit being eaten by birds, but in wooded parts something more is generally wanted, or the blackbirds and the thrushes will pick the best berries. By using a framework for the net to rest on, the latter can always be easily removed when fruit is gathered. The late varieties are now pushing up their flowers, and must receive water in abundance if the soil be dry. It is a good plan to make notes now of the number of plants which will be required for forming new beds in the autumn, so that when layering time comes the required number of plants may be layered, and if pots are used, these may be prepared by being filled with soil on rainy days, remembering that the soil can hardly be made too rich for them. If the plants are required to fruit next year, they should be layered as early as good layers can be got.

General Directions.—Look over *Raspberries* which will fruit in the autumn, tying up the young canes to the wires, or whatever else may be used to train them on. *Gooseberries* where preserved in a green state are now ready for gathering. These berries should not be allowed to get large, the skins then becoming tough in boiling. The *Rough Red* and the *Warrington* are varieties large enough at this time of the year for bottling purposes, and should be gathered, as also all others, in a perfectly dry condition. May *Duke Cherries* had better receive a final cleansing before being netted over, the birds attacking the fruit as soon as they show the least tinge of colour. The nets must be securely fastened to the wall, or pegged to the ground as the case may be, for should but a small aperture be left open sufficiently large, the birds will not fail to make use of it. The same remarks apply to the *Kentish Cherries*, which are generally preserved whole, and therefore need to be well protected. For protecting *Cherries* of all kinds I find that half-inch tanned netting is the most efficient and durable for the purpose. *A. Ward, Stoke Edith Gardens, Hereford.*

FRUITS UNDER GLASS.

PEACHES.—Trees from which the fruit is all gathered should be frequently syringed to keep the foliage clean, this being a matter of the first importance, as on the proper ripening of the wood and the plumping of the flower-buds, the next season's crop will depend. If the trees have been in bearing some time, an occasional application of weak manure-water will be found of benefit; and do not allow the trees to feel the least dryness at the root from now

onwards till the leaves drop naturally, else bud dropping in spring will result. Throw the house open night and day, and if the roof be portable let it be removed, and fully expose the trees, not omitting attention to cleansing and watering.

Houses in which the fruit is ripe should be kept with full air on night and day, this being the means of securing high flavour. It used to be the custom to hang nets under the trees and allow the fruit to drop; but it is much better to go over the trees daily when the fruit is cool and gather all that are ready. A little practice will soon enable any one to discern when a fruit is fit to gather; there must be no pressure of any sort. As the fruit is gathered, it should be placed in an airy room on a soft surface, each day's picking being kept separate. When there is likely to be any irregularity in the supply, the next house may now be hurried forward, or retarded as the case may be. The night temperature may be advanced to 70° and this can now be easily done without the aid of much artificial heat; avoid, however, a moist and stagnant atmosphere.

Succession-houses.—Trees which are swelling a heavy crop of fruit should be assisted by some artificial manure or crowding-water. Keep the foliage clean, and damp the paths and walls in the morning and at shutting-up time; pinch all gross shoots and lateral growths, keeping the shoots systematically tied to the trellis; and push the foliage to one side to allow the sun to give colour to the fruit, remembering that, as a rule, the higher the colour the better the flavour.

Late Houses.—Trees in these houses will now be forward enough to be finally thinned; reserve all the best placed fruits, and if all be right at the root there need be no apprehension of fruit dropping at a later date. Attend to the tying and training, allowing plenty of space between the shoots. Now is the best time to retard the crop if this should seem desirable, and to do so, freely open the ventilators. This is a more preferable method than having recourse to shading. Keep the syringe going vigorously, and water the borders outside, applying a mulch of horse-droppings or other suitable material afterwards. *W. M. Baillie, Luton Hoo.*

THE KITCHEN GARDEN.

MULCHING AND WATERING.—These operations tax the energy and the resources of the kitchen gardener severely during a period of warm dry weather, especially if the soil be shallow and dry; still if a succession of vegetables of good quality must be maintained, it is necessary that water should be afforded the crops abundantly, and this is very important, if specimens are required for exhibition, and to such as may be reserved for this purpose liquid manure should be given occasionally. On dry soils much good may be done by applying a thick mulching of manure after heavy rain has fallen, and before the surface of the ground has got dry; and in default of manure or straw from the stable, short grass makes a fairly good mulch. The soil should be kept well loosened among growing crops where mulching cannot conveniently be done, thereby rendering the evaporation from the soil much less than it otherwise would be. Enough water should always be given at one time to thoroughly soak the soil, and where *Celery* in trenches is watered a little soil should be scattered along the trenches immediately after each application, thus preventing the evaporation of water from the soil by the soil acting as a mulch. *Celery* will also be improved by doses of liquid manure occasionally, also *French Beans*, *Scarlet Runner Beans*, *Peas*, *Caniflowers*, *Lettuces*, *Onions*, and *Asparagus*. The stems of the last named, if large heads are looked for next year, should be secured from wind waving if in exposed situations, and a little common salt be sprinkled over the beds at the rate of about 1 oz. to the square yard. A dressing of soot should be afforded if the *Onion* is likely to be troublesome, and if autumn sown *Onions* are attacked by mildew at the roots it may often be prevented from spreading much by a timely application of guano, soot, and lime mixed together in equal quantities by measure, and applied at the rate of 1 pint to a square yard of surface, just before a shower of rain.

Seeds.—Sow some more of *Snowball* and *Red Globe Turnips*, *Lettuces* in variety, *Spinach*, *Scarlet Runner Beans*, and *French Beans*, *Radishes* on cool borders, a little *Colewort*, and some very late *Broccoli*. *W. H. Divers, Ketton Hall, Stamford.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, JUNE 21—Linnean Society.

SHOW.

WEDNESDAY, JUNE 20—Royal Botanic Society.

SALES.

TUESDAY, JUNE 19 { Imported Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, JUNE 20 { Imported Orchids from Messrs. H. Low & Co., and Orchids in Flower, at Stevens' Rooms.

THURSDAY, JUNE 21 { Established Orchids from Mr. F. Sander, at Stevens' Rooms.

FRIDAY, JUNE 22 { Imported Orchids, at Protheroe & Morris' Rooms.

Too many
Varieties of
Fruit, &c.

It is said with some truth that we have too many varieties of almost everything, whilst the number is constantly being added

to. We have certainly too many varieties of Apple, the same may be said as regards the Pear, and, indeed, most other fruits. A similar objection applies to culinary vegetables and to flowers. This being so some cultivators come to the conclusion that it is always advisable to stick to the old and well-tried sorts. This it is, no doubt, desirable to do until something better is found to supersede them, but, before this can be ascertained, a trial must necessarily be made. Evidently the better course to pursue is to give eligible novelties a fair trial, upon a limited scale in the first instance, and thus to gain an idea of their merits or demerits. But to abstain from growing novelties until their merits are, as it were, forced upon observation by other and more enterprising cultivators is hardly the way to encourage progress or reap its advantages. It will, of course, be admitted that the growing of novelties not unfrequently results in disappointment, but at the same time much interest is experienced in watching the experiments, and which may to some extent compensate for occasional disappointment.

It is said that the originators of novelties should prove their merits or demerits before introducing them to the public. No doubt this is generally done, but at the same time, some allowance must be made on the score of the natural partiality experienced in favour of one's own productions. A like allowance should be made on account of the differences consequent upon diversities of soil and situation. It is not infrequently found that novelties do not main-

tain the high character that was justly assigned to them in the first instance, after they have been removed from the soil and situation in which they originated. Those, however, who are old enough to remember the varieties of fruits, vegetables, and flowers, which were cultivated and held in esteem some thirty or forty years ago, must admit that a vast improvement has somehow been effected since the time alluded to, and it seems almost ungrateful now to throw cold water upon the efforts of those who by industry and perseverance are still endeavouring to effect improvements.

Even as regards the Apple, with its admitted superfluity of varieties, it must be acknowledged that such varieties as Cox's Orange, Lord Suffield, and various other productions of comparatively recent years—are improvements upon many of those which preceded them. The same may be said with regard to the Pear, and other varieties of hardy fruits.

Even in the case of the Strawberry it must be acknowledged that such comparatively recently introduced varieties as Sir Joseph Paxton, Sir Charles Napier, and Loxford Hall Seedling, &c., are improvements upon the good old Keen's Seedling, which may have been regarded as a dubious novelty about the period referred to. In the same way the Grape Vine has of late years had valuable additions made to its varieties. In the matter of culinary vegetables this advance has been quite as marked as in the case of fruits, as witness the great improvement in the varieties of the garden Pea, the Cauliflower, and other members of the genus Brassica.

Among the various groups of decorative plants the improvement has of late years been, if possible, even more conspicuous and decided; as is illustrated by the Rose, and numerous other genera of flowering plants, such as the Fuchsia, the Pelargonium, the Dahlia, the Petunia, the tuberous Begonia, &c. The Fuchsia, appears to have been introduced to this country from Chili about a century ago. But the improvement which has been effected in the plant since its first introduction, or, say, within the last forty years, is very remarkable. The same may be said with regard to the Pelargonium, more particularly the zonal section of that extensive genus of flowering plants, and which is now found to be so useful for winter as well as summer decoration, producing in abundance flowers of the finest form, double as well as single, and of nearly all shades of colour. These useful decorative plants are, with good reason, supposed to have been derived from the blending of two species, viz., *P. zonale* and *P. inquinans*, which were introduced in the early part of the last century, although few, if any, successful attempts were made to improve them until about the period mentioned. The Dahlia was introduced from Mexico about a hundred years ago; it appears to have been then, as well as for many years after its introduction, a coarse-growing plant, producing single flowers of little merit; some of the varieties, however, appear to have shown slight tendency to doubling, of which circumstance the cross-breeder took advantage, with the result which is annually to be seen. The Petunia was introduced from South America about 1823; subsequent introductions were also made, but the chief improvement in its flowers, which are now double as well as single, have been accomplished by the efforts of the cross-breeder. The numerous and very beautiful varieties of tuberous-rooted Begonias may be regarded as among the latest triumphs of the hybridiser's industry and skill. The

first tuberous Begonia appears to have been introduced to this country about the year 1810, and was a plant of but little merit from a decorative point of view; while the hybrid varieties, which have of late years been obtained by the crossing of this with more hardy and larger-flowered species, constitute a race of plants of marvellous beauty, with double as well as single flowers of immense size, fine form and beautiful shades of colour, admirably adapted for the decoration of the greenhouse and conservatory throughout the spring, summer, and autumn months, while the hardier sorts are well suited for outdoor culture, or the bedding out in the flower garden.

This improvement is still progressing, and with the energetic perseverance of such cross-breeders as Messrs. LAING and Messrs. CANNELL, it is hard to say when or where it may stop; so that, taking into consideration what the cross-breeder has done, and is still doing, for the cause of horticulture, it may be regarded as unwise to discourage in any degree his efforts, as it is to persist in the cultivation of inferior varieties of fruit, vegetables, and flowers, which require in all respects as much care and attention as the superior varieties.

THE ROYAL HORTICULTURAL SOCIETY.—At the Council meeting, held on June 12, a sub-committee was appointed to consider the question of the arrangements for 1889, and more especially to consider certain proposals made by Mr. VEITCH, such as the appointment of a Botanical Lecturer, to deliver short popular addresses to the Fellows, and other matters of importance and interest. The question of the early revision of the bye-laws was taken into consideration, and a letter from the solicitors was read promising the revised copies at an early date. The suggestions of the Fellows' Committee as to the appointment of local secretaries were adopted.

INSTITUTE OF FRANCE.—It appears that Dr. MASTERS, whose election as correspondent in the Botanical section in the room of the late Dr. ASA GRAY was announced last week, was elected by thirty-nine votes out of forty-six. Such a distinction is indirectly a high compliment to the Horticultural Press of this country.

MANCHESTER ROSE SHOW.—Owing to the general forwardness of the bloom this season, it has been found advisable to alter the date of the above important show from July 21 to July 14.

THE LINNEAN SOCIETY: June 7.—The President (Mr. CARRUTHERS) in the chair. Messrs. G. C. HAITÉ and C. A. HENBERT were elected Fellows of the Society. The following were nominated Vice-Presidents:—Mr. F. CRISP, Dr. MAXWELL T. MASTERS, Dr. JORN ANDERSON, Mr. C. B. CLARKER. An exhibition under the microscope of decalcified and stained portions of the test of *Laganum depressum* was then given by Professor MARTIN DUNCAN, who made some very instructive remarks on the structural characters to be relied on for discriminating the species. Mr. D. MORRIS, of Kew, exhibited some drawings of a fungus (*Exobasidium*) causing a singular distortion of the leaves of *Lyonia* from Jamaica. A paper was then read by Mr. H. N. RIDLEY on the "Natural History of Fernando Noronha," in which he gave the general results of his investigations into the geology, botany, and zoology of this hitherto little explored island.

OXFORD CHAIR OF BOTANY.—The electors to the Sherardian Professorship of Botany have elected Dr. S. H. VINES, M.A., F.R.S., F.L.S., Fellow of Caius College, Cambridge, to this Professorship, in place of Dr. BALFOUR, who has proceeded to Edinburgh.

FRUIT PACKING.—The committee of the Society for Promoting the Employment of Women has resolved to try to carry out a scheme which has been suggested to them. This scheme, should it prove feasible, will be the means of enabling respectable

In England, the method is to pack loose in bushel or half-bushel baskets, while the Continental plan is to pack in small baskets or boxes that meet the requirements of the ordinary customer. Our fruit is unsorted, and varies in size and condition, and much

London, W. It is well that attention should thus be drawn to the imperfect way in which much of the fruit sent to market is packed. Many complaints as to the low prices realised in the market are explained by the careless way in which fruit is too often packed.



FIG. 100.—YUCCA FILIFERA, NATIVE OF NORTH-EASTERN MEXICO, BETWEEN RIO GRANDE AND MEXICO. (SEE P. 743.)

working-women from town to get change of air and occupation for two or three weeks during the months of June, July, and August, earning at the same time fair wages. Upwards of 2½ millions are spent annually in England on imported fruit, while much of our home-grown produce is wasted. This is in a great measure attributable to the difference between the English and the Continental mode of packing.

gets damaged and wasted, while the Continental is carefully sorted. This sorting and packing would be a new English industry, so, too, would the evaporation of fruit. The present scheme is, that this work shall be done by neat-handed women from the large towns, who would thus get change, while they would earn about 12s. a week. For further particulars, apply to the Secretary, 22, Berners Street,

THE GARDENERS' ORPHAN FUND.—It is satisfactory to learn that after the payment of all expenses of the recent Market Fête a substantial balance remains to the credit of the Fund. That it was not larger is, however, hardly to the credit of some of the thousands of visitors who attended this unique entertainment. Many of those present had probably no convenient opportunity for bestowing

their mites, and may be glad to know that the Treasurer is T. B. HAYWOOD, Esq., Woodhatch, Reigate, to whom we shall be glad to transmit any sums that may be sent to us. Indirectly, great benefit is likely to arise from this novel *fête*, the idea of which originated with Mr. HOWARD, of Southgate. The market officials, the growers, and the committee are all entitled to praise for their endeavours. A scrap of information that we omitted to give last week may be supplied now—the bouquet carried by Lady GOLDSMID, the wife of the President, Sir JULIAN GOLDSMID, M.P., was presented by Miss BARRON, the daughter of the highly respected Secretary to the Fund.

ROSE SHOW AT TORQUAY.—Last year a fund was started by Messrs. CURTIS, SANDFORD & Co., nurserymen, Torquay, and under distinguished patronage, for the benevolent purpose of enabling invalid gardeners from the North to come to Torquay for a short rest and change. As a pleasant means of adding to the fund a Rose show was held in Messrs. CURTIS' nursery, at which valuable money and other prizes were awarded to the best exhibitors. This year the experiment will be repeated, with a Silver Cup as the highest award, and money prizes ranging from a guinea downwards.

NEW WARM-HOUSE RHODODENDRONS.—A few seedlings of these fine plants were observed in flower recently at Messrs. J. VERRICH & Son's nursery, Chelsea. The end aimed at by the hybridiser has been the production of large fine foliage—something like that of *R. javanicum*, as well as good heads of flowers. In some instances success in this direction has been attained, and in most the colours are good, attended in a few by a shortening of the tube, which gives more compactness to the corymb. In No. 31, a result of crossing *R. Teysmanni* and *R. multicolor*, the colour is buff and pink, the tube short, and the foliage on young plants an inch wide: No. 32 is rosy-crimson, and was obtained by crossing the hybrid *R. Princess Royal* with *R. multicolor*, the latter being the pollen bearer; No. 35 has scarlet flowers, and was obtained by *R. jasminiflorum* × *R. Curtisi*; No. 348 is orange-scarlet, from *R. javanicum* × *R. multicolor*. It has the foliage of *javanicum*. No. 55 has fine large foliage and good habit, with yellow flowers of a nice tint. *R. Princess Royal* × *R. Teysmanni*.

A GARDEN FOR POPLAR.—Heavy rain, observes the *Echo*, somewhat marred the effect of, and lessened the attendance at, the opening ceremony on Friday, June 8, of the garden which has been laid out by the Metropolitan Boulevard Association on the site of the disused burial-ground of Trinity Chapel, India Dock Road, Poplar. Mrs. BUXTON declared the gardens to be open to the public. Votes of thanks and the singing of "God save the Queen" brought the brief formalities to a close, and the party invited walked round to see the improvements effected by the Society, at a cost of £300. The chapel itself was built by some of the ancestors of the great shipping family of GREEN, several of whom lie buried there. All the monuments have been reverentially treated, while fresh green turf has been laid, and beautiful flowers planted. Seats are provided, and the garden bids fair to be a boon to the neighbourhood, as there is no other open space available to the aged as a quiet retreat, or the children as a playground, nearer than the recreation ground at Stepney. When the gates were thrown open it was a pleasing sight to see the stream of people, of all ages, who quietly passed in to see the pretty spot that has been laid out in their interests. It covers nearly an acre of ground, but Mr. CHADWYNS, in a speech pointed out one or two ways in which it might be enlarged and a gymnasium provided.

A RARE FLOWER.—The Vienna correspondent of the *Standard*, telegraphing June 3, says:—"Tomorrow there will be witnessed in the Palm-house at the imperial palace of Schönbrunn a spectacle which

has hitherto been seen only once before in Europe—to wit, the Palm tree, *Brownea ariza*, in full bloom. This tree, which is named after the celebrated English botanist, arrived at Schönbrunn forty years ago from London. It was then an insignificant sprig, but now it vies in magnitude with the Maria Theresa Palm, which is 170 years old, and in the same Palm house. It blossoms only once in fifty years, and the bloom lasts only forty-eight hours. The last time the blossom of the *Brownea ariza* was seen was, I believe, in June, 1851, in the Duke of NORFOLK's conservatory at Chiswick." If the political and other information which special correspondents forward to daily papers is as accurate as the above how delightful their notes must appear to those who really know. No doubt our gardening [?] friend in Vienna was in sore need of something worth noting, and he has fallen into the hands of some merciless wag of a gardener. *Brownea ariza* is not a Palm, but a member of the Bean and Pea family. It flowers at Kew annually, the last time about two months ago. It was discovered in New Grenada by Hartweg in 1842, but was not known in cultivation till about thirty years afterwards. It was first flowered in Belgium by M. LINDEN, and in the United Kingdom by the late Dr. MOORE, of Glasnevin. From the latter plant a plate was made and published in the *Botanical Magazine* in 1880. It is not nearly so grand as *B. grandiceps*, which flowered for the first time at Kew in 1855, and probably every year since then. All the *Brownias* flower regularly every year, and their blooms last about a week. In the *Gardeners' Chronicle* (at p. 70, 1851) it is stated that *Brownea coccinea* flowered at Kew, and the correspondent probably confounded the Royal Gardens, Kew, with the gardens of the Duke of Norfolk at Chiswick, and the species *ariza* with *coccinea*.

MR. BULL'S EXHIBITION.—Her Majesty the Queen of SWEDEN and NORWAY paid a visit on the morning of Tuesday, June 12, to Mr. WILLIAM BULL's Orchid exhibition, Chelsea. Her Majesty, on leaving, accepted a *recherché* bouquet of Orchids.

GLOXINIAS AT HOOPER & CO.'S.—In Messrs. HOOPER & Co.'s Maida Vale branch establishment their strain of Gloxinias is now in full bloom. A fine bank of them set up with Maidenhair Fern and *Asparagus plumosus* show them off to great advantage. The flowers are large, the colours very clear and distinct, and many of the spotted and mottled kinds are of exquisite beauty. The large conservatory, in the trade, shows many tasteful arrangements of flowers among the fine Palms and tree Ferns. The rockery is also beautiful. The house of Caladiums, the houses of Palms and decorative plants, the houses of double Primulas, and, indeed, the many improvements in the whole establishment, do great credit to Mr. BAUCKHAUS, the manager.

MR. ROGERS.—We have already announced the retirement of this gentleman from his post as Superintendent of the park at Battersea, where his taste and knowledge of plants suitable for various kinds of garden decoration, have long since gained for him the approbation of his peers. Mr. ROGERS is in ill-health and it has been felt that a practical mark of sympathy would be opportune at this time. Mr. HANNA VERRICH, Royal Exotic Nursery, Chelsea, has consented to act as Treasurer to any fund that may be raised for this purpose.

ORCHIDS AT THE IRISH EXHIBITION.—Last Wednesday and Thursday, visitors to the Olympia at Kensington had the pleasure of seeing a table of Orchids in the centre of the building. The plants were those of J. T. PEACOCK, Esq., Sudbury House, Hammersmith. *Miltonia vexillaria* formed the major part of the display, there being over seventy plants, some with very pretty colouring. *Dendrochilon longifolium* was well represented by one piece. Of *Cattleya Mendelii* there were several varieties of fine colours. *Epidendrum*

vitellinum made a brilliant show, and among other plants were *Odontoglossum citrosum* and *O. c. roseum*, *O. cordatum*, *O. c. aureum*, a very pretty thing; *Cypripedium Stonei*, *Masdevallia Harryana*, *Oncidium crispum*, &c.

THE LOQUAT.—A branch of this Chinese plant, bearing a score of thoroughly ripened fruits, was kindly sent for our inspection by Mr. G. DONALDSON, gardener, Humewood Castle, Co. Wicklow. The plant from which this was cut has borne this season about 800 fruits, and is growing in the open air. Ripe fruits are very nice eating, and would, were the cultivation of the fruit carried out in an organised manner in mild districts in Ireland, and elsewhere at home, prove a marketable commodity very remunerative to the growers.

UMBELLIFERÆ IN AFGHANISTAN.—Dr. AITCHISON (*Transactions of the Linnean Society*) notes that these are "characteristic of this flora, and many of them are of large dimensions, including *Ferula fetida* (Asafetida), [of which a specimen was exhibited at a recent meeting of the Royal Horticultural Society, from the Royal Gardens at Kew], *Ferula galbaniflua* (Galbanum), and *Dorema ammoniacum* (Gum ammoniacum). In four months these large plants have come and gone, suddenly appearing in the beginning of May, when their root-foliage is fully developed, covering the whole country with a carpet of the richest verdure; they as completely by the end of August have disappeared. If there is anything at all to be seen of them subsequent to this period it consists merely of a few dried stems, with an occasional bunch of ripe fruit. Usually these three plants grow gregariously and unmixed; sometimes, however, the Asafetida and the Ammoniacum are associated together. Of the Asafetida only one plant out of a hundred met with was in flower, and in that state it is remarkable for the Cabbage-like head at first thrown up, the flowers being enclosed in the enormous sheathing stipules, of which the stem-leaves almost entirely consist. As development progresses these are thrown off, and for a short time the flower-head presents the appearance of a large Cauliflower. From this period the stem bearing the inflorescence rapidly shoots upwards to a height of from 4 to 5 feet, its proportions being singularly massive and pillar-like. The Ammoniacum and Galbanum seem to me to differ from the Asafetida in throwing up from their perennial roots a flowering-stem annually, whereas the Asafetida, after several years' growth, throws up a flowering-stem, and then dies. This view may appear unsound, but the facts that all the plants of the Ammoniacum and Galbanum were seen to be either in flower or in fruit, and that their stems and roots were found to vary greatly as to size, go a long way to support my opinion; but this remains a subject for future investigation. The Galbanum, from its youngest stage, has a slight tinge of yellow all through its stems and leaves, and there is a general semi-transparency about the plant which gives it the appearance of being made of wax. When a great bed of this is in full but young blossom, the sight is a most striking one, the whole plant, at that period of its growth being of an orange colour. The Ammoniacum is more remarkable for the great expanse of its root-leaves, and the similarity which they present to the same leaves of the Asafetida—so great, that experts alone could possibly distinguish them. The stems of all these large Umbelliferæ vary from 4 to 5 feet in height, and probably that of the Asafetida is the tallest, and is remarkable for its Bamboo-like appearance and its ending in a cluster of flowering peduncles; and that of the Ammoniacum for its enlarged nodes at the base of each stem-leaf. The stem of the Galbanum has no enlarged nodes, and its flowering peduncles originate irregularly along the stem, and are not clustered at the top of the stem. These Umbelliferæ extend both into the Badghis and Khorasan. In the Badghis the greater moisture of the climate, I think, enables the Galbanum to attain its greatest perfection; but whenever they appear they excite

attention by their remarkable habit and magnificent appearance."

EXPERIMENTS IN CURING CANKER IN TREES.

—M. PAILLIEUX, writing in the *Revue Horticole* for June, recommends the use of sulphate of iron as a means of ridding trees of canker. The substance has been found very efficacious against some other forms of micro-fungi, and it is thought that it will prove equally so when employed against *Nectria ditissima*, the fungus which is the cause of some forms of canker. The cancerous parts should be cut away, and the wood and bark washed with a strong solution of the sulphate.

PUBLICATIONS RECEIVED.—Choice British Ferns.

By C. T. DEVEREY, F.L.S. (London: L. UPCOTT GILL, 170, Strand, W.C.)—*Report of the Minister of Agriculture for the Dominion of Canada.* (Ottawa: MACLEAN, ROGER & Co., Wellington Street.)—*Forest Flora of South Australia, Part VIII.* By J. E. BROWN. (Adelaide: E. SPILLA, Government Printer.)—*Note sur le Parc de la Liberté à Lisbonne.* Par C. JOLY. (Paris: GEO. CHAMEROT, 19, Rue des Saints-Pères.)

TREES AND SHRUBS.

GREVILLEA ROSMARINIFOLIA AND OTHER PLANTS AT COLWYN BAY.

The twig of *Grevillea rosmarinifolia* which I send is a fair specimen of the whole bush. It has stood the last three winters here without any protection, and is one of the neatest and prettiest shrubs I know. It has been in bud or flower for considerably more than two months; and as the buds are quite as bright in colour as the flowers, it has been very ornamental during the whole of that time, and is still in full flower. Belonging, as it does, to the singular Australian order of Proteaceae, it is as interesting as it is pretty. It has not been injured by frost in the smallest degree since it was planted out in 1885. Last summer I planted out two plants of *Habrothamnus scaber* [?], the scarlet, not the pink-flowered species—against a south-east wall, and was agreeably surprised to find them to-day alive and covered with flowers. *Olearia dentata* thrives well here on a warm bank; in a few days it will be a sheet of white flowers. *Colletia ferox*, *Caryopteris mastacanthus*, *Aristotelia racemosa*, *Pittosporum Mayii*, *P. eugenoides* (this has had its shoots nipped), *Stephanandra flexuosa*, *Rhodotypos kerrioides*, *Baccharis patagonica*, have all stood the last three winters; also four or five species of *Eucalyptus* (I dare not venture to give them specific names), *Olearia Gunnii*, and *Schizophragma hydrangeoides*—the two last on a wall. *Chamerops excelsa*, or *Fortunei*, is throwing out three fine flower-spikes. *Alfred O. Walker, Nant-y-Glyn.*

NOTICES OF BOOKS.

A MANUAL OF ORCHIDACEOUS PLANTS. Dendrobium. Part III. James Veitch & Sons.

It will be remembered that this useful and exhaustive work on Orchids—designed principally for the assistance of the Orchid grower, amateur, and plantsman—contained in its first Part the genus *Odontoglossum*; and in its second, *Cattleya*, *Laelia*, and allied plants. We now have the pleasure to announce the third Part, which treats, in an equally admirable and lucid manner, of the *Dendrobium*. An enumeration of some of the best *Cirrhopetalums* and *Bulbophyllums* is likewise given. Following the plan of the previous issues, which have met with so much favour from those persons who are interested in Orchids, maps are given of the habitats of the species of *Dendrobium*, the names of the plants being printed over the regions they come from, thus conveying very interesting and valuable information, which, taken in conjunction with the elaborate opening article on the genus *Dendrobium* generally, and the climatic peculiarities of each and every locality from which the plants come, will afford good reasons to

many growers, both amateur and professional, why they have failed to grow certain plants satisfactorily, and point the way by which these mishaps may be avoided in the future. One of the maps gives the habitats of the *Dendrobiums* of India, Borneo, Java, and South Eastern Asia generally, and the other those of the Australian region, which, it is curious to note, follows in an almost uninterrupted belt the east coast line.

Lengthy paragraphs are devoted to the subjects of heating, ventilation, shading, watering, potting, &c., and in the descriptive enumeration of the species these subjects are again alluded to whenever any peculiarity of the species being dealt with requires it; and throughout the book the frequent allusion to the collectors, introducers of, and the first successful cultivators, call up pleasant reminiscences of the older enthusiasts and pioneers in the culture of these lovely plants. The *Dendrobium* number, which is profusely and well illustrated, extends over 104 pages; and as Messrs. James Veitch & Sons' *Manual of Orchidaceous Plants* is by this time so widely known over the whole world where Orchids are grown, it is unnecessary for us to say more than that Part III., "*Dendrobium*," is in every respect worthy of its predecessors.

SCOTLAND.

FLOWERING OF RHEUM NOBILE IN EDINBURGH.

This handsome species of *Rhubarb* is in flower for the second time in the Royal Botanic Garden, Edinburgh. The plant is the only one remaining out of a large number which were raised from Sikkim seeds presented by H. J. Elwes, Esq., in 1882. At present the inflorescence is about 2 feet high, forming a perfect cone like a sugar-loaf. The bracts, which overlap each other and protect the flowers, are very delicate and semi-transparent, and creamy-white in colour. The plant is at present growing in a sheltered part of the garden, surrounded by hedges, but it has only been in that position for about a year. It is hoped that the plant may ripen good seed, as seedlings raised from home-saved seeds may be expected to prove more amenable to cultivation in this country than those raised from Sikkim seeds. The plant which flowered in these gardens eight years ago (for the first time in Europe) was much taller than the present one, but scarcely so handsome. Unfortunately it met with an accident, and did not seed. Another plant, which flowered in the gardens at Drum Castle, Aberdeenshire, in 1883, is stated to have ripened good seed, but I have not heard what became of the seedlings, or if any are still alive. A few seeds of the Aberdeenshire plant which I received from Mrs. Forbes Irvine, in November, 1883, did not germinate. *R. Lindsay.*

THE NATIONAL SEED AND NURSERY TRADE ASSOCIATION.

The annual meeting of this Association, which was announced in our last issue, was convened by the Council of the Association by circular and advertisement, addressed to all concerned in the hearings of the "non warranty clause," and all were welcomed, whether members of the Association or not. A large and representative gathering from all parts of the country met, and was presided over by Mr. James Watt, of Carlisle, the retiring President of the Association.

Mr. Watt, in opening the proceedings, pointed out the importance of the object of the meeting, and hoped that the subject of the "non-warranty clause" would be freely and fully discussed in all its bearings. Mr. F. B. Park, Haddington, moved, "That this meeting disapproves entirely of the 'non-warranty' clause now used in connection with the sale of seeds by many wholesale and retail firms, and do not intend to recognise the same in their business operations." He thought the attempt to introduce this clause should be discountenanced; it was most discredi-

tary for any firm to take refuge behind it, and he trusted the meeting would heartily support the resolution. The buyer should get what he wishes to buy, and the seller should deliver what he agrees to sell; anything opposed to this was one-sided in its nature. Mr. R. B. Laird, Edinburgh, seconded the resolution, and characterised the non-warranty clause as most absurd. Mr. Tait, Manchester, in supporting the resolution, said it was a disgrace that the respectable portion of the trade should be subjected to this ban. Whatever might be the decision of the meeting, he should adhere to his former practice, and do business with no house exacting this clause. Mr. Davie, Haddington, demurred to Mr. Tait's remarks. He did not see there was any want of respectability of those firms who took precautions to protect themselves while they allowed the same liberty to those of whom they bought. While it was suicidal to sell seeds for what they were not, it was reasonable enough that they should protect themselves from accidents due to no fault of their own. Mr. Robson, Aberdeen, heartily sympathised with the object of the resolution. In reply to a query by the Chairman respecting the case in which Smith & Sons, Aberdeen, are involved, Mr. Robson said nothing further could be done till the opinion of eminent counsel to which it had been referred was given. Mr. Syme of the Lawson Seed Co., Edinburgh, said they had in the past experienced no difficulty in doing business without a non-warranty clause, and did not think his company would adopt it in any shape or form. Without assuming any particular virtue to any members of the trade it was not, he held, dignified in any firm to take shelter behind non-warranty, which really went in the face of the Mercantile Law Amendment Act. Mr. Drummond, Edinburgh, deprecated hasty adoption of the resolution before the meeting, which he considered would be binding on the trade. The subject of non-warranty had not, he thought, been sufficiently discussed. He understood the meeting had been called rather for conference and consideration of the question than for furthering any notion of that kind, which had apparently been brought to the meeting in the pocket of one of the gentlemen promoting it.

The Chairman explained that the resolution had been proposed by a member of the seed trade altogether independent of the London wholesale seed trade or any other body. Mr. Park had come forward in the interest of the trade generally, and it was hardly, therefore, fair to say that the Association had come there with cut-and-dry motions in order to bind the trade.

Mr. James Elder, Haddington, held that the resolution, if carried, would only fulfil the object for which they had met. The seed trade was, above all other trades, one of confidence, carried on by honourable men in the past; and it would, in his opinion, be a great pity if they should now attempt to shelter themselves behind this clause.

The Secretary of the Association, in reply to the Chairman, explained that in its present legal aspect the non-warranty clause was absolutely binding, and freed the seller from liability. Unless the House of Lords reversed the decision of the Court of Session, the clause would, so far as Scotland was concerned, continue to be binding.

There being no amendment proposed to the resolution, the Chairman asked those in favour of the latter to hold up their hands, which the great majority present did, and it was accordingly declared carried with practical unanimity.

Mr. Carter, Berwick-on-Tweed, suggested that a union should be formed among them for giving effect to the resolution, but the Chairman thought the object of the meeting had been carried out, and that sufficient had been done to call the attention of the trade to the matter.

A cordial vote of thanks was given to Mr. Watt, for presiding, who then retired from the chair. The meeting then elected Mr. R. B. Laird to the chair, when it was agreed that copies of the resolution should be sent to all members of the trade, and

that a further meeting should be held, if thought desirable, on the first Wednesday in July.

The following gentlemen were elected a committee for the purpose of organising such meeting, viz.:—Mr. Carter, Berwick-on-Tweed; Mr. Elder, Haddington; Mr. Ireland, Edinburgh; Mr. Park, Haddington; Mr. Watt, Carlisle.

At the annual general meeting of the members of the Association, which took place at a later hour of the day in the same place, Mr. Watt presiding, Mr. R. Tait, Manchester; and Mr. A. Cross, Glasgow, were elected President and Vice-President respectively for the ensuing year. The committee reported that two essays had been sent in for the prizes offered by the Association on "The Causes of the Agricultural Depression." Neither essay was considered of sufficient merit to secure the prizes, but the committee recommended that an honorarium of £2 2s. be awarded to each, which was agreed to. Mr. Elder, Haddington, drew the attention of the Association to the practice in some quarters this season, owing to the high price of seed of foreign Italian Rye-grass, of supplying home-grown Italian Rye-grass under the former name, the latter being inferior in quality and lower in price. The committee noted the announcement with some surprise, and intimated that, should any case be brought before them, they would deal with it in a summary manner. The Railway Rates Bill, and the probable institution of a Department of Agriculture, were commented upon by the Chairman, and it was agreed that the next annual meeting should be held in Glasgow.

FLOWERS OF CONIFERS.

THE blossom, both male and female, of coniferous trees has been unusually abundant this year, owing perhaps to the hot dry autumn of last year. It so happens that the descriptions and illustrations in the text-books are frequently defective as regards the male flowers. If the collector does not happen to be on the spot at the proper season, which is a short one, he has, of course, no means of obtaining the male catkins; the female cones, being of much longer duration, may be had, at some stage of growth, throughout the year. Herbarium specimens and botanical descriptions and drawings are consequently often incomplete for the reasons just given.

The male flowers are in some cases of great importance, not only in the discrimination of species, but even of genera. For instance, the curious tree which bears Fortune's name (*Abies Fortunei*) is proved by the male flowers—which are quite different from those of any *Abies* or *Picea*—to belong to the genus *Keteleeria*. This genus, like *Pseudolarix*, was hardly considered worth retaining, but the recent discovery of the male flowers settles the matter.

But as there are some who do not attach much importance to the completeness and accuracy of botanical drawings—are not careful to analyse the components of a beautiful picture, but rest satisfied with a superficial glance—it may be well to add that the flowers of the Conifers are in many cases of extraordinary brilliancy of colour. Thus, in the *Picea orientalis*, of which (thanks to Canon Eilacombe) we now give a figure (fig. 101), the colour both of the male and female plants is of the deepest carmine, thus adding materially to the beauty of a particularly elegant tree.

Abies amabilis (fig. 102) is not so frequently seen in English gardens, and we have ourselves never seen it produce male flowers.

Our specimen, for which we are indebted to Mr. Rashleigh, was of a greenish-yellow colour, but we are assured by Mr. Syme that he has seen the catkins of this species on more than one occasion, and that they are usually of a violet tint. In any case, the figures we now give serve to complete the illustrations already given in these columns of the trees in question—*Picea orientalis*, vol. xxv., 1886, fig. 62; *Abies amabilis*, vol. xiv., 1880, fig. 141.

HOME CORRESPONDENCE.

THE FRUIT PROSPECTS AND BIRDS.—Alas! how soon bright promises become blighted and falsified. This is so with the fruit crop in East Anglia, which only a very short time ago bade fair to be one of the best and most abundant we have had for years, but now proves to be just the reverse. Cold winds and frosts have had most disastrous effects, and maggots have made their appearance, doing great damage to Apples and Pears. This misfortune is of wide extent. I hear the cry from friends in various parts of the country, and from Kent comes the complaint that the maggot is committing so much havoc that growers are lamenting the destruction of sparrows, which they now—too late—appear to think would do so much good in the orchards. This, however, is not my experience of those birds, who much prefer corn and seeds to insects, but I should be glad to see more of the soft-billed birds which prey on garden pests, although, when dry weather



FIG. 101.—*PICEA ORIENTALIS*: CATKINS BRILLIANT CARMINE.

sets in, they do take a little fruit, but this cannot be laid to the charge of those that are the most useful. Among these may be mentioned the hedge-sparrow, wagtail, and wren, and tomtits are exceedingly valuable in scouring trees for maggots, and when they have young they may be seen plying backwards and forwards continually with insects in their bills—the number they devour daily being something very considerable. Returning again to the fruit, the only fruit crops which are heard of are Morello Cherries, Gooseberries, and Currants, and perhaps Raspberries, the first-named being set well, and swelling fast. Of Plums there are very few, and Apricots are in the same category, whilst Peaches and Nectarines are only passable on trees that were well protected, and where the aspect is a warm one; Strawberries are thin of bloom, but this is due to the great heat and drought of last autumn, which prevented the plants from making their growth, and forming strong crowns. J. S.

REPOTTING LILIES.—In criticising my recent notes on potting Lilies, Mr. Jenkins has fallen into the common error of over-stating his case, and in doing so travels beyond the region of facts. When he asserts that "a worse time could not possibly be selected" for potting the plants than that which I recommended, he is certainly making a random

statement that few will agree with. Surely Mr. Jenkins would prefer potting them when they have made a few inches of growth than at the time the flower-buds are first visible. As a matter of fact we have potted Lilliums at various times, from early in January, before they had started into growth, until they had arrived at the stage mentioned in my previous notes, with but little difference in the results. On the whole we prefer to pot early in January, but as it is not always convenient to do so, then it may have been of service to many to know they could be safely potted at the time named, provided they were treated in the way recommended—viz., "placed in a cool pit and shaded for a few days." If the word "loose" had been substituted for "old" soil, it might have prevented any possible misunderstanding arising on that point. When potting we do not shake all the old soil away—that depends altogether on the state of the roots of each individual plant. If the plants have been in small pots, when turned out the balls are one mass of roots, from which it would be difficult to shake away any soil without completely tearing to pieces the network of roots, and this no intelligent cultivator would think of doing. When we find plants in this condition we simply remove the drainage and repot into larger pots. In other cases the soil is loose and roots not very plentiful: then we shake the exhausted and perhaps sour soil quite away, preserve all healthy roots, pot carefully, attend to regularly, and have the satisfaction of knowing we have done nothing so dreadful as Mr. Jenkins would have us believe. In conclusion I may say that I would not hesitate to shift a Lily into a larger pot after it had made 12 inches of growth if I thought better results would follow such shift—as I feel sure the plants would sustain no perceptible check if treated as recommended at p. 558. H. W. Ward.

ENGLISH TOBACCO.—In the synopsis of the judges upon the manufactured British grown Tobacco, confirming the award of the first prize to us, it is stated that the report about to be furnished by the experts through the agency of the London Chamber of Commerce "will not be favourable to the growth of Tobacco in England, inasmuch as, amongst other objections, there was an excess of moisture in all the samples exhibited, and not a single lot was in really merchantable condition." It is not our desire to champion the subject, but as we have made exhaustive experiments during the past two seasons, at a cost of several hundred pounds, all we ask is that the British-grown Tobacco may have fair consideration; and we venture to say that a mistake has been made, either by the London Chamber of Commerce or by those responsible for fixing the date of the trials, from the fact that it is impossible for Tobacco grown during the summer of 1887, either in the British Isles or in those countries from which our principal supplies are obtained, to be in a merchantable condition in the month of May, 1888. Tobacco grown in the United States has to pass through what is known as the "May sweat," and to bring the British Tobacco into marketable condition it was equally necessary that it should have passed through a similar process, and thus brought into a condition to be fairly compared with Tobacco from other countries. We, therefore, maintain that the competition should have taken place, say, about the month of September next, by which time, as we understand, the first importations of the American Tobacco crop of 1887 might be expected to reach the manufacturer in England. It is clear from this point of view that the experts have not only committed an error of judgment in submitting the English-grown Tobacco to a final test at the present time, but they have also, upon an unsound basis, compiled a discouraging report, which we think must have the effect of limiting future experiments. James Carter & Co.

LATHYRUS DRUMMONDI.—The capacity of this lovely everlasting *Pea* to increase in strength and dimensions is well shown in a big clump I have here. But a few years ago it was a small plant put out to cover an old tree stem. Now it needs quite an armful of *Pea* sticks to support it, and is a dense mass of growth 6 feet by 5 feet, and daily increasing in size; indeed, in a week or two, when in full bloom, it will be fully 20 feet in circumference. This everlasting *Pea* is apparently incapable of variation, as it keeps so true to character from seed, although forms of *Lathyrus latifolius* are growing close by. It also seeds fairly well, but I prefer to sow seed as soon as ripe, or at least during the autumn, as being so hard

they take a long time to germinate. Once secured, the plants seem to be almost indestructible. *A. D.*

RANUNCULUS LYALLI.—Herewith I send you a photograph of a plant of *Ranunculus Lyalli* which has just flowered at Glasnevin. It bore seven flowers, and the first to open was by far the finest, it being quite as large as a half-crown piece. About six years ago I received an imported crown, which was potted and placed in a cold frame facing north, in which position it remained until last year, when it was moved to another frame. Each year it produced two leaves, these being about 6 inches in diameter, and quite saucer-shaped; but this spring it sent up a fine strong inflorescence, and with it it produced two more leaves, so that now the plant has four leaves, and seems very healthy, although it has been in flower for three weeks. *F. Moore, Glasnevin.*

LADY DOWNE'S GRAPES.—I send you a bunch of Lady Downe's Grapes which I think you will consider are in good condition after being kept in bottles of water for close upon six months. These Grapes were cut from the Vines about Christmas, and will now (June 12) bear comparison with many samples of new Grapes. Sometimes we hear Lady Downe's spoken of as a second-class Grape, but so long as the variety can be kept in good condition until June, it must be regarded as a first-class Grape. *A. Bradshaw, Davenham Gardens, Malvern.* [The flavour was excellent, and the bloom on the berries and general appearance all that could be desired. *En.*]

CLIMBING DEVONIENSIS: WAS IT A SPORT OR A SEEDLING?—The following particulars might elucidate this matter. From H. B. Elwanger's excellent book on *The Rose*, in the catalogue part, we extract:—"Climbing Devoniensis: vig. Cl. T. S. J. Pavitt, 1858. (Sent out by Henry Curtis.) A sport from Devoniensis," &c. From Mr. Curtis, who is now nearly blind, I have ascertained that this statement in Elwanger's book is quite accurate. Mr. Curtis saw climbing Devoniensis first about the year 1855 in the neighbourhood of Clifton, and found on enquiry that "Old Devoniensis" had been budded on the strong-growing "Celine" stock, which Mr. Curtis had recently introduced as a strong stock for budding Teas on. From this operation of budding Devoniensis on the Celine the bud had first ran blind; buds from the blind shoot were again placed in the Celine stock; and so the sport was fixed. *Alfred Chandler, Curtis, Sandford & Co., Devon Rosery, Torquay.*

DISEASED ONIONS.—The three samples of Onions sent are infested with fungus, a disease which is very destructive of spring Onions in the district around Edinburgh. It is worst on light land. One of the samples is from sandy soil—practically sand blackened with generations of manuring. The sample No. 2 is from light sandy loam on much higher ground; and that numbered 3 is from a more holding soil—but still a loam—of rather light character. If you can throw any light on the cause of the disease, or suggest a cure, you will do a service to many of the *Gardeners' Chronicle* readers in this neighbourhood. The disease is popularly known here as Onion-mould, and only attacks autumn-sown crops. Samples 1 and 3 were sown after Potatoes, sample 2 after Cabbage; so that succession influence appears to be nil. *W. Sutherland.* [We sent these to Mr. W. G. Smith, who sends us the following note. *En.*]:—"The Onions are infested with the too well-known 'Onion-mould,' *Peronospora Schleideniana*. Your experience as to this fungus only attacking autumn-sown crops is contrary to ours. Onion growers generally prefer autumn sowing, so that the Onions may not only be too large for total destruction in the early summer by the *Peronospora*, but that they may also be too large for entire destruction by the Onion fly. Perhaps some experienced Onion growers will give an opinion on this point. The plants cannot be cured; prevention must be sought for."

THE FERTILISATION OF SCARLET RUNNERS.—It is rather a remarkable fact that with rows of both scarlet and white Runners growing side by side scarcely any evidence of crossing is found in the seed of either—as a rule I think none. The same fact holds good, I believe, in French Beans and Broad Beans; and it is also the case with Peas, which are purely self-fertilising, as no flowers are more difficult of access to insects. There is always a tendency to credit insects with performing some very wonderful things in the economy of Nature, but I fancy Nature could get along pretty well all the same without that aid. The tendency is one of exaggeration, or

rather of a desire to make much out of very small things. Generally Nature performs her part without much aid, and very often, when insects are credited with this or that good, Nature has accomplished her work rather in spite of them than with their help. Possibly because I am far from being an enthusiast in small things, I am somewhat sceptical in small matters, and thus do not regard bees as such wonderful philosophers after all. *A. D.*

DIMORPHISM IN TILLANDSIA.—In connection with the description and illustration (fig. 93, p. 717) of *Tillandsia virginalis*, I should like to point out the fact that a somewhat similar dimorphism is alluded to in Ball's *Notes of a Naturalist in South America*, p. 307, where he alludes to it in the following words:—"Among the many new forms of vegetation here seen the most singular was that of *Tillandsia*. Long, whitish, smooth cords hang from the branches of the taller trees, and at 8 or 10 feet from the ground, abruptly produce a rosette of stiff

branches overhead, must often adopt means of dangling down, in order to get clear of the leafage of their foster plants, the trees on which they grow. In tropical countries many Orchids dangle by means of their long aerial roots, many feet or yards even below the branches to which they are attached, and seemingly for the same reason as the *Tillandsia* mentioned by Mr. Ball hung by its cord-like stems from the trees in Southern Brazil. *F. W. Burbidge.*

DR. BENNET'S GARDEN, MENTONE.—Those who know Dr. Henry Bennet's garden at Mentone will say that you have not too highly praised the *Pinus canariensis*, figured at p. 721, *Gardeners' Chronicle*, June 9 last. Dr. Bennet has several very fine specimens of this tree about 30 feet high, which were planted about twenty years ago, and I have often heard him regret that he had not more extensively planted that Pine tree when he began to turn the side of a mountain into a garden. *E. J. Tilt.*

THE TOOTHWORT (LATHRÆA SQUAMARIA) is now flowering freely in copses in Kent. It is a curious parasite, found most commonly on the roots of the Hazel, with bluish flowers streaked with purple and red, but in colouring it is very variable. There are no leaves, simply a few fleshy scales, and the whole plant wears an indistinct rosy hue. It is a rather rare British plant, and one of peculiar interest. *A. D. Webster.*

STRAWBERRIES.—A recently issued list of Strawberries from one of our chief Northern growers shows how limited, after all, are our more popular varieties. The list includes fifteen only, divided into early, mid-season, and late, in sections of five each, but still somewhat arbitrarily, as I find *Marguerite* included in the early section; *President*, usually fairly early, in the second list; and *Sir Charles Napier*, a popular mid-season variety, in the late list. But the chief interest in the entire list centres in the fact that the most popular kinds are limited to some half-a-dozen, in spite of the fact that almost scores of new ones have been put into commerce during the past thirty years. The obvious moral seems to be, that in raising new kinds some very special knowledge of the requirements of Strawberry growers is needed. It is stated in this list that *Sir Joseph Paxton* enjoys the honour of furnishing 50 per cent. of our market produce in Strawberries. That is probably true, for, whatever its defects, it is a most popular variety, and it is specially satisfactory to find that an illustrious horticulturist is thus worthily remembered. But with *Sir Joseph Paxton*—certainly the "Paxton" of the ordinary grower—we find *Sir Charles Napier*—or the commonly termed "Napier"—coming next in point of importance; then, perhaps, comes *President*, and next *Vicomtesse Hélicart de Thury*, followed by *British Queen*, and, last of a half-dozen, *Elton Pine*. There is nothing very novel about any of these—in fact, all seem to have been with us for a generation, although not in all cases quite so old. But the list includes *Keen's Seedling*, *Marguerite*, *Filbert Pine*, and *Eleanor*—all old enough indeed; and when to these are added *British Queen* and *Elton Pine*, we are carried back to varieties popular fully thirty years since. If some half-dozen of the very moderate sorts are taken from the list, we find that our selection of first-class strawberries is after all but a limited one. Although most persons will agree in the assertion that half a dozen sorts are ample for any garden. Superior a variety as *Sir Joseph Paxton* may be, yet it is not without its faults, especially its tendency to mildew, whilst the fruits if large, rich coloured, and sugary, are not by any means too highly flavoured. A variety which included all the best properties of *Paxton*, with the hardness and firmness of fruit found in *Napier*, and the richness of flavour of *British Queen*, is an undiscovered joy. It does seem obvious that in obtaining large fruited forms we have gained nothing in flavour, and rather have lost much; therefore it seems to be a mistake for raisers to seek for size when it can only be gained at the expense of flavour. On the other hand, if we could but induce *Vicomtesse Hélicart de Thury*—which is both so early and so admirably flavoured—to give a little more of size in its later fruits we should have in that variety almost an ideal early kind. When it seems to exhaust its energies in the production of just a few large and numerous small fruits there is something which may be improved upon. It is pretty evident that in the raising of new kinds of Strawberries we have made no appreciable advance during the present generation, and there is yet room in which the raiser may hope successfully to labour. *A. D.*



FIG. 102.—ADIES AMABILIS: CATKINS SOLITARY, LATERAL, YELLOWISH.

leaves, like those of a miniature Pine-apple, with a central spike of flowers." In a footnote Mr. Ball states "The species common here (viz., at Santos, South Brazil) is allied to *Tillandsia stricta*, but is not, I think, identical." The occurrence of dual stages of vegetative development is very marked amongst our own native plants in *Hedera*, *Ranunculus*, and *Sagittaria*, while, in the Tropics, the species of *Eichornia*, *Ficus*, and of *Aroids*, like *Pothos*, show dimorphic growths of considerable interest. The main object of such growths seems to be economy of material, as little energy and material as possible being expended, and that only in the direction of light and air, or moisture, until the conditions favourable to the flowering and fruiting stages of the plant's existence are reached. In dense tropical forests, or even in lower single growth, "climb or die," is the gospel preached by Nature to all the lowly forms of plant growth whose existence and reproduction depend on sunshine. Figs and *Aroids* (the fleshy fruits of which fall to the ground) are often fated to climb for bare life; while *Orchids* and *Tillandsias*, which produce light, sawdust-like seeds that often adhere and germinate on the wet

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, JUNE 12.—The display on the above occasion was exceedingly interesting as a whole, the Drill Hall being fairly well filled with Orchids in bloom from private and trade establishments; large numbers of hardy herbaceous plants, many really fine "gardeners'" plants, but little seen and scarce in nurseries, from the Royal Gardens, Kew; Rhododendrons as cut blooms, tuberous Begonias, Scotch Roses, variegated tree and shrub foliage, and Ivy-leaf Pelargoniums from the Society's Garden, Chiswick.

Floral Committee.

Present: G. F. Wilson, Esq., F.R.S., in the chair; and Messrs. J. Laing, G. Nicholson, H. Herbst, W. Bates, T. Baines, C. T. Drury, R. Dean, C. Noble, C. Pilcher, J. Dominy, H. M. Pollett, J. O'Brien, A. F. Lendy, B. Wynne, H. Ballantyne, E. Hill, W. Wilks, W. Goldring, S. Hibberd, W. Wildsmith, and J. Walker.

Orchids.—The President of the Society, Sir Trevor Lawrence, Bart., M.P., exhibited some choice subjects, viz.:—*Masdevallia Harryana regalis*, a many-flowered specimen, with bright crimson large blooms; M. H. sanguinea and M. H. atro-sanguinea, similar in colour, but smaller as regards its flowers; M. H. maxima, also of a crimson colour; *Cattleya Mossiae superba* was a grand plant, the colours of the lip and petals and sepals being very intense; *Vanda Lindenii*, flowers green with yellow margin; *Cypripedium Stonei* var. *grandiflora*, a very fine piece, with three flowers, the dorsal as well as the lower sepal having fine large proportions; *C. Wallisii*, as cut blooms, was likewise shown; and a pretty plant of *Trichopilia crispa marginata*: the flower has a thread-like edge to the tube. Good *Odontoglossum Alexandræ* were included in the Burford collection.

Messrs. Low & Co., Clapton, exhibited many examples of their new *Cypripedium bellatulum*, one of which was named *roseum* from a tender hue of pink which suffuses its flowers; but all of the species showed small differences in form or markings. *Phalanopsis gloriosa*—several plants differing from *P. amabilis* in the rose colour at the base of the lip, and the crimson streaks in the throat; it is a beautiful flower: for full description, see *Gardeners' Chronicle*, May 5 last. Many *Cattleya Mendellii*, *C. gigas*, and *C. G. Sanderiana*, were found in the collection; examples of *Dendrobium Bensonianum*, *D. Devonianum*, both well flowered; *Vanda Roxburghii*, *Vanda teres*, good *Calanthe veratrifolia*, and several new varieties of *Cypripedium*, comprised the chief feature of Messrs. Low's collection. (A Silver-gilt Banksian Medal.)

Mr. B. S. Williams, Holloway, staged an ornamental group, consisting mainly of Orchids, interspersed with Tillandsias, small Palms, Ferns, Dracenas, Sarracenias, &c.; many choice *Cattleya Mossiae* and *C. Mendellii* were observed; *Odontoglossum luteo-purpureum*, *O. vexillarium splendens*, a nice piece of *Vanda teres Andersoni*, an improved *teres*; *Cattleya Schilleriana* with two flowers, *Lælia purpurata*, a species this nursery is very rich in; *Scuticaria Hladweni*, with one flower; *Odontoglossum constrictum*, and several Oncids. (A Silver Banksian Medal.)

Messrs. Sander & Co., St. Albans, exhibited a new *Acineta*, white, densely spotted with minute lilac spots, almost effacing the ground colour; the spike of flowers was a foot long, and bore thirteen flowers widely placed. *Odontoglossum nebulosum excellens* is a flower milk-white in all its parts, with the lower half of all portions of the flower covered regularly with round spots of a dark shade of brown. A splendid plant of *Dendrobium Dalhousianum*, 3 feet high and 3 feet wide, and full of flowering stems; *Odontoglossum cordatum*, *O. Pescatorei*, *Cattleya Acklandiae*, and several minor subjects completed the group. (A Silver Banksian Medal.)

Lælia Wyattiana was shown by G. Nevile Wyatt, Esq., Lake House, Cheltenham (gr., Mr. Simcoe). It is like a weak pale form of *Lælia purpurata*. He also had *Odontoglossum Cervantesi giganteum*, distinguished by its very large size.

From Rev. J. P. Way there came a plant of *Oncidium Gardneri* var., with a bright yellow lip bearing a zone of brown towards the margin, sepals and petals brown with a yellow border. A well flowered plant of *Oncidium crispum* var. *grandiflora* was shown by Mr. Page, Teddington.

From Mr. Ballantyne, gr. to Baron Schroder, The Dell, Egham, came a plant of *Cattleya Wagneri superba*, very well flowered: the flowers (pure white with the lip yellow) are of fine substance and very large; also *Sobralia xantholeuca*, rich creamy-yellow.

From the gardens of the Duke of Marlborough, Blenheim, Woodstock, came a large plant of *Lælia purpurata blenheimensis*, darker than the type; lip very good colour.

From M. Linden, Brussels was sent a plant of *Dendrobium macrophyllum* var. *Bleichroderianum*—flowers bright apple-green, marked heavily with red-brown, and a spot of carmine at the base of the column; *Odontoglossum luteo-purpureum Boddartii* was also sent by M. Linden.

A magnificent form of *Odontoglossum Hallii* called *magnifica* came from H. M. Pollett, Esq., gr. Mr. Parks, Farnside, Bickley; it has a very large flower, and the lip is remarkably wide. Also *Cattleya Mendellii bickleyana*, white, anterior lobe of the lip lake, throat yellow.

A plant of *Oncidium Wentworthianum*, bearing many flowers, came from Mr. J. Douglas, Great Geries, Ilford.

Miscellaneous.—Three beautiful double varieties of tuberous Begonias came from Messrs. H. Cannell's garden at Swanley; Mrs. W. B. Miller, a pink and buff-coloured flower, new in tint, and a fine bold flower, obtained a certificate; the others were Mr. Miller, a scarlet, and Cannell's Triumph, an exceedingly pretty vivid pink variety.

A good show was made by Messrs. Paul & Son, Waltham Cross, with *Rhododendron hybridum* blooms and *Azalea mollis* in small flat baskets, consisting of many of the best known sorts; baskets of cut blooms of Scotch and miniature Roses, considerable quantities of tree foliage of a variegated character, came from this exhibitor.

Fine showy stands of *Pyrethrums* were put up by Messrs. Kelway & Sons, Langport. These consisted of single and double flowered varieties raised at Langport. The choicest were Princess Beatrice, rosy-crimson, single; Meteor, a brilliant scarlet; Wega, white, yellow centre, double; Princess Irene, single, white, yellow centre, double; Princess Irene, single, white; Aphrodite, also white, double; Florentine, double, pale lilac; and Lord R. Churchill, deep carmine. Messrs. Collins Bros., & Gabriel also showed *Pyrethrums*, some of which were bright in colour.

Some few subjects of a hardy character came from the gardens of G. F. Wilson, Esq., Oakwood, Weybridge; these were *Fragaria lucida*, a sweet-scented shining-leaved Strawberry; Edelweiss, from the seed-bed; *Ourisia coccinea*, *Heuchera sanguinea*, *Cypripedium spectabile*, *Solanum crispum*, with flower light blue; *Primula sikkimensis*, and *Sarracenia purpurea* in bloom. Other plants from the same garden were sent, but not for inspection by the committees, viz.:—*Primula prolifera*, an Indian species; *Acacia melanoxylon* with pinnate and whole leaves. A large number of varieties (40) of Ivy-leaf Pelargoniums came from the garden of the Society, comprising the best in cultivation, and showing—many of them—varieties of great decorative value.

Messrs. Paul & Son, Cheshunt, sent a collection of alpine and other plants. *Saponaria ocyneoides splendens* made a good display; *Campanula pulla*, with its large flowers borne singly, was fine; but *Rosa alpina pyrenaica*, about 6 inches in height with a flower of rich rose about 2½ inches in diameter, was a conspicuous object. *Ramondia pyrenaica alba* (pure white), the white *Linaria antecaria*, *Aster diplostephioides* (blue rays), *Rosa sinica* (white), *Dianthus cæsius*, and *Rhododendron Fortunei* were also good plants. Various *Rhododendrons* of the ponticum section, with hardy *Azaleas*, and *Pæony montan*, were also well shown by this firm, making a very effective display. (Silver Banksian Medal.)

Miscellaneous cut flowers were shown in force by Messrs. Barr & Son, King Street, Covent Garden, W.C., and by Mr. T. S. Ware, Hal's Farm Nurseries, Tottenham, the former of whom received a Bronze Banksian Medal for a collection embracing a great range of flowers. Irises in variety formed one of the leading features. *I. susiana* was well shown, *I. aphylla* var. *Madame Chereaux*, white, bordered by blue-mauve; and *Comte de St. Clair*, a form of *I. amœna*, with falls white, heavily lined with purple, and a purple blotch, standards white faintly suffused by mauve, were the most noticeable; other things included gorgeous *Papaver orientale* and *P. nudicaule* in variety, *Pæonies*, of which *P. officinalis* Sunbeam, a good formed flower, rich rosy-carmine, and *P. Broteri* (see *Gardeners' Chronicle*, p. 49, July

10, 1886) were conspicuous; *Arum crinitum* was also shown here. Mr. Ware also had a good collection of Irises and Iceland Poppies, and he also had quantities of *Hemerocallis flava* and *Centaurea montana* varieties; *Pyrethrums*, *Silene virginica*, *Isiolorion tartaricum* (rich blue), Stocks, *Cypripedium spectabile*, &c., were also shown, and a Silver Banksian Medal was awarded.

A similar recognition was made to Mr. J. Walker, Whitton, Middlesex, for an extensive collection of finely grown Irises, embracing most of the popular varieties. The arrangement of each bunch was effective, and the group, as a whole, very pleasing. *I. germanica* (the type) was as fine as any of the varieties, and *I. g. atropurpurea*, a violet-purple, was also good; other good sorts were *I. pallida Imogene*, pale blue; *I. variegata Minico*, yellow, with brown falls; *I. aphylla Madame Chereaux*, mentioned in Mr. Barr's group; *I. a. Queen of May*, delicate lilac.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, Surrey, showed *Rosa luteo-punica*, the Austrian Brier, a richly coloured flower; Fortune's Yellow Rose (which was also shown by T. W. Girdlestone, Esq., Berkhamstead), a very pretty reddish-yellow flower, double, and without any approach to formality. Mr. Ross also showed specimens of *Mackaya bella*, freely flowered.

A capital collection of plants was shown from the Royal Gardens, Kew, embracing *Cirrhopetalum Cunninghamii*, dark rosy-lilac; *Masdevallia muscosa*, more interesting than pretty; *Lissochilus Krebsii*, bright yellow and brown. Leaving Orchids, there were *Solanum crispum*, a hardy shrub, with pretty pale blue flowers; *Onosma tauricum*, a scape of *Musa coccinea*, very bright scarlet; *Thunbergia mysorensis*, yellow and brown—very strange-looking; *Rhododendron Blandfordianum*, a species with small pale lilac flowers; *Lobelia nicotianæfolia*, *Saxifraga Valdensis* (in full flower), and *Nymphaea Lotus*, *N. stellata*, *N. tuberosa* var. *marliacea*.

From Messrs. H. Low & Co., Clapton, there came an excellent group of *Ericas* in pots (market plants), profusely flowered, and in fine health. They were chiefly varieties of *E. ventricosa*, and attracted much attention. A Silver Banksian Medal was awarded.

Brompton Stocks of large size and clear colours (red and white) were well shown by Mr. R. Dean, Ealing, W.; and Mr. S. Barlow, Stakehill House, Castleton, Manchester, sent Tulips, breeders and rectified, of great beauty and fine form.

A group of tuberous Begonias staged by Messrs. J. Laing & Sons, Forest Hill, S.E., contained some fine varieties, of which H. Adecock, rich carmine, double, with small guards; and *Camellia*, very slightly paler, were excellent; *Anak*, rich rosy-pink (double), and *Duchess of Bedford* (single), carmine, with white centre; *Duchess of Teck* (double), yellow, were also good. Messrs. Laing also had the new *Cypripedium bellatulum* and *Gloxinia virginialis*, pure white. A large number of finely grown show Pelargoniums in full flower were shown by W. Clay, Esq., Grove Road, Kingston (gr., Mr. Hibbert).

Mr. B. S. Williams, Paradise and Victoria Nurseries, Upper Holloway, N., had *Sarracenia Williamsii*, pale green veined with red-brown, dwarf and rather wide in the tube; also *Asplenium ambrosiense*, of no great beauty, with dark green fronds.

Mr. A. Waterer, Knaphill Nurseries, Woking, showed a good lot of *Rhododendron ponticum* varieties, of rich colours and large trusses; and also a number of equally fine hardy *Azaleas*.

Anthurium Desmetianum was shown by Mr. J. Linden, Brussels; the spathe is of a beautiful intense red, and the leaves long, acute at the apex, with a cordate base.

Messrs. J. Veitch & Son, Chelsea, contributed an interesting group of plants, the most noticeable of which was *Styrax Obassia*, with racemes about 6 inches in length, bearing large white flowers; leaves round or slightly cordate, roughly toothed towards the apex—a truly beautiful plant; *Styrax japonica*, *Aciphylla squarrosa*, in flower; and *Grevillea sulphurea*, illustrated in our issue for Oct. 9, 1886, were also shown, as well as *Azalea coccinea speciosa*, brilliant orange-red; and numerous named *Rhododendrons*; *J. Whitworth*, dark lake; Mrs. J. Clutton, white; and Sir Arthur Guinness, rose, were fine forms.

The white *Nelumbium* was shown from Mr. Bolas, Hopton Hall Gardens, Wirksworth, Derby. A page illustration of this was given in our issue for Oct. 9, 1881, from a specimen supplied by Mr. Bolas.

FIRST-CLASS CERTIFICATES.

To *Cattleya Wagneri* *superba*, from Baron Schroder.
 To *Begonia Camellia*, from Messrs. J. Laing & Sons.
 To *Begonia Hadcock*, from Messrs. J. Laing & Sons.
 To *Sarraceni Williamsii*, from Mr. B. S. Williams.
 To *Ramondia pyrenaica alba*, from Messrs. Paul & Sons.
 To *Begonia* Mr. W. B. Miller, from Messrs. H. Cannell & Sons.
 To *Pyrethrum Wega*, from Messrs. Kelway & Sons.
 To *Pyrethrum Meteor*, from Messrs. Kelway & Sons.
 To *Pyrethrum Beatrice Kelway*, from Messrs. Kelway & Sons.
 To *Styrax Obassia*, from Messrs. J. Veitch & Sons.
 To *Anthurium Desmetianum*, from Mr. J. Linden.
 To *Odontoglossum Halli magnificum*, from H. M. Pollet, Esq.
 To *Odontoglossum nebulosum excellens*, from Messrs. F. Sander & Co.
 To *Phalaenopsis gloriosa*, from Messrs. H. Low & Co.
 To *Cypripedium bellatulum roseum*, from Messrs. H. Low & Co.

BOTANICAL CERTIFICATE.

To *Dendrobium macrophyllum Bleichröderianum*, from M. Linden.

Fruit Committee.

Present: H. Veitch, Esq., in the chair; and Messrs. J. Lee, H. Weir R. D. Blackmore, S. Ford, G. W. Cummins, C. Howe, G. T. Miles, A. H. Pearson, W. Warren, W. Marshall, J. Roberts, J. Smith, J. Wright, R. Hogg, P. Crowley.

A new Cucumber, *Lockie's Perfection*, was shown by Mr. Lockie, Oakley Court Gardens, Windsor, which was certificated: it is a hybrid between *Verdant Green* and *Purley Park Hero*, long, uniform, very short neck, dark, and heavily bloomed, and internally solid, and of good colour.

Mr. Miller, gr. to the Right Hon. Lord Foley, Ruxley Lodge, Esher, showed some excellent Peaches; and Melons came from Mr. Gleeson, Clumber Gardens, Worksop—a cross between *Luscious* and *Melting* and *Hero* of Lockinge; it was good size, but only of average merit.

FIRST-CLASS CERTIFICATE.

To Cucumber *Lockie's Perfection*, from Mr. T. Lockie.

BATH AND WEST OF ENGLAND AGRICULTURAL.

JUNE 6, 7, 8, 9, AND 11.—The horticultural department was, as usual, under the superintendence of the Hon. and Rev. J. T. Boscawen. Contributions of plants were sent by Mr. P. A. Pettigrew, gr. to the Marquis of Bute; Mr. S. E. Miller, gr. to F. Sayart, Esq., Old Sneyd Park, Bristol; Mr. G. W. Rye, gr. to James Derlaw, Esq., Sneyd Park; Mr. G. W. Hancock, gr. to H. W. Summis, Esq., Tellisford House, Clifton; Mr. G. C. Parker, gr. to — Watson, Esq., Newport; and Mr. G. Gibbins, gr. to E. Lee, Esq., Coldra, Newport. These were all placed at the disposal of the Hon. and Rev. J. T. Boscawen, the Steward of Horticulture, and consisted of large Palms, stove and greenhouse foliage and flowering plants, and Orchids in great variety. They were arranged in two large groups down the centre of the tent in a manner unusually seen at horticultural exhibitions—not stiff and formal, but taking Nature for their model, the effect being charming.

The great centre of attraction was the two large groups of Orchids which were put up in competition for a £10 prize, offered by the Society. Mr. James Cypher, Exotic Nurseries, Cheltenham, was deservedly placed 1st, with a magnificent collection. The different varieties were all fine examples, including *Aërides Lobbi*, *Cattleya citrina*, C. Mendelii, C. Mossia, and C. Skinneri; *Cypripedium biflorum*, C. nigrum, C. Dominii, C. Hookeri, C. Lawrenceana, good form; C. niveum, and C. Stonei; *Dendrobium Bensoni*, D. Dalhousieanum eburneum, D. Falconeri, D. Jamesianum, especially good; D. Parishii, D. thyrsofolium, D. tortile rosem; *Epidendrum prismatocarpum* and E. vitellinum majus, both excellent examples. There were about thirty plants of *Lælia purpurata*, a mag-

nificent lot of flowers; others were *L. majalis*, *Masdevallia Harryana*, M. Reichenbachia, M. Shuttleworthii, and M. trochilus. *Odontoglossums* consisted of the species and varieties. O. Alexandræ, a beautiful lot; O. citrosmum, O. cordatum, O. nebulosum, O. Pescatorei, O. Phalanopsis, O. Roetzlii, and O. vexillarium. A few specimens of *Oncidium concolor*, *Thunia alba*, *Vanda snavis*, and V. tricolor, completed the list. It is rare to see at any of our horticultural exhibitions such a grand lot staged.

Messrs. Heath & Sons, Cheltenham, were the other competing nursery firm, which had a great variety, including grand pieces of *Cattleya Mossia*, *Phalaenopsis amabilis*, &c.

For specimen Orchid (prize £5), Mr. Cypher was again placed 1st, with *Lælia purpurata*, with grand flowers; Messrs. Heath staging a splendid piece of *Cattleya Mossia*, eighty-four blooms, as the other competitor.

For cut blooms of Roses—prize, a Silver Cup—Mr. J. B. Hall, Rockferry, was placed 1st, with an excellent lot, including *Niphetos*, *Comtesse de Nadaillac*, *Maréchal Niel*, *Souvenir d'Elise*, *Madame De Watteville*, *Madame Margottin*, *Anna Ollivier*, *Marie van Houtte*, *Princess of Wales*, *Etoile du Lyon*, *Belle Lyonnaise*, *Souvenir d'un Ami*, *Rubens*, *Madame Lambard*, *Jean Pernet*, *Hon. Edith Giffard*, and *Comte de Paris*.

Several other grand boxes of Roses were staged, but some mistake occurred in entering them, so that they could not be placed for competition.

Messrs. Smith, of Worcester, sent a grand lot of trained specimens of *Clematis*, finely flowered, including *Countess of Lovelace*, *Marie Defoe*, *Sensation*, very large blue flowers; *Venus victrix*, double blue; *Gloire de St. Julien*, Mrs. G. Jackman, white; *Lord Neville*, *Lucy Lemoine*, *Marie Lefevre*, *Excelsior*, and *Barillet des Champs*, a fine double; also a group of *Rhododendrons*, *Kalmias*, and *Azalea mollis* in variety.

Messrs. Laing, of Forest Hill, London, sent a fine collection of double and single flowered tuberous *Begonias* with remarkably fine flowers; *Gloxinia virginalis*, white; and some new *Caladiums*.

Mr. F. Hooper, Bath, set ten boxes of Pansy bloom in great variety—very fine and choice flowers. Messrs. Parker & Sons, St. Michael's Hill, Bristol, had a large collection of cut flowers, arranged in epergnes; bridal and other bouquets, brackets, &c., composed of choice kinds of flowers, principally Orchids and Roses, artistically arranged.

READING HORTICULTURAL.

JUNE 6.—In common with other societies that of Reading has to suffer for lack of large specimen plants. Collections of these once grown about this busy Berkshire town have become dispersed, and other exhibitors do not come forward to fill the places with fresh subjects, and the fact that the place of show within the Abbey walls at Reading is a Regent's Park in miniature, makes it very necessary that some large specimens should be present, and their absence imparts an unfurnished appearance to the whole; but there are always good features at the Reading shows, and they appear to be as popular with the townsfolk as ever.

Stove and Greenhouse Plants.—On this occasion Mr. Mould, nurseryman, Devizes, and Mr. H. James, nurseryman, Lower Norwood, were the exhibitors of nine each, the prizes being awarded in the order of the names. Mr. Mould's best plants were good specimens of *Erica Cavendishiana*, E. aristata, *Franciscea calycina major*, a capital *Clerodendron Balfourianum*, *Dipladenia profusa*, *Darwinia fuchsoides*, and the ever-welcome *Epacris miniata grandiflora*. Mr. H. James had *Erica ampullacea obbata* and E. tricolor *Wilsoni*, two varieties of *Anthurium Scherzerianum*, the old *Polygala Dalmatiana*, well flowered; *Azalea Roi d'Hollande*, &c.

In the class for four plants, Mr. Armitage, gr. to W. Clark, Esq., Reading, was 1st. The best specimen was an excellent piece of *Clerodendron Balfourianum*, from Mr. Baskett, gr. to W. J. Palmer, Esq., Reading; Mr. Woolford, gr. to W. A. Palmer, Esq., Reading, being 2nd, with an unusually good piece of *Anthurium Andreanum*.

Orchids.—These, as usual at Reading, were bright and attractive, and the culture of these appears to be developing in the neighbourhood. In the class for three plants, Mr. H. James was 1st, with a well-flowered and finely-coloured *Cattleya Warneri*, *Cypripedium barbatum superbum*, and *Dendrobium thyrsofolium*. Mr. Baskett was a good 2nd with a

fine piece of the latter and a well-grown specimen of *Aërides Fieldingii*. Two or three extra prizes were awarded in this class. The best specimen was *Dendrobium nobile*, from Mr. Pound, gr. to G. May, Esq., Reading; Mr. H. James coming 2nd, with *Cymbidium Lowii*.

Azaleas were smaller than usual, though bright and effective. Mr. Lockie, gr. to G. Fitzgerald, Esq., Oakley Court, Windsor, carried off the leading prizes in two classes.

Rhododendrons.—Prizes are offered for groups of *Rhododendrons*, and they make a very fine feature. It is, however, but few who can stage a collection. On this occasion, Mr. Turton, gr. to J. Hargreaves, Esq., Maiden Erlegh, put up a highly meritorious group that formed a grand feature. Two or three more such collections would greatly help to effectually fill the large tent at Reading.

Flowering Plants.—*Pelargoniums* were, as usual, a good feature, Mr. Ashby, gr. to W. Fanning, Esq., Whitechurch, having the best nine plants, including the following fine varieties:—*Prince Leopold*, *Duchess of Edinburgh*, *Empress*, *Ruth*, *Bridal Bouquet*, and *Triomphe de St. Maude*.

Gloxinias were in good condition, but the splendid specimens hitherto shown by Mr. Baskett were wanting on this occasion; though he was 1st with smaller plants of good quality; 2nd, Mr. Palmer, gr. to W. H. Dick, Esq., Thames Ditton.

Fuchsias were of a nice free growth, and carried flowers of excellent quality. Mr. Armitage having the best six plants.

Calceolarias were represented by fine strains, and well-grown specimens, and there was a close run between Messrs. Dockerill and Baskett for the 1st place.

Some good Roses in pots were staged by Messrs. Lockie and Baskett.

Groups arranged for Effect.—There were two classes for these. The best of the large groups came from Mr. H. James, arranged in a semi-circle, *Palms* and *Orchids* being employed to great advantage. Mr. Pound came in 1st, with the small group, Mr. Sumner being a good 2nd.

Foliage Plants.—With the exception of a good collection from Mr. H. James, there was but an indifferent representation of large specimens. Mr. James was 1st, with fine examples of *Thrinax argentea*, *Macrozamia Dennisoniana*, and *Latania borbonica*, as the gems of his group. Messrs. Dockerill and Woolford were 1st and 2nd with four plants. Ferns were in sixes and fours, well-grown examples being generally present. *Selaginellas* were also a good feature.

Cut Flowers.—These were represented by some good Roses, stove and greenhouse and hardy flowers, Pansies, &c.—all highly creditable. Stands for the decoration of dinner-tables were, as they always are at Reading, remarkably well done, and Messrs. Philips were 1st in each class for garden and wild flowers. Mr. Phippen had a really magnificent bridal bouquet, and a very fine wreath. Button-holes were also a good feature.

Fruit.—Black Grapes, the bunches shown in pairs, were remarkably good, Mr. Ashman, gr. to C. T. Crewe, Esq., Billingham, being 1st, with *Hamburgs*. In the class for white Grapes Mr. Robins was 1st, with *Foster's Seedling*; Mr. Ashman being 2nd, with *Buckland Sweetwater*. Peaches were good for the time of the year; Mr. Robins was awarded the 1st prize for *Alexander*. The best Nectarine was Lord Napier, also from Mr. Robins. Strawberries were good, *La Grosse Sucrée*, from Mr. Goodman, being well finished. Messrs. Sutton & Sons offered prizes for their Melons, *Hero* of Lockinge being mainly shown in good character. Messrs. James Carter & Co. also offered prizes for *Blenheim Orange Melon*, one large fruit only being staged.

Vegetables were a striking feature. Messrs. Onkshott & Millard offered special prizes for six dishes, which brought a very keen competition, and they were shown of the best quality. Mr. Jennings, Farnborough Park was 1st, with *Asparagus*, *Tomatos*, *Cucumber*, *Caniflower*, *Peas*, and *French Beans*; Mr. Lockie being very well up indeed with an admirable lot. Messrs. Carter & Co. offered prizes for their Model Cucumber, Mr. Lockie being 1st, with perfect samples, and he was also 1st in the competition for Cucumbers, staging two faultless fruit of *Purley Park*. *Potatos*, *Mushrooms*, *Lettuce*, &c., came also in good form. Mr. Bowie, gr. to A. W. Sutton, Esq., had a remarkable dish of *Sutton's Perfection Tomato*, which was highly commended; and Messrs. Oakshott & Millard had a lot of their *Reading Defiance Cabbage*, a valuable early variety.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	Above or below the Mean for the week ending June 11.	TEMPERATURE.			
		ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	3 below	44	1	— 82	+ 201
1. SCOTLAND, E. ...	4 below	52	0	— 143	+ 157
2. ENGLAND, N.E. ...	3 below	67	0	— 132	+ 73
3. ENGLAND, E. ...	1 below	90	0	— 144	+ 154
4. MIDLAND COS. ...	2 below	88	0	— 173	+ 150
5. ENGLAND, S. ...	2 below	93	0	— 228	+ 204
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 below	61	0	— 152	+ 107
7. ENGLAND, N.W. ...	3 below	74	0	— 164	+ 117
8. ENGLAND, S.W. ...	2 below	85	0	— 245	+ 254
9. IRELAND, N. ...	3 below	69	0	— 157	+ 67
10. IRELAND, S. ...	2 below	85	0	— 157	+ 113
— CHANNEL ISLANDS	1 below	97	0	— 198	+ 154

DISTRICTS.	More or less than the Mean for the Week.	RAINFALL.		BRIGHT SUNSHINE.	
		No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
		Tenths of Inch.	Inch.		
Principal Wheat-producing Districts.					
0. SCOTLAND, N. ...	4 more	114	18.3	33	28
1. SCOTLAND, E. ...	3 more	94	12.6	32	30
2. ENGLAND, N.E. ...	2 more	82	9.6	26	27
3. ENGLAND, E. ...	3 less	78	7.8	30	29
4. MIDLAND COS. ...	4 more	72	8.3	25	27
5. ENGLAND, S. ...	3 more	74	9.4	26	28
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	7 more	82	18.3	22	31
7. ENGLAND, N.W. ...	1 more	84	8.7	25	28
8. ENGLAND, S.W. ...	8 more	81	12.2	20	34
9. IRELAND, N. ...	14 more	89	13.9	11	26
10. IRELAND, S. ...	19 more	80	15.8	1	32
— CHANNEL ISLANDS	8 more	100	12.3	23	37

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JUNE 23. (AVERAGE OF FORTY-FOUR YEARS.)

June 17	61°·1	June 21	61°·8
" 18	61°·2	" 22	61°·7
" 19	61°·4	" 23	61°·8
" 20	61°·5	Mean for the week	61°·5

THE PAST WEEK.

The following summary record of the weather for the week ending June 11, is furnished from the Meteorological Office:—

"The weather has been dull and very rainy over all the west and north-west parts of the kingdom, and generally cloudy, but with less rain, in the east and

south-east. In many parts of Great Britain, however, some intervals of clear sky have been experienced. Thunder and lightning prevailed at times in different parts of the country, but were not at all general.

"The temperature has been below the mean in all districts, the deficit at the more northerly stations being 3° or 4°. During the earlier days of the period the thermometer was very low, the maxima in some places being less than 50°; but as the week advanced the thermometer rose, and, on the 11th, maxima of 68° to 74° were recorded over Great Britain. The absolute minima (which were registered either on the 5th or 6th) were very low generally. Over the inland parts of Scotland they varied from 26° to 33°, and even in 'England N.W.' (Newton Reigny) temperature fell to 30°. In the other districts the minima ranged from 36° to 42°.

"The rainfall has again been less than the mean in 'England E.' but in all other districts an excess is shown. Over Ireland, the west of Scotland, and the south-west of England the fall has been very heavy.

"Bright sunshine has been less prevalent than it was last week, except in Scotland. The percentage of the possible amount of duration was very low generally; in Ireland it ranged from 11 to 13, in England, from 20 to 30, and in Scotland, from 22 to 33."

ENQUIRIES.

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

BLIND NARCISSUS POETICUS. — For some years I have been vainly trying to flower the double form of *N. poeticus*. It has grown well, formed a large clump, but the flowers never get beyond the stage of the buds enclosed. Can you suggest a cause? Nothing can be more vigorous than the plant, nothing more miserable than the attempt to flower. *D.* [We wish we could tell you; our own, whether double or single, always go blind. *Ep.*]

WHERE IS IT?—Professor Reichenbach sends us the following note, which tells its own tale:—"Professor Reichenbach has received from Mr. W. Stevens, Walton, Stone, a fine spike of *Odontoglossum stanroides* Gravesianum. As the geographical dictionary shows ten Stones and twenty-three Waltons in England, the kindness of the Editor appears to offer more hopes of bringing the name of the plant to the notice of Mr. W. Stevens than the wits of the helpless post officers."

NOTICES TO CORRESPONDENTS.

NOTICE.—Owing to pressure on our space the Royal National Tulp Society's Show report is omitted, and will be given in our next issue. Other articles are likewise delayed from the same cause.

ADIANTUM FARLEYENSE: *J. D.* Cut off at the base all the old fronds, and any young ones attacked by the scale. Take away the surface soil, and replace it with new.

BOTTOM-HEAT: *A. King.* You need not cover the hot-water pipes with water; it is not so good as placing them in a shallow chamber under the bed. There should be at the least six rows of 4½-inch pipes running the whole length of the pit. The floor of the bed may be of rough boards, slate, or thin stone slabs. The pipes should be supplied with comeatable valves on flow and return pipes, so that the heat may be completely under control. Another mode of supplying heat is to place the pipes sufficiently low in the pit to allow of a bed of broken stone, which should graduate from those the size of a cricket-ball at the bottom, to small bean-like material at the top, being placed over them. On this substratum, tan, Oak leaves, and stable-manure, or soil itself may be placed according to the use to which the pit may be put.

CATERPILLARS: *J. S.* See last week's number, p. 723.

DAPHNE MEZEREON: *J. M. S.* You may layer side shoots; raise them from suckers or from seeds, or graft it on *Daphne laureola*, the Spurge Laurel of the woods.

DOUBLE-FLOWERED TURNIP: *R. V. & Son.* Very unusual. We will examine and report.

EMIGRANT: *W. K.* If you have a little money at command, you should do well in the colonies: Canada offers advantages, if you wish to follow your occupation of a gardener, whether you start on your own account after a time, or take a situation. See our last and present issue for communications concerning Florida and Queensland before deciding, and consult the authorities at the Emigration Office, Westminster.

HARDY CLIMBER, FAST GROWER, TO HIDE GABLE: *J. M. S.* If the box provided is a deep one Ivy or Virginian Creeper would grow to a large size in it, *Bignonia radicans*, varieties of Clematis, *Pasiflora cærulea* would also do well if you require flowering subjects.

LABURNUM SPORT: *Cytisus.* The specimens you send are those of the highly curious *Cytisus Adami*, concerning which so much has been written during the last thirty or forty years. It is supposed to have originated from budding *C. purpureus* on the common Laburnum. At any rate, your specimens illustrate the two species, and the intermediate forms. You will find an abstract of what has been written in the second volume of Darwin's *Variations of Animals and Plants under Domestication*.

LILY OF THE VALLEY: *J. B.* They are good strains, well grown.

NAMES OF PLANTS: *G. P.* 2, *Lonicera Ledebourii*; 3, *Ribes nereum*; 5, *Viburnum Awafurkii*; 7, *Daphne laureola*.—*H. J. C.* *Vicia sepium*, and *Specularia perfoliata*.—*W. A. G.* 1, *Mackaya bella*; 2, *Thomasia quercifolia*.—*Wokingham*, two shoots of trees. 1, *Sorbus intermedia*; 2, *Pyrus aria*, variety.—*F. Carr.* *Saxifraga granulata*, double form.—*G. P.* *Philadelphus coronarius*.—*J. F.* 1 and 3, next week; 2, *Trifolium minus*; 4, *Hordeum murinum*.—*W. A.* 1, *Oncidium carthagenense*. A *Dendrobium* of the *Aporum* section.—*G. J. D.* 1, *Oncidium maculatum*; 2, *Ceanothus azureus*.—*Old Subscriber.* *Gongora atropurpurea*.—*G. T. S.* 1, please send again; 2, *Prunus padus*.

PEACHES, *J. P.*, and GRAPES, *W. P.* Your trees and Vines and fruits are affected with mildew. Syringe with 4 oz. of soft soap dissolved in a gallon of water. Smear the pipes with sulphur and lime, or clay, in the form of a paint, warming the pipes afterwards; or better still syringe with sulphide of potassium at the rate of ½ oz. to the gallon—this is a good remedy for mildew on any plant—it should be washed off ten minutes afterwards. Maintain a warm buoyant state of the air in the houses, and do not be very free with the use of the watering-pot, especially in the afternoon. Avoid cold air entering the lower part of the house, excepting it is warm outside; do not let the borders want for water.

ROSE GRUBS: *J. M. S.* Syringe with soapy water frequently if you have not time to handpick the bushes.

STRAWBERRIES: *W. J. P.* Strawberries will pay better than Cucumbers if, for the latter, you can get only 4s. 6d. per doz., the cultivation being overdone, in so far as regards the Southern markets. Keen's Seedling is a favourite variety, but it travels badly, and is better adapted for consumption at home. Sir C. Napier, Marguerite, La Grosse Sucrée, Comtesse H. de Thury, and the Elton—which you have, and which is good for a later supply—are the best. The main points are good appearance and size, with firm flesh. Twelve average fruits may weigh between 5 and 6 oz.

TOMATOES DISEASED: *C. L., Kirkintilloch, N.B.* The disease of your Tomatoes is the "black spot." You will find it fully described and illustrated in the *Gardeners' Chronicle* for November 12, 1881, p. 621. Tomatoes in the condition of the examples sent cannot of course be cured; but by cutting off and destroying the diseased individuals you may possibly prevent the disease from spreading.

VARIEGATED HORSE CHESTNUT FOLIAGE, &c.: *W. H. B.* See the article on this subject in our issue for May 26.

VINE LEAF: *S. S.* Looks like scalding, but you give no particulars of culture.

WICH OAK: *C. Y. M.* We know of no Oak with that denomination; perhaps Wych Elm is the tree meant.

COMMUNICATIONS RECEIVED.—P. Deherain, Paris.—K. L. D.—W. Howard.—T. H. P.—F. J. D.—Messrs. Sender.—W. S.—Basing Park (many thanks).—J. M. Wood, Natal (with many thanks).—A. A.—E. G. W. (photo. with thanks).—E. B.—G. S.—Messrs. West, Newman & Co.—A. J. J.—E. H. K. & Sons.—H. E.—J. E. C.—J. C. & Co.—Peter Walker (no flower sent).—W. H. S.—Cope Bros. & Co.—R. D.—Hlex.—Joo. Wilson.—G. W. F.—T. G.—F. G.—H. W. W.—T. Lange (please send original letter).—J. R. J.—J. Newton (envelope mislaid; seed address).—B. Crow.—R. W. A.—J. R.—C. W. D.—W. de H. S.—W. R.

DIED.—On Sunday, the 10th inst., at 8, King William Street, Strand, HENRY ROBSON, second son of Charles William Buck, of Covent Garden, aged thirty-nine years, greatly esteemed for his excellent personal qualities by those with whom he came in contact.

On June 7, aged thirty-seven, Mr. THOMAS JACKSON, nurseryman, Kingston-on-Thames.

MARKETS.

COVENT GARDEN, June 14.

BUSINESS still keeps brisk, with prices well maintained. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 4-sieve	3 0-8 0	Peaches, dozen	4 0-13 0
Grapes, per lb.	3 0-5 0	Pears, per dozen	3 0-6 0
Kent Cobs, 100lb.	40 0-45 0	Pine-apples, Eng., lb.	1 0-2 0
Lemons, per case	12 0-21 0	— St. Michael, each	2 0-5 0
Melons, each	1 0-3 0	Strawberries, lb.	1 6-5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz.	4 0-...	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., bund.	1 0-5 0	Mustard and Cress,	...
— English, 100	3 6-8 0	punnet	0 4-...
Beans, Kidney, lb.	1 6-...	Onions, per bushel	5 0-...
Beet, red, per dozen	1 0-2 0	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Potatoes, per cwt.	4 0-5 0
Cauliflowers, each	0 8-...	— kidney, per cwt.	4 0-5 0
Celery, per bundle	1 6-2 6	Rhubarb, per bundle	0 4-...
Cucumbers, each	0 9-1 0	Shallots, per lb.	0 6-...
Eradive, per dozen	2 0-...	Spinach, per bushel	2 0-...
Green Mint, bunch	0 4-...	Sprae, per bundle	1 0-...
Herbs, per bunch	0 4-...	Turnips, per lb.	2 0-...
Leeks, per bunch	0 6-...	Turnips, per bunch,	...
Lettuce, per dozen	1 6-...	new	1 3-...

POTATOS.—Old Potatoes unsaleable; new, from Jersey, 2d. lb.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Foliage plants, vari-	...
Bouvardias, per dozen	9 0-12 0	ous, each	2 0-10 0
Calceolarias, dozen	4 0-9 0	Fuchsias, doz.	4 0-9 0
Colons, dozen	3 0-6 0	Heliotropes, dozen	6 0-9 0
Cyperus, per dozen	4 0-12 0	Hydrangeas, dozen	9 0-18 0
Dracena terminalis,	...	Lobelias, per dozen	3 0-6 0
per dozen	30 0-40 0	Marguerites, doz.	9 0-12 0
— viridis, per doz.	12 0-24 0	Mignonette, 12 pots	4 0-8 0
Ericas, various, per	...	Musks, dozen	1 6-3 0
dozen	9 0-18 0	Myrtles, per dozen	6 0-12 0
— ventricosa, doz.	18 0-30 0	Palms, in variety,	...
Eucalyptus, in var.,	...	each	2 6-21 0
per dozen	6 0-18 0	Pelargoniums, doz.	6 0-15 0
Evergreens, in var.,	...	— Ivy-leaf, dozen	3 0-6 0
per dozen	8 0-24 0	— scarlet, dozen	3 0-9 0
Ferns, in var., doz.	4 0-18 0	Roses, dozen	12 0-24 0
Ficus elastica, each	1 6-7 0	Spiraeas, dozen	6 0-12 0

BEDDING-OUT PLANTS.

By the box, 2s. to 6s.; or by the dozen, 1s. to 2s. Now coming good.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aconites, 12 bun.	1 6-4 0	Paesies, 12 bun.	1 6-3 0
Arum Lilies, 12 blms.	2 0-4 0	Panones, 12 bun.	6 0-13 0
Azaleas, 12 sprays	0 6-1 0	Pelargoniums, 12 spr.	0 6-1 0
Bouvardias, per bun.	0 6-1 0	— scarlet, 12 spr.	0 3-0 6
Carnations, 12 blms.	1 0-2 0	Pinks, 12 bun.	3 0-6 0
Chrysanthemums,	...	Poppies, 12 bun.	4 0-6 0
annual, 12 bun.	2 0-4 0	Primulas, double, 12	...
Cornflower, 12 bun.	2 0-4 0	sprays	0 0-1 0
Eucharis, per dozen	3 0-6 0	Pyrethrums, 12 bun.	4 0-8 0
Forget-me-nots, 12	...	Ranunculus, 12 bun.	2 0-4 0
bunches	2 0-4 0	Roses, Tea, per doz.	0 6-1 6
Gardenias, 12 blooms	1 0-4 0	— coloured, dozen	2 0-4 0
Heliotropes, 12 spr.	0 6-1 0	— red, per dozen	2 0-4 0
Lilium longiflorum,	...	— Safrano, dozen	0 9-1 0
12 blooms	3 0-5 0	Spiraea, 12 bun.	4 0-6 0
Marguerites, 12 bun.	3 0-6 0	Stephanotis, 12 spr.	2 0-4 0
Mignonette, 12 bun.	3 0-6 0	Taberoseas, 12 blms.	0 6-1 0
Narcissus, double, 12	...	White Lilac, Fresh,	...
bunches	4 0-6 0	per bunch	4 6-6 0

*. Orbid bloom in great variety, but the demand not very good.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended June 9:—Wheat, 31s. 8d.; Barley, 24s. 8d.; Oats, 16s. 7d. For the corresponding week in 1887:—Wheat, 35s. 4d.; Barley, 22s. 1d.; Oats, 17s.

"ARCHIMEDEAN" AMERICAN LAWN MOWERS.



AWARDED
HIGHEST PRIZE

AT THE
Paris Exhibition, 1878;
and the JURY, in their REPORT

say:—
"The 'ARCHIMEDEAN' did the
BEST WORK of any Lawn
Mower exhibited."

ALSO AT
Sydney Exhibition, 1879-80
AND AT
Melbourne Exhibition, '80-1

Opinions of the Press:
"Far superior to any of ours."—
Vide *The Field*.
"Remarkably easy to work."—
Vide *Gardeners' Magazine*.
"The quickest, most simple, and
most efficient mower ever used."—
Vide *Gardeners' Chronicle*.
"We feel bound to recommend it to
our readers as one of the best mowers
we have as yet made acquaintance
with."—Vide *Floral World*.

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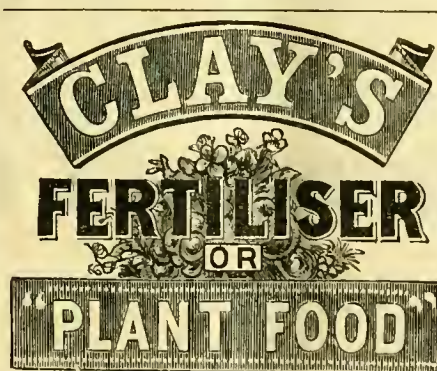
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Cheapest Fertiliser for all purposes. Write for Circular
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Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each,
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Sold in Packets, 6d. and 1s. each, and in
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7 lb. 14 lb. 28 lb. 56 lb. 1 cwt.
2/6 4/6 7/6 12/6 20/-
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TEMPLE MILL LANE,
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BACHELOR'S WALK, DUBLIN.—Discount for Cash.

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THIS OLD-ESTABLISHED MANURE
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the Colonies to exceed all others in general
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plants generally. It is a clean and dry powder, with
very little smell, which renders it particularly
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is literally 'magical.' We have tried it on unhealthy plants
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natural vigour. However valuable other fertilisers may be,
none can be compared to this. Camellias grown in the
same pots for 10 years are as healthy as if just repotted.—
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May be obtained from all Nurserymen and
Seedsmen in the United Kingdom
and the Colonies.

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(LIMITED),
FINSBURY STREET, LONDON, E.C.

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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.
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 BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.
 COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 26s. per ton, in 2-bushel bags, 4d. each.
 YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
 SPHAGNUM MOSS, 8s. 6d. per sack.
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FUMIGATING PAN

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TO

W. RICHARDS,

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LONDON, W.C.

1888.

Please send me "THE GARDENERS' CHRONICLE" for _____ Months,
 commencing _____, for which I enclose P.O.O. _____.

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G. C.
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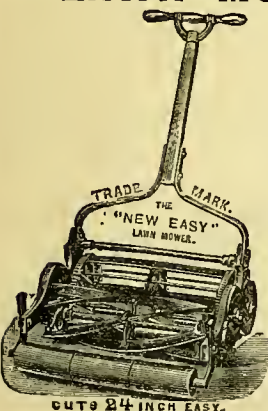
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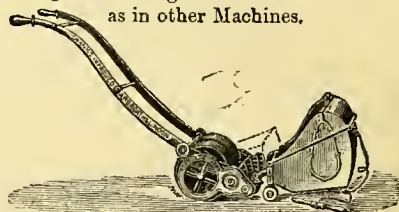
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10 " ..	0 6 0	21 " ..	0 11 6
11 " ..	0 6 6	22 " ..	0 12 0
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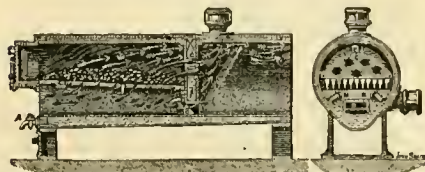
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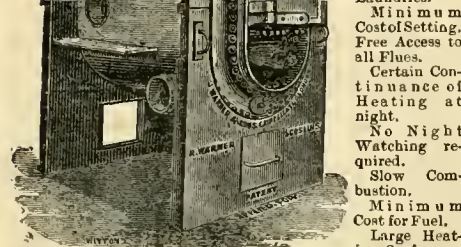
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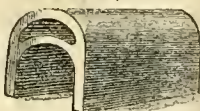
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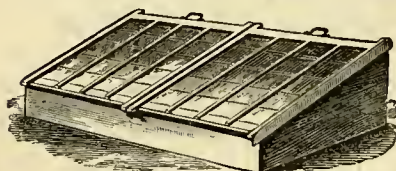
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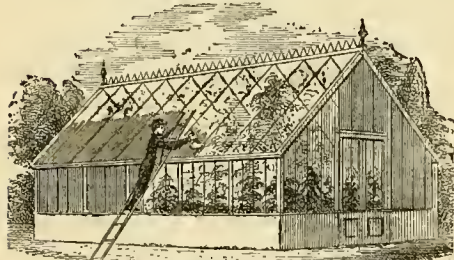
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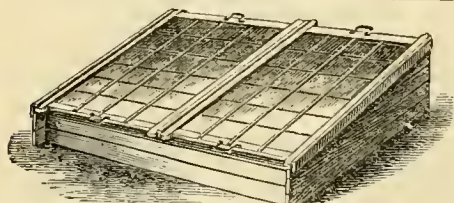
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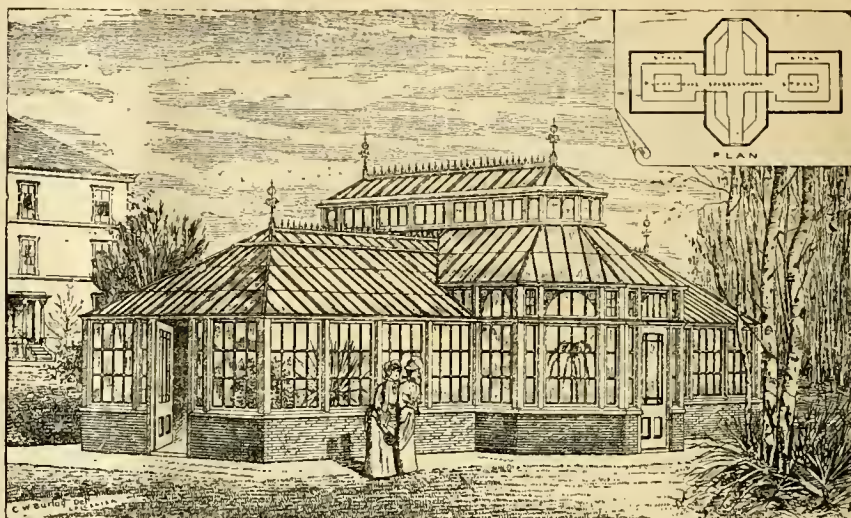
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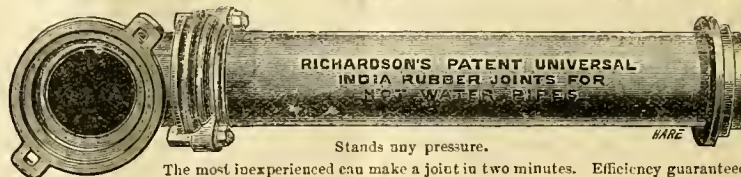
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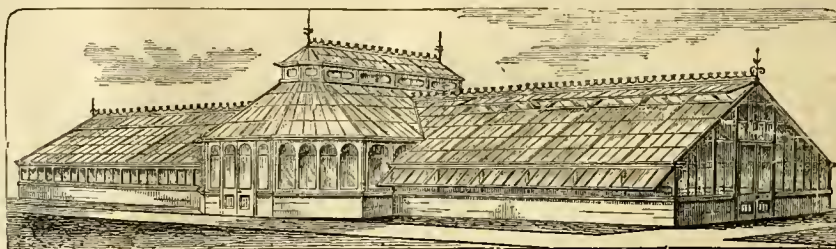
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The GARDENERS' CHRONICLE

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

Back Numbers of the "Gardeners' Chronicle."

NOTICE.—All Back Numbers of the "Gardeners' Chronicle" are now 3d. each.

ALEXANDRA PALACE.

GRAND ROSE SHOW, JUNE 27 and 28.
The series of Shows promoted by the Alexandra Palace and Park Company, Limited, for 1888, will be inaugurated by a grand display of ROSES on the above dates. Liberal Prizes in all Classes of Roses for professional and amateur growers are offered. All Prize Money will be paid on the first day of the show. Treasurer, Mr. Shirley Hibberd. Excellent facilities are offered for Trade exhibits, Specialties and Appliances; and suitable Honours and Certificates will be awarded.
Full particulars and Schedule of Prizes may be obtained on application to the Secretary of Rose Show, Mr. R. BEALE, Alexandra Palace, London, N.

DURSLEY ROSE SHOW,
JULY 4, 1888.—Entries Close June 30. For Schedules apply to Messrs. SMALL and COOKE, Hoo. Secs., Dursley.

FARNHAM ROSE SHOW, JULY 4, at Farnham Castle. Many open classes. J. H. KNIGHT, Esq., Secretary, Bursfield, Farnham.

GRAND ROSE SHOW, BATH, THURSDAY, July 5. First Prize, Nurserymen, 72 varieties, £8 8s.; First Prize, Nurserymen, 36 varieties, £4; First Prize, special, open, 24 varieties, £5; First Prize, Amateurs, 36 varieties, £5; First Prize, Amateurs, 24 varieties, £3. The 2nd and 3rd Prizes in proportion. Several other classes for Roses, Bouquets, Strawberries, and Plants, thirty classes in all. Entries Close June 30. For Prize Schedules apply to 14, Milson Street, Bath. BENJN. PEARSON, Secretary.

SUTTON'S FLORISTS' FLOWER SEEDS.
Begonia, Calceolaria, Cineraria, Cyclamea, Gloxinia, Primula, &c., the finest strains in existence. See SUTTON'S AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct from SUTTON AND SONS, Reading.

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Roman Hyacinths and other French Bulbs.
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France. Wholesale Trade LIST on application to WILLIAM DENMAN, 7, Catherine Street, Covent Garden, W.C.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem,
Holland.—Wholesale CATALOGUE now ready, and may be had free on application to Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

CHOICE NEW CACTUS DAHLIAS, including William Pearce, the new early yellow, Juarezii (crimson), Constance (white), Mr. Tate (white), Fire King (scarlet), Mrs. Hawkins (yellow, tipped white), Empress of India, King of the Cactus, Prince Imperial. Twelve varieties, including above, for 4s. 6d. per dozen.
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SINGLE, magnificent varieties, 12 kinds, 4s. 6d. per dozen.
The above packed free and put on Rail for cash with order.
Carriage paid, 6d. extra.
CHARLES BURLEY, Nurseries, Brentwood.

FERN S.—Strong Lygodium scandens, serrulata lutea var., &c. Out of pots, 12s. per 100, cash.—Write, M. SMYTH, 18, White Horse Lane, London, E.

NEW CABBAGE, "DICKSON'S PERFECTION."

A new, valuable, and distinct variety, with wonderfully solid and compact heads, of good size and excellent quality; vigorous habit, constitution extremely hardy. Invaluable for market purposes as well as private gardens. Per packet, 1s., post-free.
JAS. DICKSON AND SONS, 108, Eastgate Street, Chester.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

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WILLIAM DENMAN, HORTICULTURAL SALESMAN, 7, Catherine Street, Covent Garden, W.C. Registered Address for Telegrams, "EUCCHARIS LONDON."

SQUELCH AND BARNHAM, North Row, Covent Garden, W.C., are OPEN TO DISPOSE of any quantity of MUSCATS and BLACK GRAPES, TOMATOES, CUCUMBERS, FRENCH BEANS, STRAWBERRIES, CHOICE FLOWERS, &c. Highest Market Prices obtained. Account Sales daily; Cheques weekly or as preferred by Sender. Baskets and Labels supplied. References given.

WANTED, BANKSIAN ROSES. Cuttings of the old white and the yellow Banksian Roses required. Each cutting or shoot must be terminated with flowers, and not be less than 10 inches to 1 foot long, including the flowers. TEA ROSES in pots EXCHANGED. Apply, EWING AND CO., Sea View Nurseries, Havant, Hants.

WANTED, CYCAS REVOLUTA. Young fresh plant. State size and price, to JOHN LOCKYER, Park Gardens, Pontypool, Mon.

WANTED, Large Decorative PALMS, Tree FERNS, DRACÆNAS, PHORMIUMS, &c. Particulars and lowest prices, or will EXCHANGE TEA ROSES in 5-inch pots, fine plants, P. des Jardin, Madame Lambert, &c.; also a quantity of Telegraph CUCUMBER PLANTS. Stamford Hill Nursery, Amhurst Park, N.

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CARTERS' FIRST-PRIZE PRIMULA, CARTERS' FIRST-PRIZE CINERARIA, CARTERS' FIRST-PRIZE CALCEOLARIA.

Seed of each, in Sealed Packets, price 1s. 6d., 2s. 6d., 3s. 6d., and 5s. per packet, Post-free.
CARTERS' Seedsmen by Special Royal Warrants to H.M. the Queen, and H.R.H. the Prince of Wales, 237 and 238, HIGH HOLBORN, LONDON, W.C.

PRIMULA SINENSIS.—Magnificent strain, including Chiswick Red, Alba magnifica, The Bride, Purpurea magnifica, Village Maid, Coccinea magnifica, and other superb varieties in splendid mixture. Per pkt., 1s. 6d. and 2s. 6d., post-free.—DANIELS BROS., The Royal Seedsmen, Norwich.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PRIMULA, Double White, 5s. per dozen, 35s. per 100.
Price for quantities on application.
Terms, Cash with Order.

TAYLOR AND CO., Nurserymen, Timperley, Cheshire.

BEDDING PLANTS, established, and so sure to give satisfaction.
CHRYSAETHUMS, the very choicest sorts, in good plants, DAHLIAS, an unsurpassed collection. Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CREEPERS FOR WALLS.—By planting what is suitable, an ugly object may easily be made beautiful. Most being in pots, can be sent and put out at any time. Descriptive LIST and advice free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PALMS.—A pair of Chamaerops excelsa, in good healthy condition, 5 feet 6 inches high, each twelve fronds, price £3 10s. A few smaller Palms, Lantana borbonica and other sorts. Cheap to clear.
GARDENER, Holly Lodge, Stamford Hill, N.

BEGONIAS A SPECIALTY.—Awarded Four Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, choicest, 6s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choicest, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. The best and cheapest combined procurable. CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

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CINERARIAS same price.
Also double white PRIMULAS, 6d. each.
Carriage free for cash with order.
JOHN STEVENS, The Nurseries, Coventry.

New Sowing Rape and White Mustard Seed.
H. and F. SHARPE have to offer fine clean samples of the above-named Seed, which they will be pleased to submit, with Lowest Prices, on application. Seed Growing Establishment, Wisbech.

50,000 STRONG CAULIFLOWER PLANTS for Sale, packed free on rails at 4s. per 1000.—C. FIDLER, Seed Grower, Reading.

PEAT for Orchids, Hard-wooded Plants, Ferns, &c., of best quality, can now be supplied from Summer Cutting. Wholesale or Retail. Samples and quotations on application to The PEAT ASSOCIATION, 10, Cullum Street, London, E.C.

W. H. LASCELLES AND CO., HORTICULTURAL BUILDERS, 121, BUNHILL ROW, LONDON, E.C. Plans and Estimates Free.
See large Advertisement on June 2, page 679.

SALES BY AUCTION.

Monday Next.

SPECIAL SALE OF ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **MONDAY NEXT**, June 25, at half-past 12 o'clock precisely, a large assortment of **ORCHIDS** in FLOWER, amongst which will be found numerous varieties of *Odontoglossum*, *Dendrobium*, *Cattleya*, *Cypripedium*, *Max-davallia*, *Oncidium*, a very strong plant of *Odontoglossum Edwardii*, *Trichopilia suavis* alba, and many others.

On view morning of Sale, and Catalogues had.

Tuesday and Wednesday Next, June 26 and 27.

IMPORTANT UNRESERVED SALE of the whole of the well-known **COLLECTION OF ESTABLISHED ORCHIDS** formed by F. A. Philbrick, Esq., Q.C., who is relinquishing the cultivation of Orchids.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY and WEDNESDAY NEXT**, June 26 and 27, at half-past 12 o'clock precisely, without reserve, the whole of this well-known **COLLECTION OF ESTABLISHED ORCHIDS**. The plants are in unusually fine condition, and the collection includes probably the grandest lot of *Phalaenopsis* offered for many years, beside a large number of specimens of hybrid and other *Cypripedium*. Among the principal items the following may be mentioned:—

<i>Phalaenopsis amabilis</i> , including picta and many other fine varieties	<i>Cirrhopetalum Cueninghami</i> , large plant
" <i>Dayana</i> (true)	<i>Sobralia macrantha</i> superba
" <i>grandifolia</i> , the best Java and Borneo varieties	<i>Aerides Lawrenceana</i>
" <i>Schilleriana</i> , including magnifica and other grand forms	" <i>affine</i> <i>Godeiroye</i>
" <i>casta</i> , three healthy plants	" <i>roseum</i> <i>magnificum</i>
" <i>leucorrhoda</i> , fine variety	<i>Cologyne cristata</i> alba
" <i>speciosissima</i>	" <i>maxima</i>
" <i>tetraspis</i>	" <i>Chatsworth</i> var.
" <i>violacea</i> <i>Schroderi</i>	" <i>Trentham</i> var.
" <i>Marie</i> and others	" <i>Lemoineana</i>
<i>Cypripedium Morganianum</i>	" <i>barbatum</i>
" <i>Bartlet</i>	" <i>Massangana</i>
" <i>Lecanum superbum</i>	" <i>tomentosa</i>
" <i>serenarium</i> <i>superbium</i>	<i>Odontoglossum crispum</i> regium
" <i>Williamsi</i>	" <i>Ruckerianum</i>
" <i>veixillarium</i>	" <i>aureum</i>
" <i>Seden superbum</i>	" <i>Wilkeanum</i> and other great forms
" <i>barbatum</i> <i>grandiflorum</i> <i>superbum</i> (<i>Hendersoni</i>)	" <i>Pescatorei</i> , many fine varieties
" <i>polium</i>	" <i>polyanthum</i>
" <i>selligerum</i> <i>majus</i>	" <i>blanckum</i> , special dark variety described in Veitch's Monograph
" <i>grande</i>	" <i>veixillarium</i> <i>albescens</i>
" <i>Schroderi</i>	" <i>Cobbium</i>
" <i>marmorophyllum</i>	<i>Cattleya Mossie Goliath</i>
" <i>Spicerianum</i> <i>magnificum</i>	" <i>grandissima</i>
" <i>Veitchii</i>	" <i>Skinnei</i> <i>alba</i> and <i>oculata</i>
" <i>Lowi</i> <i>superbum</i>	" <i>fusta</i>
" <i>Chaunin</i>	" <i>Mardelli</i>
" <i>punctatum</i> <i>violaceum</i>	" <i>Wagneri</i> (true)
<i>Lelia anceps</i> <i>Dawsoniana</i> , with 5 bracts	" <i>Backhouseana</i>
" <i>Hilli</i> <i>Percivaliana</i>	" <i>exoniensis</i>
" <i>Schroderi</i> <i>virginalis</i> , and other white varieties	" <i>Trianae</i> , <i>Clio</i> , and other fine varieties
" <i>Ilacina</i>	" <i>Gouldiana</i> (true)
" <i>elegans</i> , many fine forms	" <i>Mendellii</i> <i>superbissima</i>
<i>Saccolabium bellum</i>	" <i>Wallacei</i>
<i>Cymbidium Philbrickianum</i>	" <i>gigas</i> <i>Madelineae</i> , and other superb varieties

Also Bateman's "Orchidaceae of Mexico and Guatemala," elephant folio, 1843, Sir Pitts Salt's copy; Williams' "Orchid Album," both series, 10 volumes, half-bound in morocco, gilt; Bateman's "First and Second Century of Orchidaceae Plants," and Bateman's "Monograph of *Odontoglossum*."

Messrs. P. & M. desire to state that no plants will be sold privately prior to the Sale.

May be viewed on the premises by cards obtainable of the Auctioneers, or at the Sale Rooms on the morning of Sale. Catalogues may be had of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next.—Imported Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, June 29, at half-past 12 o'clock precisely, *ODONTOGLOSSUM CITROSIMUM*, in large masses; *O. NEBULOSUM*, large masses; *CATTLEYA BOWRINGIANA*, large masses; *EPIDENDRUM MACROCHILUM* *ALBUM*, described by the collector as the finest varieties ever offered; *CATTLEYA MOSSIE*, *CYMBIDIUM EBUENUM*, *CYPRIPEDIUM STONEL*, *C. VENUSTUM* *PARVUM*, *ONCIDIUM CESTUM*, selected masses; *O. CUCULLATUM*, *O. PULCHELLUM*, *ODONTOGLOSSUM CERVANTESI*, *ARUNDINACEAE*, probably new; *ODONTOGLOSSUM HALLII* *XANTHOGLOSSUM*, *SACCOLABIUM GUTTATUM*, &c.

On view morning of Sale, and Catalogues had.

Sydenham.

CLEARANCE SALE OF STOVE AND GREENHOUSE PLANTS, by order of Thos. Christy, Esq., who is leaving the Residence.

MESSRS. PROTHEROE AND MORRIS will **SELL BY AUCTION**, on the Premises, Malvern House, Sydenham, on **WEDNESDAY** July 4, at 12 o'clock precisely, without reserve, a large quantity of **STOVE and GREENHOUSE PLANTS, AZALEAS, DECORATIVE PLANTS, ORCHIDS**, &c.

Fuller particulars will appear next week. Catalogues may be had, when ready, of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday, July 6.—Preliminary Notice.
ODONTOGLOSSUM CUSPIDATUM *PLATYGLOSSUM*.
CATTLEYA SANDERIANA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. G. T. White to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **FRIDAY**, July 6, without reserve a magnificent importation of *ODONTOGLOSSUM CUSPIDATUM* *PLATYGLOSSUM*, described by Professor Reichenbach, and also a grand importation of *CATTLEYA SANDERIANA*, with dormant eyes. The entire importations will be offered. Further particulars will appear next week.

The Downside Collection of Orchids.
PRELIMINARY NOTICE.

HIGHLY IMPORTANT EIGHT DAYS' SALE of the whole of this renowned Collection, including many plants matchless in point of rarity, and the whole remarkable for culture and condition, embracing unquestionably the most valuable and extensive Collection of

ESTABLISHED ORCHIDS.

that has ever been submitted to Public Competition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Wm. Lee, Esq. (who is Selling the Estate of Downside, and relinquishing the cultivation of Orchids), to **SELL BY AUCTION**, on the Premises, Downside, Leatherhead, about 1 mile from either of the Leatherhead Railway Stations,

On **TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY**, July 10, 11, 12, and 13, 1888;

and also on

TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 24, 25, 26, and 27, 1888.

at half-past 12 o'clock precisely each day, the whole of this most valuable Collection of

ESTABLISHED ORCHIDS.

A List of the principal plants appeared in the *Gardeners' Chronicle* on June 9th last.

Messrs. P. & M. desire to mention that no plants will be sold privately, but that the whole will be submitted to public competition.

The collection may be viewed any day prior to the Sale, by cards, to be obtained of Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C. The Catalogue is in hand and will shortly be published. Copies can be obtained on application to the Auctioneers.

Havant.

FIRST ANNUAL SUMMER SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Ewing & Co. to **SELL BY AUCTION**, on the Premises, the Sea View Nurseries, Havant, on **WEDNESDAY**, July 11, at 12 o'clock precisely, 5000 *TEA*, *NOISEITE*, and other *ROSES* in pots; 2000 *IVIES* of the choicest green leaved and variegated kinds, 1000 *AMPELOPSIS VEITCHII*, and other *VIRGINIA CREEPERS*; a large quantity of *HARDY PASSION FLOWERS*, including the new *White Constance Elliott*; Japanese and other *HARDY EVERGREENS*, choice flowering and foliaged *TREES and SHRUBS*, *HARDY CLIMBING PLANTS*, &c., all in pots suitable for immediate removal.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, at the principal Hotels in the district, and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone.

Thursday Next.—(Sale No. 7700.)

VALUABLE IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will **SELL BY AUCTION** at his Great Rooms, 38, King Street, Covent Garden, on **THURSDAY NEXT**, June 28, at half-past 12 o'clock precisely, a fine lot of **IMPORTED ORCHIDS**, including *Cattleya Sanderiana*, *C. Mendellii*, *Odontoglossum crispum*—best type, in fine condition; *O. grande*, *Oncidium* *Brianianum*; *Epidendrum* species; *Huntleya albidula*, &c., from Messrs. Shuttleworth, Carler & Co. Also some choice **ESTABLISHED ORCHIDS**, including many plants in flower and bud. On view morning of Sale, and Catalogues had.

The Third and Concluding Portion of the Valuable COLLECTION of ORCHIDS formed by the late JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors of the late John Day, Esq., to **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, July 18, at half-past 12 o'clock precisely, the Third and Concluding Portion of his valuable COLLECTION of ORCHIDS.

For further particulars, see future Advertisement.

Unique and Valuable Water-colour Drawings of ORCHIDS, DRIED FERNS, &c.

MR. J. C. STEVENS has been favoured with instructions from the Executors of the late John Day, Esq., of High Cross, Tottenham, to **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, July 18, the Unique and Valuable Collection of Life-size **WATER-COLOUR DRAWINGS OF ORCHIDS**, by Durham, contained in 23 bound volumes, together with 44 loose Drawings, and 5 framed, ditto; also the famous Collection of **DRIED FERNS**.

Important Sale of Specimen

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MESSRS. N. EASTON and SON are instructed by Sir Albert Rolitt, M.P., to **SELL BY AUCTION**, at Thwaite House, Cottingham, E. Yorks, on **WEDNESDAY and THURSDAY**, June 27 and 28, 1888, each day at 1 o'clock prompt, a portion of his **STOVE and GREENHOUSE PLANTS, ORCHIDS**, &c., comprising, amongst others, fine specimen *Palms*, *Crotons*, *Ericas*, *Dipladenias*, *Allamandas*, *Stephanotis*, and *Tree Ferns*, all in fine condition.

Catalogues will be ready in due course, and may be had on application to the GARDENER, Thwaite House; or the Auctioneers, Row 1 Alley Lane, Hull.

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WALTER T. DEWDNEY, Hon. Sec.
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ANNUAL SHOW, MONDAY, July 18. Special Prizes (open to all) for Plants, Roses, Fruit and Vegetables. For Schedules and Entry Forms apply to J. H. GOODE, Hon. Sec., Chapel Street, Nuneaton.

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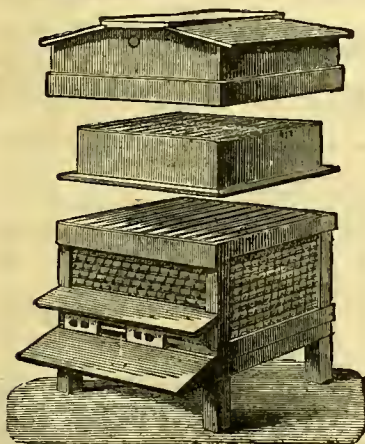
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to announce the following Contributions

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THE
Gardeners' Chronicle.

SATURDAY, JUNE 23, 1888.

ROSE PROSPECTS.

WHEN we get within a fortnight or three
weeks of the commencement of the Rose
season, prophesying as to its character becomes
a much easier thing than when the attempt is
made some six or seven weeks previously; for,
although we are never sure, in our changeable
climate, of what the weather may be, or how it
may affect the bloom of our Roses, yet it is not
very likely that we shall have such very decided
changes as to reverse the present condition of
things. We may, indeed, get one of those bursts
of hot weather which upset all calculations,
drive Roses into flower prematurely, scorch and
wither up the darker-coloured flowers, and make
things generally unpleasant. We have had such
for some years in the first week in July, making
shows unpleasant, and upsetting many a well-
planned scheme. Or we may have cold weather,
which will retard our blooms—but we hope not;
and in that hope let us see what at the present
time are our prospects.

We have for so many years had what we are fain
to call abnormal seasons that it is a comfort to look
hopefully at one which we hope does not deserve
that name. We have not had those destructive
frosts which in May—from the 20th to the 26th
—have done so much damage and blasted the
hopes of many an aspiring exhibitor, when the
tender shoots have been cut back, and a fresh
start has had to be made. From some growers I
have heard that they were badly hit by a
frost on May 10; and, indeed, the variability of
our climate makes it very difficult to say any-
thing of one's neighbour's experiences. Thus,
on June 14 we had a gentle rain, while two
miles off there was a heavy hailstorm—so heavy
that the boys were able to make snowballs. Now
were one to ask a Rose grower there about the
season, he would have a very dismal account to

render; but taking the accounts which I receive and the observations I have been able personally to make, I think we may see that the prospects are so far good.

With regard to the enemies with which we have to contend, I may say that the bud-maggot seems to be unusually abundant this year; it is not so much so with me, but I hear of it on all sides. This will be a hindrance to many, but it is one of those enemies that can be grappled with, and, as I said recently, there is but one way to get rid of it. Of aphides I have seen no trace as yet, and I think that, generally speaking, our Rose gardens are tolerably free from them. It is very difficult to say what weather is most conducive to their increase, but I should think that the comparatively low temperature we are now experiencing cannot be so; but here again we may see suddenly an influx of the unwelcome visitor; as yet, however, he has not arrived. Of red-rust or orange fungus I have heard many complaints; it is a insidious enemy, and although it may not do permanent injury to the bushes, yet it is very disfiguring to the foliage, and when it comes so early must be destructive to the size and substance of the flowers.

The exhibition season will commence in about a fortnight's time, and already exhibitors are preparing for the fray; on all sides one hears the sound of preparations, and those who have been watching and caring for their pets during the past year are now looking for the result. There can be but little doubt that the show of the National Rose Society, to be held at the Crystal Palace on July 7, will be about the right time, and that it promises to be the grandest show of Roses ever held. The Society has never been niggard in the prizes it has offered, but this year it has gone considerably beyond its previous efforts. There is offered, besides pieces of plate, more than £300 in prizes, and although it may be the fashion with some to sneer about this "paltry pelt," a good prize list is sure to bring exhibitors. Growers for sale naturally expect to get something towards their expenses, while there are many amateurs who would never be able to compete if they had not some expectation of meeting, at any rate, part of their expenses. Many gentlemen give their gardeners the amount of prize-money; and there can hardly be one exhibitor who expects to "make" anything by his prizes. The eagerness with which the Society's medals are sought by amateurs testifies to the strong feeling of ambition that characterises most of our amateurs. There are additions made to our host of exhibitors every year, and while changes take place there seems to be no diminution of interest, and I am inclined to think that there will be a larger number of exhibitors than the Society ever had before.

One thing always enhances the interest of Rose shows—especially of the National—viz., the hope of seeing some new flowers, and I should think that they will be abundantly gratified this year. We do not expect to see much of the Roses sent out by the French growers last autumn—we have already noted as many of them as we are likely to see at present; and in Sappho, Madame Hoste, and Gloire de Margottin we have had promises of something good by-and-bye; but it would be idle to expect anything from them now. They are received in October by our English nurserymen, as grafted plants most probably. When received they are potted, put into heat, and from that time are forced forward at a tremendous rate. Buds are used as soon as possible for grafts; when these take and begin to grow they are in turn used, so that from a couple of plants hundreds, if not thousands, are ready for sale; but it is perfectly clear that it would be impossible to expect anything like a good bloom from these plants. Sometimes, indeed, a grower will spare one of his imported plants and will not put it through this forcing process, and so be able to exhibit a bloom or two at the spring metropolitan shows; but when we look over the stands of new Roses in July we generally find that the bulk of them consists of Roses which have been out for a couple of years, with just a sprinkle of miserable

blooms of the really new ones, often conveying a very inadequate idea of what they really are, but there are some of the Roses which have nominally been out for a couple of years, of which we want to see more: we want to see Her Majesty and Grand Mogul, and those three Irish novelties—Earl Dufferin, Lady Helen Stewart, and Miss Helen Brownlow, and others of which our Rose growers have spoken well—Madame Joseph Desbois, &c.; we want, too, to see Lady Alice and Mrs. John Laing, and the Puritan; and then we hope Messrs. Mack & Son will let us see Sir Rowland Hill and Duchess of Leeds—the former especially. There are perhaps other novelties waiting: one I have seen, Caroline D'arden, but not in a condition to enable me to form an accurate judgment. It was sent to me from Ireland by Messrs. Dickson & Sons of Newtonards, the raisers of Earl Dufferin. It came by post, and the authorities had not dealt very tenderly with it, but it realised in one point the poet's words:—

"You may break and may ruin the vase if you will,
But the scent of the Rose will cling to it still!"

for it was most deliciously sweet-scented, a quality in which I am sorry to say some of our modern Roses are utterly deficient, although every one expects to find it in the Rose.

Our hopes are large, our prospects bright, and let us earnestly hope that this season at least will redeem the character which has been given to so many of recent years—abnormal. *Wild-Rose*.

NEW OR NOTEWORTHY PLANTS.

LÆLIA × HORNIANA, n. *hyb.* (*Indob.*).

A hybrid between *Lælia purpurata* and *L. elegans*; the latter being the pollen parent—a cross effected by Mr. Ferdinand Horn, the Orchid grower of Baron Nathaniel von Rothschild, Hohewarte, near Vienna. The bulbs are said to be nearly like those of *Lælia purpurata*, but broader, more flat, and shorter. The flower is of very strong substance, white, sepals and narrow petals lanceolate, acute. Lip most distinctly trilobed, side-lobes obtuseangled, mid-lobe protruded, retuse. The basilar part is yellow, and there are some purple lines on the centre of the disc. The lateral lobes and the central lobe have a fine mauve tint over the good purple, and a thin white border, whilst the centre of the anterior lobe has a projecting white space as in *Lælia purpurata* pretexta. It is a lovely thing, and is dedicated to its enthusiastic cultivator. *H. G. Rehb. f.*

EPIDENDRUM O'BRIENIANUM ×, n. *hyb.*

Another genus must now be added to the number of those in which artificial hybrids have been obtained, and to Mr. Seden once more belongs the merit of producing another decidedly meritorious garden plant. It was obtained by crossing *E. evectum* with the pollen of *E. radicans*, better known in gardens at present as *E. rhizophorum*, and as would naturally be expected it is tolerably intermediate in character between its two parents. In habit it much resembles *E. radicans*, as it bears roots along the pseudobulbs like that species—a character not seen in *E. evectum*. The flowers of each are represented in the annexed engraving (fig. 103), which will show how the characters of the parents are represented in the hybrid. The segments are longer than in *E. evectum* but have the same general shape, while in *E. radicans* they are less narrowed at the base. The column is almost as straight as in *E. evectum*, while in *E. radicans* they are less narrowed at the base. The column is almost as straight as in *E. evectum*, while in *E. radicans* this organ is much curved, bringing the lip down to the lateral sepals. The shape and cutting of the lobes of the lip will also be noticed as much like those of *E. evectum*, while in the other species the side lobes are much larger than the front one, the margin less deeply toothed, and the whole lip very flat. Finally the coloration is very interesting. In *E. evectum* the whole flower is of a clear purple while in *E. radicans* the segments are orange-scarlet,

the apex of the column and centre of the lip deep yellow, the latter organ shading off to orange on the margin of the lobes. In the hybrid the colour is a uniform brilliant carmine, with a trace of the orange shade, the only exception being that the pair of crests on the lip are bright yellow, as in *E. radicans*. The combination of characters is extremely interesting—those of the mother plant on the whole preponderating in the flower, yet the presence of roots on the pseudobulbs show a stronger approach to that of the pollen parent in habit. The plant was exhibited by Messrs. Veitch & Sons at a recent meeting of the Royal Horticultural Society; also at the Lionnean Centenary on May 25 last; and as flowers of the parent species were also exhibited for comparison, the group attracted a considerable amount of attention. It is a decidedly handsome novelty, its one drawback as a garden plant being that, like its parent species, it is a somewhat tall grower. *R. A. Rolfe.*

HARDY ROCK PLANTS AT KEW.

I SEND you a few notes made during a short visit to Kew on Monday, June 4, which may possibly be of use to some of your readers, and more especially to those with whom a herbaceous garden is in favour. I intend, however, the qualifying term herbaceous to have in this instance a more extended definition than is ordinarily bestowed upon it within the hallowed acre set apart for this purpose at Kew; and the lover of flowers must be hard indeed to please if at this time of the year he cannot derive matter for profitable investigation.

A glance round it is sufficient to show us that the order of plants just now in its greatest perfection is that known as Saxifragaceæ. So many and so varied are its types now in flower that it is at first difficult to single out any for "special mention." One, however, belonging to this group I do not hesitate in commending; this, from its distinction in colour and shape from the other members of this order, is certainly quite unique: I refer to *Saxifraga Burseriana*, in colour a bright yellow, with pendulous top-shaped bells, closed at the mouth, not unlike a large Camfrey, or, better still perhaps, resembling an *Abutilon*, though much smaller than the latter. One or two others of the usual family type are worth knowing and growing, especially *Saxifraga Hostii*, labelled from the European Alps.

Close by this order the Caryophyllaceæ display just now some of its members in rare perfection. *Arenaria grandiflora*, also *lanceifolia*, both of low growth, have closely packed masses of white starry petals; *Sagina glabra*, from France, belonging to same order, and *Arenaria juncifolia*, together with several varieties of *Lychnis*, show sufficiently the present possibilities of this group. Out-of-doors just now the order Fumariaceæ has some very pretty representatives of low growth and packed habit, and suitable for rockery work; particularly I would mention *Corydalis capnoides*, with varieties both white and yellow, from South Europe, and *C. lutea*, which I think we may call a native.

Although June is with us, I am glad to say that there are two species of *Anemone* in bloom, that bid fair when better known to form a connecting link between the more early flowered representatives from South France and Italy, and the beautiful *japonica*, which befriends us later in the year, and which will allow this favoured genus to be with us from May to November. I refer to *Anemone polyantha*, from the Himalaya. It has leaves like a *Caltha*, covered with short cottony down, and flowers not unlike those of a Strawberry. The still more exquisite *Anemone sylvestris*, labelled "Europe," should assort with the previous named species. The latter much resembles in flower *A. japonica* and has foliage like the common Buttercup. This specimen also figures to great advantage in the rockery adjoining. Among the Leguminous plants there are a few in flower just now that would certainly find a place in many gardens were they better known. I would mention in particular *Thermopsis*

fabacea, which I do not remember having met with in any private garden of my acquaintance; a native of North America, from which we obtain so many of our Leguminales, it resembles in size and shape a Lupinus; the yellow spikes, however, are flat-headed, or abrupt, and do not taper as in that species; *Lathyrus Jordani*, from Italy; *Anthyllis montana*, possessing small pinkish-white round-headed trusses or umbels, is also well worth propagating, and is of a low habit of growth.

Geista pilosa forms just now a beautiful ornament for the rockery, being a low-growing yellow Broom of from 1 to 2 feet in height. Many of the Ranunculaceae are just now coming into perfection. *Trollius napelliformis* is a very fine variety; *Thalictrum aquilegifolium*, of a pale pink, reminds one of the Hemp Agrimony, a wild chalk-loving plant not yet in flower.

Aquilegias of all shades, from deep blue to pure white; scarlet *Delphiniums* and *Paeonies* of the same order, just now should be adding their colour to the herbaceous border.

The Geraniaceae can claim a few members in flower deserving of mention, such as *Geranium sanguineum* and *G. maculatum*; but this order, as far as the hardy members of it are concerned, does not at any time contribute much to our enjoyment.

Before I close my remarks, a few words relating to the matters of interest gleaned from the rockery adjoining the herbaceous garden, as also of the creeping plants I noticed upon the wall skirting it, may not be out of place. The rockery itself I consider a triumph of gardening skill, and it supplies a want which has been long felt. The Ferns are *sans reproche*, but the greatest attention has evidently been centred upon the bog-plants, which have all the appearance of being thoroughly naturalised. *Lithospermum prostratum* covers the peat at one spot with a carpet of the deepest blue; *Cistus Clusii* and *Geista hispanica*, both from sunny Spain, together with *Cornus canadensis*, all commanded my special attention. *Anemone pennsylvanica*, much like *A. sylvestris*, and *Achillea rupestris*, *Phlox subulata*, and *Allium ursinum* complete my subjects for special mention in this part of the grounds. The wall dividing the herbaceous garden from the rockery is covered with a few creeping plants in flower. *Erybia illicifolia*, *Exochorda grandiflora* are two of these, as also *Choisya ternata*, a Mexican shrub, just now covered with white bunches of sweetly-scented star-like petals, having evergreen foliage. The leaves, however, are ternate, a peculiarity which its specific name enjoins upon our memory. *Clematis montana*, on the same wall, is too well known for me to enlarge upon its beauties. On the side of the wall facing east are to be found in flower some single Roses, the names of which I append. A Rose in flower out-of-doors the first week in June, is an object that I daresay many of us would like to secure, yet why not? They are, *Rosa sinica*, a pink, single-flowered variety from China; *Rosa turbinata*, labelled S. Europe; and *Rosa sericea*, from the Himalayas. *W. de H. Scott*.

ANNUALS.

BASTARDS the usual tender sorts, whose cultivation is entirely restricted to pots, there are many of the more hardy ones which, when well done, are very effective decorative subjects. Sometimes it is said that they are "weedy," when cultivated in pots, but however applicable this term may be in special cases, I daresay no one would ever think of applying it to the beautiful examples which are produced by the market growers. These growers seem to have the knack of turning out in superb form anything which they take in hand, and this, too, without much of the fuss and trouble often considered necessary by less successful growers; but however simple their systems of growing may be, they are well considered and adhered to. Of course private growers are somewhat handicapped in competition with their market brethren, inasmuch as the latter can devote large

spaces to special subjects, and thus secure more uniform treatment than those who are obliged to grow a heterogeneous collection of things, as private growers have to do. Yet the fact remains, that those specialties when well done are amongst the most useful and beautiful of decorative subjects, and amongst them are included several of the showy hardy annuals. The present will be found a very good time to put in a few batches; they will come in useful in autumn before the winter stuff comes on, but they are easily retarded or accelerated, as required. Perhaps one of the most prolific causes of failure is treating the plants too tenderly, when they become drawn and the stems unable to support the weight of the flowers, and which no amount of tying can remedy. Cool, light, well-ventilated pits or frames are very suitable structures for growing these annual plants.

In sowing the seeds, wooden boxes are to be preferred to pots or pans, the soil being more easily



FIG. 103.—EPIDENDRUMS: 1, *E. O'BRIENIANUM*, HYBRID BETWEEN 2, *E. RADICANS* AND 3, *E. EVECTUM*. (SEE P. 770.)

kept uniformly moist. Sow the seeds thinly and evenly, covering them according to their size, and using a rather free, light compost, which should be sufficiently moist, so that with due attention to shading from bright sunshine, little water may be required until the seedlings are up; but immediately they are above the soil all the light and air possible must be afforded them, taking care not to give this in such a way as to scorch the young plants. When the plants have made a few leaves—two or three—they should be pricked off into their flowering pots—48's and 32's being suitable sizes. Any porous rich compost will be proper for them, as they are not generally particular in this matter. After pricking off, keep them rather close for a few days, but as soon as there are signs of growth, give more air, and gradually discontinue shading; and when the weather is favourable the lights may be taken off, and as it is important that they should not be allowed to get so dry as to flag, it is better to plunge the pots in coal-ashes or sawdust. Among the more desirable sorts to grow are *Rhodanthé Manglesii*, *R. atrosan-*

guinea, and *R. maculata*, and the white variety, is the best. The pots may be packed tolerably full of plants, and a few small stakes inserted round the edges of the pots, with a neat bit of bast passed round them to support the plants.

Chrysanthemum tricolor and *C. coronarium* are capital alike for cutting and decoration, the dwarf double yellow strains of *C. coronarium* being specially good. Put one or three plants in a pot according to the size of pot employed and the time at which the plants are required. *Agrostis pulchella* is an exceedingly neat grass, and when sown thickly it rarely requires any other support. *Gypsophila elegans* has a very light and pleasing effect when intermixed in groups of other plants. Of taller subjects may be mentioned *Browallia elata* and the variety *Roezlii*, which have pretty blue flowers, and are best grown two or three plants in a pot. Another good subject is *Schizanthus*, of which the varieties *pinnatus*, *papilionaceus*, and *retusus* may be grown, these being sufficiently distinct for decorative purposes. One plant to a pot is best. *Celsia cretica* is a very different habited plant to any of the preceding, with long, erect, terminal racemes of yellow flowers, the latter of good size and substance. The plants last for a considerable time fit for use, and are biennial, but by sowing at the present time considerable progress will be made by the autumn, at which time they should be in their flowering pots. By keeping them in greenhouse temperature during the winter they will flower throughout the spring months. Sweet Scabious are always much admired, but more so when they are flowered indoors during the winter. Seeds for this purpose should now be sown and treated in every way like other annuals. Scabious and *Celsia* are best confined to one plant in a pot, keeping them fully exposed to sun and air as soon as they are established in their pots. *F. Ross, Blechningley*.

NOTICES OF BOOKS.

HANDBOOK OF THE AMARYLLIDÆ; including the *Alstroemerieæ* and *Agaveæ*. By J. G. Baker, F.R.S., F.L.S., First Assistant in the Herbarium of the Royal Gardens, Kew. (London: Geo. Bell & Sons, York Street, Covent Garden.)

In his *Handbook of the Amaryllidæ*, which he has so long and so patiently worked on, Mr. Baker doubtless conveys much gratification to many an expectant student and lover of this showy and interesting class of plants who had previously had an intimation of the excellence of the intended work by means of the portions of it which have from time to time appeared in the columns of the *Gardeners' Chronicle*. Nor are we inclined to think that a perusal of the work as a whole can bring any other than increased gratification and pleasure with it, for the difficult and hitherto complicated subject has been treated by Mr. J. G. Baker in a manner only possible by one who has given the subject many years' study.

The Amaryllidæ includes sixty-one genera, with 670 species admitted, and these are divided into three tribes; the first (Coronate) comprising *Narcissus*, *Cryptostephanus* (one species), *Tapeinanthus*, and *Placea*. The second (Amaryllidæ genuine) embraces in its different sections (which are clearly defined by their botanical features) *Hippenstrum*, *Nerine*, *Amaryllis*, *Crinum*, *Sternbergia*, *Zephyranthes*, *Hæmanthus*, *Griffinia*, *Clivia*, &c. Tribe 3 (Pancratidæ) has *Eucrosia*, *Eucharis*, *Urceolina*, *Calliphuria*, *Hydnocallis*, *Elisenn*, &c. In Sub-order II., *Alstroemerieæ* are dealt with in the same way as in Sub-order I.; and Sub-order III. (*Agaveæ*) gives a welcome exposition of the *Agaves*, *Doryanthes*, and other allied plants. The division of plants into sections under some well-defined botanical characteristics, as Mr. Baker has done in his exhaustive and cleverly constructed work, is of inestimable service to both botanist and gardener. Say, for example, that a *Crinum* has flowered—one of which the possessor does not know the name, although he

knows one or two others of similar structure—by referring to Mr. Baker's book for the known species, and carefully running down the allied kinds in the same section, the unknown, if not quite new, may readily be identified. However, it is impossible to speak highly enough of a work of this kind, entailing labours of half a lifetime; the least those who are interested in the subject can do is to buy and study it.

FOREIGN CORRESPONDENCE.

MR. BRASSEUR'S NEW BOILER.

ON May 12 last I noticed an article in your journal, signed by Mr. Robert Warner, stating that, before any judgment could be formed on the merits of Mr. Brasseur's new boiler, it would be necessary to have a few more particulars respecting the diameter of the pipes, the dimensions of the houses heated, and whether these were sunk in the ground or not.

I have been employing one of these boilers since 1st October, and have great pleasure in sending you the results, after six months' trial. The boiler I employed was No. 3, and heated—from October 7, 1887, until April 13 last—four hothouses, all of wood, viz., an *Odontoglossum*-house, a *Cattleya* do., a *Cypripedium* do., and an *Azalea* do. They are all 66 feet long; three being 11 feet wide by 7 feet high, and one 19½ feet wide by 8 feet 2 inches high. They were built last year, and are situated in the open field, having no shelter of any description, neither walls nor plantations; and as the country here is perfectly flat, these houses during the winter were fully exposed to the bitterly cold weather we had for so long a period. They are not sunk, but level with the ground.

The inner diameter of the main pipes is 4½ inches, and of those that run through the houses 3½ inches.

The total quantity of fuel burnt was 8 tons of coal, and 386 hectolitres of large coke (a hectolitre = 2½ bushels, about)—costing altogether 369 fr. 30 c. (£14). During the first two weeks I only heated two houses, which cost 11 fr. 20 c., leaving 358 fr. 10 c. for the remaining twenty-five weeks, which gives an average of 14 fr. 32 c. per week, or 2 fr. 4 c. per day, or 51 c. per day of twenty-four hours for each house. Had I employed a larger boiler, I feel convinced that I should have burnt less fuel, as during the very severe weather we had, the boiler was obliged to be forced.

At night the gardener made up the fire, filling the cone inside the boiler about 9.30 p.m., and when he returned next morning at 6 a.m., he always found sufficient heat in the house. He simply had to take out the clinkers, replenish the cone half-full, to last until dinner-time, when he again replenished to last until night. By experience I found it was unnecessary for him to remain all night, which was a great convenience to him, and a great saving to me. The boiler was thoroughly cleaned out each Saturday at noon.

At Baillonville, where the estate of Mr. Massange is situated, the houses are of iron, about 50 feet long. The two *Cattleya*-houses are 19½ feet wide by 10 feet high, and sunk 1 foot into the ground; the *Cypripedium*-house is 10 feet 3 inches wide by 7 feet 3 inches high, and level with the ground. I enclose you a table from Mr. Massange, showing the daily variation of temperature, exterior as well as in the houses, and the coal burnt each day. This table you may publish, or communicate the details to any gentleman desiring them. The average 108 kilograms of coal for twenty-four hours represents at Baillonville an expense of 1 fr. 65 c. per day.

At the exhibition held in Ghent last April Mr. Brasseur heated, with one boiler (No. 4) the large temporary annexe, built of wood. The length of this building was 250 feet long, 66 feet wide, and 42 feet high. One evening the boiler was filled at 7 o'clock, and at 9.30 next morning there was still a good fire.

I have no intention of entering upon the merits of the many good boilers made in England and elsewhere; but Mr. Brasseur, in taking the tubular

system as his base—constructing a boiler that can be placed anywhere without having to use masonry, but enveloping it in a strong isolator, together with the cone for holding a large quantity of fuel, &c.—has produced a boiler which will be a boon to the horticultural world, and especially to small gardeners, on account of the regularity of the heat, and the economy of coals and labour. *James Bray, 7, Rue Courte des Pierres, Ghent.*

THE OIL PALM AT LOANDA.

THE following notes on the African Oil Palm (*Elais guineensis*) are from a report on the products of Loanda, and are interesting as supplying an authoritative account of the manufacture of Palm oil from an eyewitness. Although the Oil Palm may be said to be a wild plant of these regions and requires no planting or cultivation, it nevertheless receives a certain amount of attention at the hands of the natives in the shape of pruning, lopping off dead and dying leaves, tapping some of the stronger leaves, with the object generally, it is thought, of improving the fruit. The huge spadices are said in some instances to bear, probably, as many as a thousand nuts or fruits, each about the size and nearly the shape of a pigeon's egg, of a bright red colour, tinged sometimes with yellow and in some cases deepening into black. The outer covering of the fruit is from ½—¾ inch in thickness, composed of fibrous matter and pulp, and containing the oil. To extract this the nuts are boiled and beaten to separate the oil from the pulp. This is afterwards skimmed off and put into pots ready for sale, and requires no further preparation. The hard seeds are cracked, and the kernels form an article of commerce, a fine white oil being produced from them. A few years ago the oil from this district was sold in Europe at about £40 per ton; it has now gone down to £20 and there is no prospect at present of any improvement in price, so many substitutes of a cheap kind, notably petroleum, being now employed in manufactures where at one time only Palm oil was used, such as soap, candles, &c. The substance of the kernel after the oil is expressed is used to make cattle cake. The only agricultural implements in use are the hoe and the hatchet.

TREES AND SHRUBS.

ABIES NOBILIS AND A. MAGNIFICA.

THE catkin-bearing branches of *Abies nobilis* and *A. magnifica* which I now send were cut from the upper branches of two trees growing in the gardens of Percy Bicknell, Esq., of Foxgrove Lodge, Beckenham, Kent. I have particularly noted the characters of the respective male catkins, but as the latter will soon be in your hands, there is at present no need for me to detail them.

There is nothing remarkable about the Foxgrove Lodge tree of *nobilis*, but it will serve our purpose as an object of comparison with the noteworthy *magnifica*. The latter grows some 30 yards from the principal entrance to the grounds, and is a conspicuous object viewed from that position; and from that point only have I observed it frequently during the past four years, and from its general appearance I was under the impression that it was *A. balsamea*. Only lately have I had the gratification of examining it closely and critically; and I need scarcely say that I was surprised to find it resolve into *A. magnifica*. I am informed that the plant was obtained from Mr. Anthony Waterer under the name *magnifica*. The habit had previously deceived me. This is well worthy of description; but before sketching this, allow me to state that I had not before seen an adolescent tree of the species. I had seen many plants up to 12 feet in height, but they were not adolescent—they barely presented tree characters. The tree at Foxgrove Lodge is only 16 feet high, but must have been decapitated or had its leader

shoot injured some years ago; for just below the two or three adventitious shoots, which have at last, and evidently reluctantly, been formed, the bole is quite 2½ inches in diameter. I say reluctantly, because Mr. Cochrane, the gardener—who takes a great and intelligent interest in trees, particularly those under his care—informs me that it has not lost its leader shoot within the last five years. The bole at 3 feet above ground is 27½ inches in circumference. Since the time the plant was 3 feet high it has lived twenty-one years. So that altogether it must be twenty-seven to thirty years old, and is still in vigorous health. The bole indicates an annual extension of leader shoot of from 9 to 18 inches. The primary verticils of branches are composed of from five to eight branches. The interverticillate branches, which may be said to be sub-verticillate, so close together are they as they issue from the stem, are from three to eight in number, and equal—indeed, in some instances exceed—in length the so-called primary branches; and this feature obtains from base to top of the tree. I wish it to be understood that two whorls of branches were formed on the stem annually. In this particular and, I believe, specifically unique character it agrees with all other individuals that I have seen. The branches may be said to be crowded: all are much deflexed, with their extremities upturned; and their circumferential spread at the widest is 9 feet 6 inches, and their annual extension 3 inches to 5 inches.

I am not aware how nearly these particulars coincide with the adolescent and old states of the species in its native habitat—its natural history is as yet imperfectly written in standard works—or even with vigorous plants, twenty-five to thirty years old, in this country; but readers of this may be in a position and willing to give the desired information. I am well aware that robust young specimens in this country have rigidly horizontal branches; but, I can hardly conceive that this habit will be permanent.

The development of branches from the stem between the whorls of branches is common to both *Firs* and *Spruces*, but such branches are usually developed in an irregular scattered spiral, and thus, fortunately, serve to break what would otherwise be a highly formal habit. In the case of *A. nobilis*, one to three—usually two—of such branches are developed, but they seldom attain to more than 18 inches in length before they perish.

With regard to the tree of *nobilis* growing in the garden at Foxgrove Lodge, it is, as near as I can guess, about the same age as that of *magnifica*. The annual growth of its stem, when vigorous, was from 18 to 24 inches. The branches are three to six, generally, to the verticil, and their annual extension 6 to 15 inches; their circumferential spread at the widest, 16 feet 6 inches. Normally *A. nobilis* has markedly fewer primary branches than *A. magnifica*, and never, so far as I can discover, produces more than one whorl of branches per annum. Much of the graceful individuality of *A. nobilis*—and the same may be said of *Picea orientalis*, the most graceful of *Spruces*—lies in the fact of its having comparatively few branches in the annual verticil. *Geo. Syme.*

FORMAN'S VARIETIES OF SKIMMIA OBLATA.

MR. Forman, nurseryman, Eskbank, Dalkeith, has for some years paid much attention to the improvement of *Skimmia oblata*, and has good reason to be proud of the results of his labours, for in habit of growth and form of foliage considerable improvements have been effected. The leaves in many of the male plants assume the proportions of the larger leaved hybrid *Rhododendrons*. This adds to their ornamental character. In this district they prove themselves fully as hardy as the *Rhododendron*—superior in that respect to the common and Portugal Laurels. But it is with a view to increasing their value as decorative greenhouse plants that Mr. Forman is more closely directing his operations, and it is in this direction that he has achieved most success. Many of the female plants in this collection are remarkably compact, and when grown in

8-inch pots they assume naturally the form of hemispheres of about 18 inches in height and the same width. Every shoot carries large terminal clusters of bright coral-red berries of last year's growth, whilst on many of the plants the berries of the previous year still nestle among the leaves. It is Mr. Forman's intention to exhibit his plants at some of the autumn meetings in London, when I feel sure they will be appreciated by all interested in good things for winter decoration. *W. S.*

ROSES.

WORK IN THE ROSE GARDEN IN JUNE.

THE most important month in the year for the Rose grower and Rose exhibitor especially, is now well advanced, but it may be still not too late to remind many who are interested in the flower as to what is necessary now, in order to secure successful blooming. I would remind those who see the grand blooms exhibited at shows, and who complain that they cannot have such, that this success is not attained without attending to some few things which are better done—even if the grower does not exhibit a stand, for—save in the matter of shading, which very much disfigures a garden, an amateur who is a non-exhibitor would do well to follow the example of those who do exhibit.

In the remarks I now make, and in the directions I now give, I have before me simply the lover of the Rose for its own sake. I will suppose that Rose shows do not exist, but that he is desirous of having good flowers. There are two aspects of Rose gardens to be seen now—one in which the beds are heavily mulched with manure, to the great delight of blackbirds and thrushes; and the other for which the mulching which covered them in winter has been raked away and the beds neatly forked over. The former will be the condition of the exhibitor's garden (most likely), the latter of the non-exhibitor. I mention this because the directions I give on the subject of watering are much more applicable to the latter.

Watering.—The drought with which we were threatened seems now improbable. I suppose last month was as dry a May as has ever been remembered, and consequently watering will be much more needed than usual; and this is especially the time to apply liquid manure; it is of no use waiting to do this until the buds are advanced—now is the time; nor must it be done sparingly; where water is abundant, there it will be well to give the beds a thorough good soaking—a bucketful to each Rose; and my advice would be, that it should be liquid manure. There is but little use in giving this when the buds are advanced—it should be done, before they are fully developed. The plan which I adopt is to have a large tub of liquid manure; it has generally been made with cow-manure and soot, but this year I have been so satisfied with Jensen's Fish Potash Manure and other things, that I have determined to try it with Roses. The strength of the manure is pretty good, and a certain portion of it is taken out, put into the can or bucket, and manure-water added. It is almost impossible to say exactly what proportions of the liquid cow-manure are used, but with Jensen's minute directions are given, and they must be adhered to. There are, unfortunately, situations where all these directions cannot be carried out. One friend last year said he might as well be told to give his Roses champagne, while another said "It is a question of 'tub' and Roses, so tub carries the day; but then I can give it to my pets afterwards."

Disbudding.—This is a process that the exhibitor never neglects, but which the amateur seldom practises. It consists in depriving each shoot of the Rose of all flower-buds except one, thus enabling the plant to throw all its vigour into a few blooms, and I believe if amateurs practised it more they would be thoroughly satisfied with the result. Where a few Roses are left to cluster together, they are poor in quality, and if you cut one it has a moderately short stalk, while

if you cut the whole bunch, you might as well have had one good Rose as a cluster of indifferent ones. Hence I would advise all who wish to have a satisfactory bloom, to follow the practice. It requires careful doing, so as not to crush the tender foliage or break the shoots. Get a piece of blunt stick or the blunt end of a quill toothpick, take the shoot carefully in one hand, and with the other take out the side buds, leaving only the central one; this will always be found prominent. It sometimes happens that this bud is deformed or injured, in that case it must be removed and one of the side ones selected.

Maggot Hunting.—This fashionable and elegant pursuit must be practised by the Rose-grower who does not wish to see the "worm in the bud feed on the damask cheek" of the fair flowers which he has cherished all the year—but all growers know what a pest it is: no time should be lost in rooting it out, for as this is the only way in which it can be overcome, nothing else but individual slaughter will avail, no general attack will be of any use—syringing, or anything of that kind—it must be a hand-to-hand fight. It is not a pleasant thing to have to squeeze a nasty soft squashy thing between your finger and thumb, but it must be done. Where it is possible it is well to instruct a couple of girls (they are more painstaking than boys) how to do it, and thus save oneself a nasty job; but, some way or other, it must be done, if a good bloom is to be secured. I believe that it is abundant in a good many gardens, but as yet it has not been very active amongst my own plants; still, I dare say it is coming.

Aphis Washing.—A good look-out for greenfly must be now kept; there is no accounting for its depredations; some years it is very abundant, and in some places, while others are perfectly free. It must be watched for, and the trees well syringed either with plain water, or water to which some insecticide is added; there is nothing less injurious to the foliage than Fir tree oil insecticide, as I have found that it does not injure the tenderest foliage; the syringing had better be done with a good deal of force, for if the aphides are not washed off they will soon recover the drenching and do a good deal of mischief. Quassia chips have been recommended by some, but amongst the many insecticides which are advertised to cure all the ills that plant life is subject to in the way of vermin, it will not be difficult to choose one for this purpose, although, perhaps, after all good clear water applied with force is as good as anything.

Wild Shoot Grubbing.—As few persons, comparatively speaking, grow Roses on their own roots, most of the Roses are grown on the Manetti or seedling Brier, and it is not uncommon to find the stock throwing up vigorous shoots, and (the grower being ignorant thereof), the Rose itself dead: in some of the best gardens of our great places I have seen this frequently occurring, even when under the care of an experienced gardener, and frequently the piteous complaint goes up, Why does this Rose never flower? and a vigorous bush of Manetti is pointed out—the bushes have been pruned, young shoots are pushing away, and if the underground shoots or suckers of either Manetti or Brier are allowed to grow certain death must ensue; therefore go over your beds every two or three days and spud up, or cut away closely any wildling growths that appear.

It will thus be seen that there is a good deal to be thought about by the Rose grower now, and not only thought about, but done. *Wild Rose.*

PROMISING NEW ROSES.

In reference to the interesting article in the *Gardeners' Chronicle* (p. 651), it may interest "Wild Rose" and your readers to hear that the new seedling Roses sent out last year by Messrs. Dickson, Newtonards, Earl of Dufferin and Lady Helen Stewart (hybrid perpetual), and Ethel Brownlow (Tea)—are very promising in the South of Ireland. Coming from the north to the south the growth is extremely vigorous, and the foliage just now very clean and

brilliant. I left Ethel Brownlow (Tea) out in a border last winter, and now strong shoots are rushing up from below; so that, with or without a greenhouse, those pedigree Tea Roses can be successfully grown. I see by a recent issue of the *Gardeners' Chronicle* another set will shortly be sent out. *W. J. Murphy, Clonmel.*

HOW DO MYTHS ORIGINATE?

I am not writing of Aryan or Scandinavian myths, but of those connected with the Rose. We know how very easily, when once a myth is started, it passes on, and, unless contradicted, at last passes for reality. Not long ago I was sitting near a very well known horticulturist when a foreign firm was mentioned. "Ah!" said he, "I was with him the year that he brought out that fine Rose, called after him." "But," I said, "he never let out that Rose, it was sent into commerce by L—." I have always heard that the original *Devoniensis* was raised from a seedpod gathered in Mr. Foster's own garden. But be that as it may the rest of the tale with regard to Climbing *Devoniensis* is in my opinion, a myth. I have seen myself the original plant in Mr. Pavitt's nursery, at Bath. It was about the year 1857—"Twenty years after *Devoniensis* had been sent out," I am now quoting Mr. Pavitt's own words (for to make assurance doubly sure I wrote to him asking for its history) "that a sport of *Devoniensis* started off and made a growth of 20 feet. I sold £10 of the buds to — of —, who wanted to claim it as his own."

This, I am perfectly persuaded is the true history of Climbing *Devoniensis*, and that the National Rose Society is quite correct in ascribing it, as it does in its Catalogue of Exhibition Roses, to Mr. Pavitt. It is not unlikely that since then other sports of similar character have been distributed, for there are some plants which make immense growth but bloom badly. The true, or Pavitt's variety, is, however, very floriferous, and although there is not as much credit in obtaining a sport as in raising a seedling, yet, honour to whom honour is due. *Wild Rose.*

HAYDON HALL, EASTCOTE.

IN the spacious and lofty conservatory in Captain Edwards' garden is a wonderful example of *Bigonia Cherere*, which annually commences to bloom at this season of the year and continues throughout the summer.

The plant covers the greater part of the roof, and sends down innumerable sprays densely clad with axillary cymes of Gloxinia-like scarlet and orange-flowers, even reaching to and mingling with the fine Palms and other plants which occupy the centre of the building. Without doubt it is one of the most beautiful of climbing plants when well flowered, and Mr. Fry, the gardener here, who is a clever and thoughtful grower of plants generally, and specially successful with many considered difficult to manage, attributes much of his success to the plant being allowed to ramble freely, and to only cutting out those shoots which threaten to make the specimen too tangled and dense. By pruning it back as it is usually done, he thinks the flowering-shoots are cut away, and then the plant is accused of being shy-flowering. Although a native of a warm country (Demerara), a cool conservatory is necessary for it; in a stove it seldom produces any flowers.

The rockery at the end of the conservatory is very natural and effectively arranged, and the house is attractive with fine specimens of *Fuchsias* as standards, *Pelargoniums*, *Roses*, shrubby *Begonias*, &c., tastefully arranged with Ferns and other foliage plants; while in the other houses are good batches of the charming blue *Salvia patens*, several varieties of scarlet *Salvia*, *Bouvardias* in all stages, *Eupatoriums*, *Poinsettias*, *Euphorbias*, *Carnation Souvenir de la Malmaison*, &c., and a very distinct and showy white and crimson *Petunia*, which is found very useful for such work—these

keep up the succession. Flowers for indoor and conservatory use and for cutting being greatly in request, we noted a fine lot of *Eucharis amazonica*, of *Gardenias*, also *Tabernaemontana coronaria* fl.-pl., a matchless strain of *Gloxinias*, obtained from seed of Messrs. Veitch's strain; a select lot of tuberous *Begonias* of Laing and Cannell, and *Pelargoniums* of Turner. Some well-grown *Calanthes* and other *Orchids* were in bloom, as *Cattleya Mossiae*, and a grand variety of *C. Mendelii*, *Dendrobium thyrsiflorum*, *Aërides odoratum*, and a few others. *Caladiums*, *Coleus*, large specimen *Adiantum cuneatum*, *Dracenas*, &c., also appear in proportional quantities; and the roofs of some of the houses are laden with flowers of *Allamandas*, *Stephanotis*, *Trachelospermum jasminoides*, *Roses*, *Abutilons*, *Tacsonias*, *Passifloras*, and other climbers and trailers, which give a never failing succession of flowers.

The long ranges of fruit-houses are in excellent condition, and *Peaches* were observed in large quantities and in all stages of growth; *Nectarines*, *Plums*, &c., were equally good. Of *Figs* there is a fine supply fit for table and for succession; *Grapes* are good and plentiful, and of *Strawberries* in pots a heavy crop has been gathered from first to last, the last crop being still in good bearing. *Pine-apples* and *Melons*, like all other things which Mr. Fry cultivates, are well done. Out-of-doors the *Rhododendrons* are just now very beautiful, especially the hardy herbaceous ones. So likewise are the double-flowered *Thorns* and other flowering trees and shrubs.

ORCHID NOTES AND GLEANINGS.

DENDROBIUMS.

THERE is much in this genus of *Orchids* to interest and claim attention, notwithstanding that they are less showy than the labiate section of *Cattleyas*, and devoid of colours as dazzling as some of the *Masdevallias*. Among the *Dendrobies*, then, we have forms as diverse in growth and appearance as it is almost possible to imagine them. As illustrating very opposite types, I would refer to *D. moschatum*, whose bulbs are from 5 to 6 feet long, and *D. aggregatum*, with bulbs seldom exceeding 2 inches. Again, compare the massive *D. speciosum*, with bulbs as large as a child's arm, with *D. Falconeri*, whose lengthened pseudo-bulbs are scarcely stouter than a goose quill; and in the manner of blooming contrast the clusters of *D. nobile*, *D. Wardianum*, *D. crassinode*, *D. Pierardi*, *D. anreum*, and many others that bloom along the greater part of the pseudobulbs, with the pendulous racemes of *D. densiflorum*, *D. Farmeri*, *D. thyrsiflorum*, *D. Schroderii*, &c.; or with the more open arching sprays of *D. clavatum*, *D. Paxtoni*, *D. fimbriatum*, *D. suavisimum*, *D. chrysobolium*, and others similar. Then *D. bigibbum* and *D. superbiens*, the trusses of *D. formosum*, *D. eburneum*, and *D. Jamesianum*, &c., have spikes of flowers standing erect, whilst those of *D. senile*, *D. japonicum*, and *D. Jenkinsi* are placed singly.

For pure white with but just a tinge of yellow or orange in the throat, there is *D. formosum*, *D. Jamesianum*, and *D. eburneum*; and among species which have flowers that are white with a shade of green, is *D. Dearei*. Golden-yellow is represented by *D. densiflorum*, *D. clavatum*, *D. aggregatum*, *D. chrysotoxum*; primrose-yellow we find in *D. luteolum* and *D. heterocarpum*. Buff and brown in *D. Dalhousianum* and *D. albo sanguineum*; bright rose and purple colours in *D. bigibbum*, *D. moniliforme*, and *D. Freemanii*; whilst in *D. Falconeri*, *D. Wardianum*, *D. nobile*, *D. crassinode*, *D. Devonianum*, &c., we have rose and purple tints, white and yellow most charmingly blended in lighter or darker shades of the latter according to the variety or the season of its blooming.

Besides these species there is the strange bulbous species *D. crumenatum*, which has the extreme tip of the pseudo-bulb lengthened out into a bloom-spike,

on which the flowers continue to open out for some considerable length of time, but the individual blooms last only for a day, and the perfume is delicious. With such strong claims on the gardener's consideration it is not surprising that very great quantities are imported. A large number of the species are of a pendulous habit of growth, and therefore good for growing in baskets; they should be treated to plenty of heat, light, and moisture, the growth then becoming very sturdy, and flowers are freely produced. *Dendrobiums* when potted should have a pot just sufficiently large to hold the plant, so that no excess of potting material can be placed about them, a constantly damp soil causing the roots to decay, more especially if the plants should be at any time incautiously watered and especially in the resting period. *Vanda*.

THE ARAUCARIAS.

LET those who are disposed to boast of a descent from the Conqueror, or to talk of origin from Noah or Adam, hide their diminished heads when they are confronted with the *Araucarias*. Ages before the surface of the globe was fashioned as we now see it, before the periods when our land was covered with

are well equipped against storm or wind, or wide variations of temperature, and this may account for their persistence to this day. The grace and elegance of some, the monumental grandeur of others, compel respect even independently of their wonderful history and their botanical interest. A short time since we illustrated the Norfolk Island Pine, *A. excelsa*, as growing in Dr. Bennet's garden at Mentone, (p. 619) and as seen in many a conservatory in this country, and we noted the regular tiers of its branches and its soaring habit. *A. Cunninghami* was also illustrated from a plant growing in the Temperate-house at Kew; (p. 685) and now we give an illustration of another species, *A. brasiliensis* (fig. 105, p. 775)—a native, as its name implies, of the southern parts of the Brazilian empire, and of which noble specimens may be seen in the Temperate-house at Kew, the graceful branches downward bent, and thickly beset with broad shining green lance-like leaves. How different the habit becomes as the tree gets older, may be seen from our illustration of a tree growing in Barbados, and a photograph of which was given us by the late General Muuro, who told us it was known by the name of the Candelabra Tree. The older leaves gradually fall off, leaving the spreading



FIG. 104.—ARAUCARIA COOKII: ISLET OFF NEW CALEDONIA.

ice, before the London clay was laid down, or the chalk deposited, long, long before oolite or lias, away in a period so remote that the human mind cannot fathom it, in the ages when the coal plants were growing in Britain, *Araucarias*, or their immediate progenitors, were in existence. Their pedigree, and those of their successors, together with their sign-manuals even, may be seen in the natural history museums, in rocks of various formations, and diverse age from the coal measures to the more recent deposits. How old the remotest *Araucaria* may be it is, as we have said, beyond our ken to even imagine. Perhaps the remark of an old sailor to us as we were conversing with him on some fossils washed up on the beach is as near an approximation as it is possible to arrive at. "They do say, sir," said he to us, alluding to a left-handed *Fusus* from the Suffolk crag, "as they was formed before the world was drowned." In any case the *Araucarias* are of untold antiquity, and more than once upon a time they formed part of the forest vegetation of this country, as their successors still do in various parts of the southern hemisphere. Their structure is somewhat complicated—we need not enter into detail concerning it here, but we note it as we write, because the fact points to a still more remote period than that in which *Araucarias* are at present known to have existed—a period when the structure was presumably simpler. In any case, *Araucarias*, or most of them,

branches bare, except for a globular tuft at the end. More extraordinary still is the *Araucaria* of New Caledonia, *A. Cookii* (figs. 104 and 106), figured in our columns by the Rev. R. Abbay, in January 20, 1877. The tree attains a height of 200 feet, and has the peculiarity of shedding its branches for five-sixths or more of its height, and replacing them by a smaller and more bushy growth, so that the tree has a columnar appearance, the summit being crowned with a mass of foliage like a capital. The "evergreen" tree is deciduous in its fashion, and the loss to the tree of one set of leaves, (whose action, moreover, would be impeded by the dense shade of their neighbour), is compensated for by the new growths from the trunk. This habit of producing new shoots from the trunk is common in some *Conifers*—e.g., *Pinus rigida*.

SMUT AFFECTING WHEAT.—The Director of the Central Experimental Farm, Ottawa, Canada, has commissioned Mr. Fletcher to draw up an account of the smut in corn. Mr. Fletcher has accordingly availed himself by permission of some illustrations of the fungi made by Mr. W. G. Smith. The remedy most approved is sulphate of copper, 1 lb. of which is dissolved in 5 quarts of boiling water for every sack of 4 bushels. The wheat is soaked for ten minutes, or the 10 pints of the solution may be poured over till all is absorbed.

COLONIAL NOTES.

GLADIOLUS LUDWIGII.

This species is very little known at home, yet it is not undeserving of mention. The leaves are long and narrow; the stem often 4 feet high, bearing some two dozen pairs of two-ranked, delicate, pale rose flowers, each about $1\frac{1}{2}$ inch long and half an inch across. The plant grows in black loam on hillsides amongst grass, and is the latest flowering *Gladiolus* we have. It flowers in May, and might flower through November if cultivated in England, but in order to do it justice space must be found for it under glass.

GERBERA JAMESONI.

One of the most splendid herbaceous plants seen by me in a recent visit to the Transvaal, and very well worthy of cultivation.

Harvey enumerates fifteen species of *Gerbera*, of

white; *H. Cooperi*, foetidum, lanatum, splendidum, all yellow; and *Helipterum eximium*, ruby-red. Of all those growing in Natal *Helichrysum adenocarpum* is the finest, and is largely gathered by colonists for winter bouquets. It grows over a wide extent of country at from 2000 to 5000 feet elevation, and varies in colour from pale rose to red. The plant is 2 feet high, the stem and leaves woolly, bearing four to six flowers three-quarters of an inch across; these, when gathered just before the flowers are fully expanded and made up into neat bunches, look very bright and pretty, and retain their silvery rose tint for years.

BULB CULTIVATION IN NATAL.

Taking the hint which Nature has given us in bestowing bulbous plants on South Africa in greater profusion than in any other part of the world, we have amongst us some cultivators who are working up a stock of bulbs with a view to export the same to the home markets. It must be borne in mind

in my time, but this seems a model of what a descriptive bulb list should be, and I venture to say that the nurseryman, amateur, and collector may all learn from its pages. *R. W. Adlam, Maritzburg, Natal.*

BOTANIC GARDEN, KING WILLIAM'S TOWN.

According to Mr. Leighton's report for 1887, it appears that the gardens are fulfilling in a very substantial degree one of the main purposes of such establishments. They are becoming more and more a centre of supply to the border and Transkei districts. The garden depends for a large share of its income upon sales—a vicious system, but one which may be inevitable under local circumstances that we are not in a position to appreciate.

AGRI-HORTICULTURAL SOCIETY OF MADRAS.

The annual report for 1887 shows the Society to be in a flourishing condition. The library is the best in Southern India. Numerous economic plants have been distributed from the Society's gardens. The tree Tomato, *Cyphomandra betacea*, has proved a success in Southern India. The annual flower show was held on February 25, 1888, when a fine display of Ferns was exhibited.

EMIGRATION OF GARDENERS.

Queensland.—In your paper of February 28 there was a short paragraph, signed "Emigrant," which is a kind of answer to some one who recommends emigration to gardeners. "Emigrant" wants to know in which of the colonies a gardener is most likely to succeed. I have been in this colony twenty-four years, and do not know anything about any of the others, but have often wondered that more gardeners do not come out here. I do not recommend any one to come here as any person's gardener, for here a man can soon get a home of his own, and be his own gardener. I do not for one moment wish to make any one think a man can pick up a fortune in the road on landing—nothing of the sort. If any one come, it should be with the intention to work; not being too particular what he begins with, but always having in view the prospect of living under his own Vine and Fig tree, which a man can do here if he chooses. He may not amass great wealth, but he can raise himself above the fear of poverty in his declining years, and his children will be a blessing to him, and he need not fear, although he has a score of them. Here the climate and land are good, and there is plenty of the latter for both horticulture and agriculture, and the great want is good practical men to take it up for themselves and cultivate it. I have enclosed a copy of directions for obtaining the land, &c., when here. *Benjamin Crow, Gr., Toowoomba, Queensland.* [These conditions would occupy too much of our space, and we only say that the terms offered are exceedingly advantageous to either small or large occupiers. Doubtless the conditions of hire or purchase can be obtained at the office of the Queensland Government in London by any person making proper application. *Ed.*]

CROSSING GRAPES.

Queensland.—Dr. Bancroft sends us seeds of various crosses effected by him between certain European and American Grapes at Brisbane. It is curious to observe the different powers of resistance offered by the varieties to the onset of disease. This alone is a reason why experimenters should continue their work. Dr. Bancroft adds a practical wrinkle, which is worth noticing. In order to facilitate the germination of the Grape-seeds, Dr. Bancroft files off a little piece from the thick end of the seed, and thus allows free access of water to the embryo and proportionately earlier germination. Flat China Peach seeds seldom germinate, says Dr. Bancroft, unless the stone be opened by grinding it on a grindstone.

White Grape—a cross between Sweetwater and Isabella. Thick skin, with a very peculiar flavour not subject to oidium, but takes black spot on low land.

Black Grape—a cross between Black Hamburg

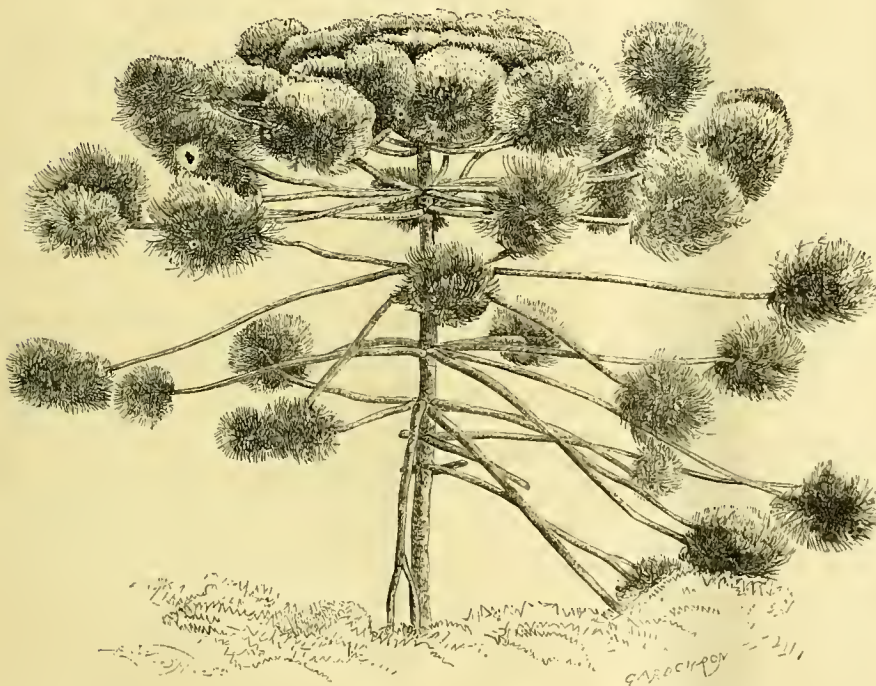


FIG. 105.—*ARAUCARIA BRASILIENSIS*: THE CANDELABRA TREE. (SEE P. 774.)

which *G. anrantia* is the finest one native to Natal; but it is far beneath the first-named in size and colour of flower, and with the habit of a *Gazania*, to which *Gerberas* are allied. *G. Jamesoni* has pinnate Dandelion-like leaves about a foot long, and throws up two to four flower-stems 2 feet high, bearing an intense vermilion-red flower, which in a specimen cultivated here measured $5\frac{1}{2}$ inches across. It grows near Barberton, Transvaal Gold Fields, amongst stones, in heavy black or red soil. It flowers in the summer and autumn, but coming from such a warm district, I do not think it is suited for outdoor cultivation in England. The flowers last several days without changing colour. Seed has been sent to the Cambridge Botanic Gardens.

HELICHRYSUM ADENOCARPUM.

Out of the 137 species of *Helichrysum* or Everlastings which grow wild in South Africa, but one, *H. vestitum*—the well-known white Cape Everlasting of the trade—has been hitherto exported in quantities to Europe for decorative purposes. Several others, however, are worthy of attention, viz., *H. elegantissimum*, silvery

that I speak only of such bulbs as can be cultivated in the open without any protection whatever. On the coast a beginning has been made with *Eucharis amazonica*, *Pancratium caribaeum*, *Amaryllis vittata* and hybrids, *Zephyranthes rosea*, and the commoner *Caladiums*. In several nurseries up-country the following are in cultivation:—*Tuberoses*, *Lilium Harrisii*, *L. aurantiacum*, *L. longiflorum*, *L. speciosum*, *Freesias*, *Ornithogalum*, *Leschenalias*, *Ixias*, *Babianas*, *Sparaxis*, and *Nerines*, but, strange to say, not hybrid *Gladioli*; garden hybrids have been tried, but are not a success. Doubtless there are many other bulbs which would thrive with us, such as *Calochorti*, the improved varieties of *Clivia*, and *Montbretia*, *Habranthus pratensis*, and other *Amaryllideæ*. Bulbs whose home is in the latitude of temperate Europe, as *Tulips*, *Hyacinths*, *Jonquils*, *Narcissi*, *Ranunculi*, *Crocuses*, *Anemones*, find South Africa rather too warm; at least, one never sees good flowers of any of the last named. And here I cannot omit to mention a catalogue so full of information that it deserves a wide circulation—I refer to that of Messrs. A. Roozen & Son, Overveen, Haarlem. I have perused a good many trade lists

and Isabella. It fruits well in Brisbane, and does not suffer from Oidium or black spot. Birds are very fond of picking it.

A. "Iona"—fertilised by the large black Morocco Grape: ripe Jan. 18, 1888.

B. "Iona"—fertilised by Sweetwater: ripe, Jan. 18, 1888.

MR. W. S. KIMBALL'S WATER LILY HOUSE.

[SEE SUPPLEMENTARY SHEET.]

MR. GEO. SAVAGE, gardener to Wm. S. Kimball, Esq., Rochester, N.Y., in accordance with the request of the Editor of the *American Florist*, sent the following description of Mr. Kimball's aquatic-house, of which we now give an illustration from a photograph:—

"The dimensions are as follows:—House, 76 × 26 feet; water-tank, 58 × 20 feet; height of house, 15 feet. So you will see there is not much space wasted on the sides for walks, and the Lilies have an abundance of room to fully develop their large leaves.

"At the lower end of the tank *Nelumbium speciosum* is planted; it is confined by a brick wall, to keep it from spreading all over the pool. In the centre is the grand Victoria regia, which has flowered several times this season, and has been admired by thousands of people. Distributed about the tank are the best selection of *Nymphaeas* that can be grown; they include the following:—*Nymphaea zanzibarensis*, N. z. azurea, N. z. rosea, N. dentata, N. rubra, N. cerulea, N. Sturtevanti, N. devoniensis, and others of the choicest varieties. Other things are grown in the water, such as *Cyperus alternifolius*, *Papyrus antiquorum*, which flourish magnificently.

"To make a background at the farther end of the pool, there are planted in a bed of earth *Musa Cavendishii*, *M. coccinea*, *M. rubra*, and *M. vittata*, their large leaves having a very good effect when seen from the upper end. At the north end are planted hard-wooded plants like *Allamandas*, in variety, and *Bougainvillea glabra*, which blooms profusely almost all the year round.

"Besides being an aquatic-house, it is very useful for Orchids that require a nice light, airy position. I have at the present time (early winter, 1887) lots of *Laelia anceps*, *L. albidia*, and *L. autumnalis*, hanging from the roof, which gives the house a very much better appearance than the photograph shows."

VEGETABLES.

A VERY SUPERIOR LATE BROCCOLI.

My attention has been drawn for two seasons running to a very superior Broccoli, viz., Hagan's Protecting Late White, samples of which I send you. It is the latest we have or know in the North, and on that account alone it is worthy of being widely known. Sown in the beginning of April it comes into use in June, and lasts till the first crop of Cauliflower come in. It is superior in quality, as you will see by the sample forwarded to you this day. This sample is below the average in size, the prolonged drought of last summer and autumn having crippled the growth after they were planted out, yet they are even in point of size and very good samples. As regards constitution it is the hardiest sort we know in the district of Edinburgh, and I think it should be a valuable sort for Southern growers. S. [A very short stocky form. Stem 2 inches in diameter, with leaves down to the soil almost; the heads creamy-white, nice shaped, hard, and protected, with a profusion of unfolded leaves. Ed.]

METHVEN'S EDINBURGH LATE BROCCOLI.

This Broccoli is one of the best for late use, and one which has proved very hardy here this season. Where late Broccoli is in demand, and there is some difficulty in getting Broccoli to stand through the winter, I would recommend growers to try this variety. We are cutting beautiful heads of it now,

and there will be a very short interval between it and our early Cauliflower. It is also of the best quality. J. Robertson, Coudenknowes, Berwickshire, June 11. [See our Notices to Correspondents in this issue. Ed.]

FLORISTS' FLOWERS.

PANSIES AT CHISWICK.

A LONG north border at the Chiswick Gardens is planted with a number of Continental varieties of Pansies. Each reputed sort is in a patch by itself, mainly from the collection of Mr. E. Benary, Erfurt. Considering the character of the winter, they have come through it pretty well, for as a rule there are few vacancies in the beds. Whether they would stand through a hot summer in this country is perhaps a matter for doubt, as they do not appear to possess the vigorous, tough, and compact habit of our English-raised varieties, being apparently of taller and sparer growth: but as they are overshadowed by the dense growth of a line of standard Plum trees at the back, the plants have become somewhat drawn, and this, as a matter of course, would affect the habit. The colours and markings are in the cases of some of the varieties remarkably striking, and the striped varieties give us a section that our English raisers appear to have neglected. We have but very few striped varieties among our many hundreds of named fancy Pansies. It may be remarked that with but few exceptions the varieties come pretty true from seed. Taking them as they are growing the first is violet, bordered with white, of which there were two or three types; that which appeared to be truest to character had flowers of a deep shade of violet, with a distinct marginal line of white. Another variety, named Mahogany, has bright crimson flowers of good shape, very free and striking, but varying slightly in character. This yields a delightful mass of bloom. Crimson Purple, marbled with yellow, is a showy and fairly uniform type. The striped, as before stated, are very pretty, and they vary much in character. I have on several occasions made selections from the finest Continental striped flowers, only to find that they die during our warm summers. A bed of these striped Pansies would have a charming effect, and in planting from the seed-bed it would be well to put them in thickly, so that any rogues could be pulled out.

It is better to thin out than to have to plant to supply vacancies. One called Quadricolor is, as its name implies, a four coloured Pansy, a yellow ground with large dark spots at the side. Emperor William, a good blue; the flowers large, of good shape, and having a dense large black blotch in the centre. Seedlings vary somewhat in the depth of the blue; it comes nearly true from seed. Golden Yellow is a very good golden type of a small Pansy, very free, and a good bedder. White is also good and true. Twin-coloured is a variety having bronzy-orange flowers, the upper petals much tinged with salmon-brown. Large-flowered is represented by big white ground flowers, which partake both of the characters of the English show and fancy types. Snow Queen is a white Pansy, generally good in quality, and pretty true from seed. King of the Blacks is an old glossy black variety, found in some catalogues under the name of Faust. Aurea pura is pure gold, and some very useful yellow bedding varieties can be obtained from this. Tricolor maxima is represented by a large Belgian type. Azure Blue is pale blue, and what would be considered washy by some; the probabilities are the colour would burn under sunshine. Havana Brown is a kind of dark cinnamon colour edged with brown. Bronze is of a reddish-bronze colour, edged with yellow; some of the types are very showy. Cliveden White is a fairly good white, differing a little from seed, but unlike the old Cliveden White of a quarter of a century ago. Lord Beaconsfield is a deep purple-coloured Pansy, edged with white, and comes true from seed; very free and striking. Cliveden Black, Cliveden Purple, and Cliveden Yellow are pretty good bedding varieties, the latter representing a good form of *Viola lutea grandiflora*. R. D.

THE BULB GARDEN.

THE FRITILLARIA.—When taking a few notes amongst the bulb gardens in Haarlem and its vicinity, I visited, amongst others, the celebrated hardy plant nursery of Messrs. Krelage & Sons, in Haarlem. At that time—end of April—the leading feature in the nursery, besides the ordinary Hyacinths, Tulips, &c., were the Narcissus and Fritillarias. The last-named have been cultivated here for many years, and a very large space of ground is set apart for the varieties of *F. meleagris*. It is an old English garden plant, and one that was much esteemed when exotic plants were scarcely heard of. There is some variety of colouring found amongst them, from pure white, or white with a greenish tinge, to the usually maroon-purple chequered varieties. Probably the numerous forms in the possession of Messrs. Krelage have been produced by crossing other species with it. The deep yellow ground on some might claim the parentage of *F. Moggridgei*, and others that of *F. pyrenica*, but it may not be beyond the art of the hybridist to produce the whole of them from the common species—*F. meleagris*. Some varieties are very tall and vigorous, others are dwarf and not at all free in growth; but, like delicate children in some families, they may be even more valued on that account.

There might be good stocks of some half-hundred varieties, and I went carefully over them, noting the most distinct in growth and flowers. The colours range from pale yellow with scarcely any markings upon them to rich chocolate heavily chequered. Theresa Schwartz is a pale form, marked with brown on yellow ground; Paul Kruger is glossy chocolate, heavily chequered; Arentine Ardenser, greenish-yellow, chequered reddish-brown; Mr. Dullert, crimson-brown, heavily chequered; Siegfried Haarlem, greenish-yellow, slightly chequered a reddish-brown colour; David Blès, yellow, faintly chequered red—a dwarf-growing variety; Stieltjes, heavily chequered maroon and yellow—a vigorous plant; Van Lerins, medium, blood-red chequer, vigorous in growth; Alma Tadema, pale greenish-yellow, with rosy-red and medium-sized chequer; Rembrandt, maroon-crimson heavily chequered; E. H. Krelage, heavily chequered chocolate-red on yellow—an excellent plant; W. J. Holdwijk, rich maroon-crimson, heavily chequered. The above is a dozen of the best varieties which I noted in the collection. Some two years ago this firm sent a selection of them to be inspected by the Floral Committee of the Royal Horticultural Society, and these were greatly admired at the time by some members of the committee, and selections from them were awarded certificates, but cut flowers that had made a long journey, and were crumpled and faded, gave a poor idea of the beauty of the flower, and the effect produced when seen in masses of varied colours.

Fritillarias are grown without much trouble, their place being in the herbaceous border, where they should be planted in groups, and allowed to remain undisturbed for several years. A deep, sandy loam, moderately moist, is better for them than a light, shallow, or gravelly soil.

I have grown several distinct species in pots, also the white and ordinary forms of *F. meleagris*, with success, the flowers being greatly admired, coming as they do before any are in flower outside. Repotting should be done annually, but the bulbs themselves should not be disturbed until in the course of time, they become too numerous, and therefore crowded. J. Douglas.

PROLIFEROUS MARIGOLD.—From the Chelmsford "Odd Volumes" we have received a specimen of an odd Marigold, consisting of an odd number (five) of flower-heads proceeding from the sides of the normal flower-head, which has thus an odd appearance strictly akin to that presented by the Hen-and-Chicken Daisy. It is due to luxuriant growth, resulting in proliferation of the inflorescence.

PLANTS AND THEIR CULTURE.

ARISTOLOCHIAS.—These plants have very singular and grotesque-looking flowers, which, unfortunately for garden purposes, have in some instances rather a foetid odour; but, by selecting a suitable position, no inconvenience need be experienced in growing even these. Aristolochias have generally a climbing habit of growth, and are seen to best advantage when allowed a fair amount of space to grow in, such as on the rafters of a lofty house, where, if their shoots can be allowed to hang down, is the best possible position for them. Their bird-like, or pitcher-shaped flowers are then well displayed, without much risk of their being brought too close to the spectator. Most of the species are easily grown in a fairly rich and porous compost, and do best if they are planted out, although they may be satisfactorily grown in pots; indeed, few species are best grown so. *A. Thwaitesii* is one of those well suited for a pot, being a dwarf evergreen shrub, rarely growing more than 2 feet high, and as it flowers from the thick rootstock, just at the surface of the soil, it is well to keep this part raised when potting the plant. The racemes of flowers are produced in early summer, and are tubular in form, with a pouch at the base, and a tail to the lip, in colour yellowish outside, and velvety dark brown inside. It requires stove temperature. Another dwarf pot species is *A. ciliata glauca*, a greenhouse herbaceous plant, growing about 18 inches high, and producing freely in autumn deeply fringed, broad-lipped, glaucous green and purple-spotted flowers; it seeds freely, and can be easily propagated in that way.

Of the tall-growing sorts, *A. ornithocephala* is one of the most striking, the flowers being beautifully reticulated, and marked with purple-brown on a greenish-yellow ground; the two-lobed lip is usually from 6–8 inches across; the tube or pouch of the flower is large, and the beak, which is about 4 inches long, is lined with dark coloured hairs, giving it the appearance of plush velvet; the leaves are large, somewhat heart-shaped. The plant has a twining habit, and is one of the largest growing stove kinds.

A. trilobata, a climbing species, with neat, three lobed, dark green leaves, is of more moderate dimensions than the last named, and never fails to produce a profusion of flowers, which in shape seems to be made up from a small *Nepenthes* (such as *gracilis*) and one of the tailed *Cypripediums*, with the characteristic *Aristolochia* pouch at the base of the pitcher, the tail being produced from the lid of the pitcher.

A. elegans is a beautifully marked species, of moderate dimensions and of rapid growth in a stove temperature. A rather rare species is *Goldieana*, and which requires some care in affording it a long growing and a season of rest. The flowers are about as large as a man's hat. *A. gigas*, *A. Duchartrei*, and *A. tricaudata* are all worthy of being included in a collection. The plants are easily propagated from cuttings and are not subject to the attacks of insects, the syringe usually keeping them clean. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

RHODODENDRONS AND AZALEAS.—Pick off the seed-pods from the shrubs as fast as they go out of bloom, particularly from young plants. Where the transplanting of large specimens and thinning out of old clumps is contemplated during the coming autumn months, see that each plant has a label attached to it, with its colour written thereon, as this will permit of the colours being effectively arranged, and save the labour of lifting wrongly placed plants in succeeding years. Pay attention to watering in dry weather all those that were planted rather late in the season, and if mulching was neglected, then apply it now, as it will be of benefit even at this late period.

Hardy Biennials.—Most of those that were sown in the early part of last month, including *Antirrhinum*, *Brompton Stock*, and *Campanula calycanthema* and varieties, will now be large enough to handle, and it will be desirable to prick them out into reserve beds of not very rich soil, covered with a light dressing of finely sifted leaf-mould and sand, which should be raked in with a fine-toothed iron rake; afterwards smooth the bed over with the back of a spade, preparatory to pricking out the young plants in rows about 3 inches apart each way. Hand-weed when necessary, and water when required.

Carnations.—In some districts these have fared badly in the last two winters, and the stock is getting weak. Where this is the case no pains should be spared to work up a sufficient quantity, and with this object it will be a good plan to cut off all flowering shoots from last year's layers, so that stronger shoots may be obtained for layering, *i.e.*, if flowers can be conveniently dispensed with. Layering may be commenced as soon as the shoots are sufficiently advanced in growth for this purpose. I shall make a

Outdoor Ferneries.—Beyond weeding and an occasional cleaning little will require to be done here for the next few weeks. Examine all that were planted in the early part of the season, and until they have become well established see that they do not suffer from want of moisture at the root, the plants being very sensitive in this respect. It is essential that "filmies," such as *Hymenophyllums* and *Trichomanes*, have an abundance of moisture at all times, atmospherically and at the roots, and for this purpose they should be grown near running water. *J. Horsfield, Heytesbury.*

FRUITS UNDER GLASS.

Figs.—The crop from the earliest trees being now gathered the trees should have a good cleansing prior to starting them to swell their second crop, the lessening of moisture at the root during the ripening stage tending to give the trees a rest. Insects which affect the Fig will also have increased; these may, however, be lessened in numbers by syringing the trees with rain-water heated to a temperature of 85° or 90°, into which is poured a wineglassful of double refined petroleum to every 3 gallons of water. Well work the syringe about in the vessel, and be careful not to draw from the top. This work may be done on every other day, and a good wash with the garden-engine and clear water on intervening days. Give the plants a fresh top-dress with loam and Thomson's Vine manure, well soaking the roots with weak manure-water at the same time.

Succession-houses.—If all has gone well these will now be supplying ripe fruit; a drier atmosphere will, therefore, have to be maintained. In order to prevent the cracking of the fruit, syringing must only be done very sparingly, and this only after all the ripe fruits have been picked for the day, and these should not be plucked until they are nearly bursting, the flavour then being much better. But in plucking fruit to travel a long distance, or to be sent to market, it should be picked in a tender, but not ripe stage,—but these are never of high flavour. Late trees, from which only one crop of fruit will be taken, should have abundance of air, and copious waterings at the roots. The points of the shoots are better left unpinched in this instance, successional crops not being desired; and any fruits which show after the main crop is thinned should be removed.

Orchard-houses.—Cherries where the fruit is ripe and still hanging, require abundance of air, the floor of the house being made slightly damp once on bright days; some shade should also be placed over the roof to prevent the sun's rays beating upon the fruit; this should, however, be portable and should be removed when there is no sunshine, else the foliage will lose much of its texture. Every precaution must be taken to exclude birds. The later sorts will advance rapidly and every care must be taken to keep the foliage clean prior to the colouring stage. *Bigarreaus* being very impatient of moisture, and if rain or other water gets on the fruit at the colouring stage, the skin of the fruit is almost certain to split.

Plums must receive abundance of water with copious syringings, and sprinkling of the paths twice daily. Avoid strong doses of ordinary manure-water, as this often acts injuriously on the flavour of the fruit; rather have recourse to some concentrated form of manure, as Thomson's Vine manure or Wood's *Le Fruitier*. Where the trees are in pots they are more manageable than when planted out; as any trees which are barren can be turned out-of-doors and plunged to the rim of the pots in coal-ashes, in which situation they are certain to have the wood well matured for next season. Thin and pinch the shoots to induce the formation of fruit-buds. *W. M. Baillie, Luton Hoo.*



FIG. 106.—*ARAUCARIA COOKII*, TO SHOW HABIT.
(SEE P. 774.)

beginning with a few of the forwardest during the coming week. Use for this purpose a good sandy compost, with a liberal supply of leaf-mould added thereto. Of course it is too soon to begin with the general collection.

Rockeries.—These will require to be again weeded. Cut off all flower-stems from plants that are past their best, or are going out of bloom, except in cases where seed may be required, and at the same time any plants that have grown beyond their allotted space may be cut back, so as to keep them within bounds. Nothing betokens neglect more than to see one species encroaching on its neighbour.

INFLUENCE OF THE MOON UPON VEGETATION.—A committee has been appointed in the island of Trinidad to investigate this matter. The *Proceedings* of this committee have been lately published. Moon-heat is so trifling that of itself it can have no influence on vegetation. According to the document before us, the heat of a bright, full moonlight night means only an increase of temperature of 1-5000th part of a degree Fahrenheit. As to moonlight, a comparison of Dr. Wollaston's is quoted, wherein it appears that sunlight may be compared to 5·562 wax candles at a distance of a foot, and that of the moon as the 1-144th part of a single candle at the same distance.

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THE GARDENERS' CHRONICLE,
Vol. II., Third Series, JULY to DEC., 1887.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, JUNE 26 { Royal Horticultural Society: Scientific, Fruit and Floral Committees.

SHOWS.

WEDNESDAY, JUNE 27—Alexandra Palace Rose (two days).

THURSDAY, JUNE 28 { Royal Horticultural of Ireland.
Brockham Rose.
Ryde Rose.
Stratford and Ilford.

SATURDAY, JUNE 30 { Eltham Rose.
Reigate Rose.

SALES.

MONDAY, JUNE 25 { Orchids in Flower, at Protheroe & Morris' Rooms.

TUESDAY, JUNE 26 { Collection of Orchids, formed by F. A. Philbrick, Esq., Q.C., at Protheroe & Morris' Rooms (two days).

THURSDAY, JUNE 28 { Imported Orchids, from Messrs. Shuttleworth, Curder, & Co., at Stevens' Rooms.
Established Orchids, &c., at Stevens' Rooms.

FRIDAY, JUNE 29 { Imported Orchids, at Protheroe & Morris' Rooms.

Grapes New and Old.

ACCORDING to a statement in the *Vigne Américaine* the Grape known as Gros Colman, or Gros Colmar, was introduced into commerce in 1850 by M. MOREAU ROBERT, a nurseryman at Angers, the variety having been, as he alleged, obtained by him from seed. Mr. BARRON, in his excellent book on *Vines and Vine Culture*, tells us that it was first brought into notice in this country by the late Mr. RIVERS, who received it from M. LEROY, of Angers. Subsequently (1861-1862?) Mr. STANDISH exhibited it at South Kensington, and now it is one, certainly not of the best, but the most popular Grapes for market purposes. There seems to be as much uncertainty as to its correct name as there is as to its origin. We have already mentioned M. MOREAU ROBERT, as the originator of this Grape, but this account does not tally with another version, according to which the Grape is of Caucasian origin. This source is mentioned briefly by Mr. BARRON, on the authority of Herr HOWARTH, but as the statement is made with greater detail in the *Vigne Américaine*—a French publication not likely to be seen by many of our readers—we think it may be inter-

esting to many to give a summary of the account given by the editor, M. V. PULLIAT. In 1867, says this gentleman, Baron DE LONGUEIL, a Frenchman residing in the Caucasus, sent a large collection of Grape Vines to him. These all did well, and among them was a variety with large black berries sent from three different provinces of the Caucasus under the names of Dodrelabi, Sakoundrehala, and Madchanaouri. M. PULLIAT, finding all three alike, retained the easier name Dodrelabi. The following year M. PULLIAT ascertained that his Caucasian Dodrelabi was in all points absolutely similar to the Gros Colmar of MOREAU ROBERT, and to the "Okorszem kek" (eye of the black ox) of Hungary. M. PULLIAT cites other synonyms under which the Grape is known in Hungary and Styria, but which we do not think it necessary to inflict upon the reader. There is a conflict of evidence here upon the merits of which we cannot pretend to pronounce an opinion; but it is clear, from what M. PULLIAT, says that he does not think himself in the wrong, while on the other hand, he has heard of such an occurrence as the diffusion of an old variety under a new name! But M. PULLIAT is evidently of a sceptical turn, for, alluding to some bunches of Mr. GOODACRE'S 16 inches long, by 6—8 inches across, he says he is too much accustomed to the puffery (*réclame*) of English Grapes to take such statements as literally correct. How often, says he, has he not received, under the most alluring recommendations, large-fruited English Muscats, alleged to surpass in beauty and flavour all that had been previously known, but which turned out to be nothing else but the old Muscat of Alexandria, which remains the best white Grape in cultivation.

It is curious to read this account of English advertisements. If it be as M. PULLIAT alleges, it must be taken as a set-off against the extremely rosy descriptions with which new French Roses are not unfrequently heralded! But to revert to M. PULLIAT, we agree with the conclusions at which he arrives, and which are:—

1. That it is not easy to obtain from seed finer Grapes than the best of those we already possess.
2. That a new Grape announced to be a seedling should not be accepted as such if the raiser fail to give the history of the plant, and the names of the variety from which it was obtained.

Our own Royal Horticultural Society might, very properly, refrain from giving certificates to new varieties of any description without some such evidence, and wherever possible the novelty should be tried at Chiswick before any final award be made to it. In spite of what M. PULLIAT says, however, we should by no means like to discourage raisers of novelties. It may be true that in the case of a plant so long cultivated as the Vine it is very unlikely that a raiser will obtain anything absolutely better than already exists. But then the best variety is not of equal quality wherever it may be grown, and so there is always the chance of raising a variety better adapted to some particular conditions than any other. Take the case of Gros Colmar as an illustration. To our thinking, it is a very inferior Grape, but that is a matter of opinion. The extent to which it is grown by hard-headed cultivators, who assuredly know their own business, proves that it has valuable qualities. It is a case of "survival of the fittest," not assuredly in any absolute sense, but relatively. Thus, for market purposes, it is the fittest at a particular season, and so it is grown when better Grapes are neglected. Now, a market Grape must be productive, its fruit handsome, and calculated to travel well, and to

keep a long time. All these points Gros Colmar has, and hence the explanation of a second-class Grape holding the first place in the market. We may add that the largest single berry of this variety we have seen measured 4 inches in circumference.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are requested to ask those who have undertaken to fill up collecting cards to send them in to the Secretary, Mr. E. R. CUTLER, 50, Parliament Street, without delay, in order that the amount may be announced at the Anniversary Festival on July 4, under the chairmanship of the Right Hon. JOSEPH CHAMBERLAIN, M.P.

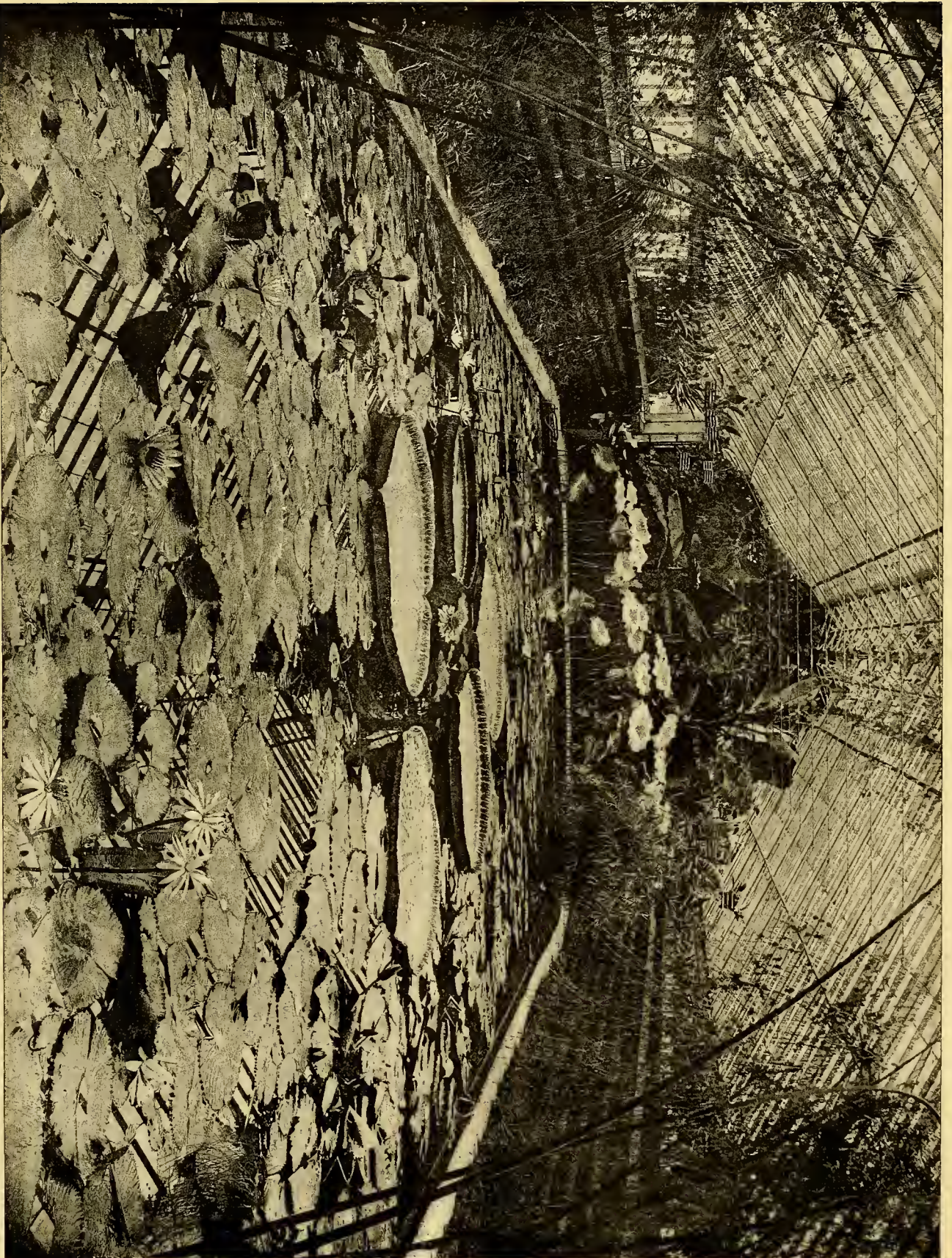
COMING ROSE SHOWS.—The following dates are given by Mr. MAWLEY, in addition to those published in our issue for June 9:—Alexandra Palace, Wednesday, June 27; Maidstone, Friday, June 29; Colchester, Saturday, June 30; Eltham, Saturday, July 14; and Cristleton, Monday, July 16.

HYBRID TACSONIA ANDERSONI X. — Mr. J. SMYTHE, gardener, Basing Park, obligingly sends us specimens of the Tacsonia raised by him between T. insignis and T. Volkemii. We gave illustrations of this remarkable Tacsonia in 1887, showing the stamens partially converted into petals. The leaves, moreover, are intermediate between those of the two parents, some being entire, as in insignis; others variously lobed, as in Volkemii. The Tacsonia is of a very rich colour. It is singular that Mr. R. ANDERSON, of the Gardens, Sowerby House, Hull, to whom we were indebted for our first knowledge of the magnificent T. insignis, described and figured in these columns, should have as long ago as 1874 raised the same hybrid (see *Gardeners' Chronicle*, August 7, 1875). On that occasion we suggested the name Tacsonia Andersoni X as an appropriate one. An illustration is given in the *Gardening World* of June 16, which shows the petaloid stamens, but the history of the hybrid and its first production by Mr. ANDERSON are omitted.

CHEADLE FLORAL AND HORTICULTURAL SOCIETY.—We note in the schedule of the above Society, that large money prizes will be awarded at the forthcoming show, on August 17 and 18, for fifteen stove and greenhouse plants. Some close competition will most probably ensue, and numerous creditable specimens be staged.

CHAMBRE SYNDICALE OF GHENT.—At the meeting of the above, held on Monday, June 11, in the Casino, the following Certificates were awarded:—To Dracena Desmetiana and Dracena Comtesse de Kerchove, by M. Desmet-Duvivier; to Nidularium argenteum striatum and Lomaria platyptera, by M. Aug. Van Geert; to Cattleya Reineckiana, Lælia species and Cattleya Mossiae alba, by M. James Bray; to Cyrtopodium Mastersianum, by M. A. Peeters, Brussels; to Cattleya Schroderi and Cyrtopodium Boxallii atratum superbum, by M. Jules Hye-Leyssen; to Cyrtopodium Godefroyæ bellatulum and Anthurium Andreanum Madame Ed. Pynart, by MM. Jacob Makoy & Co., Liège; to Thulia Lobbi aurea, by Alex. Dalliére; and to Odontoglossum crispum and Cattleya Mossiae de Puydti, by MM. Vervae & Co.

MESSRS. J. WATERER'S SHOW OF RHODODENDRONS.—The usual annual display of these plants made by the above firm, at Cadogan Place, Sloan Street, is quite equal to any previous one held there; the arrangement of the beds under the large tent is the same, and the novelties of the year, which are always to be found there, are in some instances improvements, or at any rate deviations from ordinary colours and form of truss. In the novelties were some flowers with a very dark spotted patch on the upper segment of the flower. These form a distinct class, and are generally admired; we can name only one—the Earl of



THE PHOTOGRAPH BY MR. J. C. MARTIN, LATE, CANON, ST. LOUGHS, E.

Powerscourt. Others have light purple, light cerise, crimson, and white flowers. Good flowered specimens were noted of Countess of Headfort, lilac-rose, spotted; Blandyanum, fine, rosy-crimson; Bertram Woodhouse, bright crimson, with light centre; Countess of Tankerville, clear rose; Duchess of Connaught, white, with primrose markings; Duke of Connaught, rosy-crimson; John H. Agnew, pale blush, with chocolate spots; Lady Howe, rose coloured, with a cone-formed truss—a form of truss destined to be much *en vogue*. It is needless to say that the show in the tent was gorgeous with colour, and should be seen by admirers of the flower who may chance to be in town during the next fortnight. The show of Rhododendros made in the Row in Hyde Park has been very fine up to the present time, and consists of older varieties in large and small specimens.

FAGUS PURPUREA ROSEO-MARGINATA.—Notwithstanding the above name, this is simply a Copper Beech, whose leaf is edged with pink. It is very pretty whilst young, but the foliage will later in the summer assume more nearly the colouring of the type, still it is desirable as a variety. As a hedge plant in a garden, clipped twice or thrice during the summer, so as to get several crops of young shoots, it would prove very attractive. It was sent out by Messrs. T. Cripps & Son, Tunbridge Wells.

PLANTING THE DUNES.—From Calais to Hamburgh is a long stretch, but for nearly the whole distance the coast-line consists of loose sand, now forming flat "links" with a sparse but botanically very interesting vegetation, now blown up into picturesque, irregular hillocks, held together more or less, by creeping grasses and other plants. In some parts of Kent, in Suffolk and Lincolnshire, the same conditions prevail, but on a smaller scale. However pictorial, or however interesting to the naturalist, such land is, agriculturally, mostly a sterile waste, and it is therefore with no surprise that we learn that the King of the BELGIANS has interested himself in the matter, and has appointed a commission to study the best means of planting the dunes. We are the less surprised at His Majesty's interest in the matter, as some years ago we were eye-witnesses to the process of digging out His Majesty's villa at Ostend from the sand which had accumulated during the winter above the level of the ground-floor windows. The plans for the planting the sand-hills between Ostend and Blankenberghe have been executed by M. VAN DER SWAELMEN, of Brussels. They are so contrived as to insure protection from the prevailing winds, and when carried out will ultimately form picturesque woods with winding paths, good roads, and other conveniences, which will ensure not only an increased agricultural value to the land, but, what is now-a-days the most paying of all crops, a crop of villas facing the sea. Those who remember the delightful wood which extends from the Hague to Scheveningen will rejoice that there is now so good a chance of the formation of a similar wood between Ostend and Blankenberghe, a distance of 6–7 miles. So far as we are able to judge, M. VAN DER SWAELMEN'S plans are admirably adapted to the desired end.

TOBACCO, ENGLISH GROWN.—We received recently some Tobacco cut very finely, and in appearance resembling silky Virginian shag from the Tobacco works of Messrs. COPE BROTHERS & Co. (Limited), Liverpool. The "weed," which was made from plants grown on Messrs. CARTEN & Co.'s land at Bromley, in Kent, was smoked in the form of cigarettes, and in a pipe, and was found to be destitute of the agreeable aroma of good foreign Tobacco, and burnt in the pipe unsatisfactorily. It should be mentioned that Messrs. CARTEN demur to this being considered a fair sample, as it had not undergone the last processes in the preparation.

"FAMILIAR TREES."—Professor BOULGER continues his pleasantly written and accurate account

of the hardy trees met with in Britain. The wood-cuts are good, and the same may be said of some of the coloured plates.

STATE AGRICULTURAL COLLEGE, IOWA.—The *Bulletin* of the Botanical Department is very interesting as showing what may be done in teaching practical botany to a class presumably of intending agriculturists. The tuition is essentially practical and a large share of the work is bestowed upon observations and experiments. How many of our gardeners, we wonder, have any knowledge of the peculiarities of the germination in Cucumbers and Melons; and of the few that have, how many would realise their practical importance, or be able to give a reason for the fact that such seeds germinate best if placed flat on the soil, not thrust in endwise or edgewise.

THE NEW POTATO CROPS AT PENZANCE.—The *Cornish Telegraph* of Thursday last (June 14) has the following note:—"Judging from the number of men to be seen wending their way to Gulval and Marazion, the work of raising new Potatoes in this neighbourhood commenced in real earnest on Monday. So far, we have not heard of any signs of disease among the Potatoes, which have made great progress towards maturity, thanks to the recent genial and welcome showers. Our Scilly correspondent writes: About 200 tons and 200 baskets were shipped from St. Mary's during the past week. The late rain has been a great blessing to the farmers here, and the islands are now looking fresh and smiling. The current price for Cornish 'ware' is 23s. per bushel of 24 gallons, for the first three days of the week. Prices bid for low ranges, owing to the lateness of the season, and the fact that Jersey, Scilly, and Cornish Kidneys are three competitors in the market at one time. Scilly ordinarily takes the lead, followed by the Cornish, with Jersey in the rear, but the lateness of the season has changed the aspect of things."

CHANGES IN THE SEED TRADE.—One somewhat singular trade development of our times is illustrated by the change that is taking place in reference to many of our wholesale seed houses in London. Looking back upon the past twenty years, it is instructive to notice how the processes of extinction and absorption have gone on. One of the oldest establishments, that of Messrs. BECK, HENDERSON & CHILD, was some years ago absorbed by Messrs. WAITE & Co., of Southwark Street. Later on the old firm of Messrs. MINIER, NASH & NASH also merged itself into Messrs. WAITE, NASH & Co. Two or three years since what was formerly Messrs. NOBLE, COOPER & BOLTON, of Fleet Street, and latterly Messrs. TABER & Co., of Witleham, Essex, joined themselves to Messrs. COOPER & Co.; and now this last-named firm is absorbing that of Messrs. WAITE, NASH & Co., and that of Messrs. HENRY CLARKE & SONS, of King Street, Covent Garden, under the title of Messrs. COOPER, TABER & Company (Limited). We can only speculate upon the causes of these changes. If they mean a decreased volume of trade all round, it is matter for sincere regret. There are, no doubt, substantial and satisfactory reasons for the changes. They have gone on in another direction; for we have seen the once famed Wellington Road nurseries, St. John's Wood, disappear, and the equally famous Pine-apple Place Nursery has become absorbed into the business of Messrs. HOOPER & Co. (Limited), Covent Garden Market. The two firms of GIBBS & Co., of Piccadilly, are now one; and in the provinces, the rival firms of Messrs. JAMES DICKSON & SONS, and Messrs. F. and A. DICKSON & SONS, of Chester, are amalgamating. At Birmingham the firm of Messrs. R. H. VERTEGANS & Co., is absorbing those of Mr. HANS NIEMAND, and also of Messrs. THOMAS HEWITT & Co., of Solihull, to be known hereafter as a limited liability company, as was mentioned in our columns recently. And so the world wags in matters horticultural.

CHIPPENHAM HORTICULTURAL SOCIETY.—As a means toward the reinvigoration of the above languishing Society, special prizes for Dahlias, ranging from £3 to £5, are offered for competition at the show to be held on August 14 next. Much credit is due in this matter to Mr. G. HUMPHRIES, of Kington Langley, and Mr. HEREMANS, Jun., of Langley Burrell.

HYBRID BEGONIA.—Messrs. SUTTON & SONS, of Reading, claim to have succeeded in obtaining a distinct cross between a tuberous-rooted Begonia and one of the B. Rex type. In this case the shape of the leaf of the tuberous-rooted type is preserved, but they are distinctly marked with spots of pale grey, which it may be supposed comes from the Rex parentage. By and bye we shall have an opportunity of seeing it in bloom. It has a close, compact, and at the same time free habit of growth, and it is expected to make a good bedder. If it does, it will be an excellent companion to their Princess Beatrice, one of the best bedding Begonias yet sent out.

ROYAL BOTANIC SOCIETY OF LONDON.—The Council of the Royal Botanic Society in communicating with the Secretary of the National Co-operative Flower Show states "that although it does not come within the province of the Society to offer or award medals or prizes other than at its own exhibitions, and [although it] has never done so, yet in consideration of the special features of your National Festival and Exhibition, the Society will be pleased to add one of its Large Bronze Medals to your list of prizes." We understand that the medal will be offered for the best collection of botanical specimens.

NEW PELARGONIUM DUCHESS OF TECK.—We have received from Messrs. FISHER, SON & SIDNEY, nurserymen, Sheffield, a beautiful white form of "regal decorative" Pelargonium. The trusses are large, the flowers of the purest white, and of good substance. The plant is said to be of a compact habit, and it will certainly prove of value for cutting and other purposes.

BOTANICAL DRYING PAPER.—Messrs. WEST, NEWMAN & Co. send us specimens of their paper for drying Ferns, flowers, &c. The reputation of this paper has not to be made; it has long been established, but Messrs. WEST, NEWMAN & Co., have also introduced a modification in the form of a thicker paper, which can be used to form the "dryers," as used by the American botanists. Those who have occasion to dry plants will find this paper a great boon.

THE LATE BATH AND WEST OF ENGLAND SHOW.—Some excellent plants from the garden of Mr. CAPEL HANDBURY, Poutypool Park, Monmouthshire (Mr. J. LOCKYER, gardener), were inadvertently omitted by our reporter. These consisted of a fine *Davallia Mooreana*; also *Alsophila excelsa* in fine condition; two fresh specimens of *Cladodendron Balfourianum*; a large plant of *Cypripedium barbatum*; and a well-furnished specimen of *Cyanophyllum magnificum*—a plant seldom seen now in first-rate condition.

CURVES OF INQUIRY AND PLEASURE.—I have seen the remark that paths should be straight unless there was a reason for a *détour*, it being absurd for a man to have a winding path on a smooth lawn leading to his house. Who has not observed a footpath on a meadow, how it curves and counters? Often the cause is to be found in some stone or bush, but in many cases there is no apparent reason. To my mind, the cause can be found on some higher plane than the ground. If a large tree attract attention, and the slight curve made in inspecting it—we naturally follow our eyes—opens up another view, the path is made to curve and open up a pleasant panorama. So a path leading to a house, made by daily use, had better be followed out in remodelling a lawn garden. There is enough straight walking in the city; so let the path grow, and fix it over when it is well marked out by daily use. Then fill the turns of this path with trees or flower-beds, which will explain to careless eyes the immediate reason for the curves.

TUBULAR FLOWER-HOLDERS.

MESSRS. GEORGE SMITH & Co. have sent us a specimen of a device for displaying cut flowers. The flower-holders fig. 107 are solid discs in the shape of a dome, either round or oval, with a flat base, in which are sunk forty to fifty tubular orifices gradually inclining outwards from the centre. When flowers are to be arranged, the tubes are filled with water, and the disc is placed on an ornamental plate of wide diameter (preferably of glass or terra-cotta), which retains any overflow of water, and supports the outer leaves. The sprays of flowers and foliage are inserted in the tubes one by one according to the taste of the arranger—the highest in the centre; others inclining outwards, and the lowest resting on the margin of the plate.

Each spray remains exactly where it is placed, and the effect of the grouping can be studied as the work proceeds. Ferns and other graceful foliage play a great part in this mode of decoration, dividing one flower from another, and entirely concealing the mechanism of the contrivance.

This new system of flower arrangement is specially recommended for the use of ladies, who will be able by its means to produce a great variety of beautiful effects in the whole field of decoration. It will also afford great facility to attendants, when ladies are unable to give personal attention.

One caution we must give to those who use this contrivance, and that is to introduce sufficient Fern, Asparagus, or other light foliage to break up the formality of the arrangement, which otherwise is apt to be too evident.

PLANT PORTRAITS.

- CATASETUM BUNGEROTHII, *Garden*, April 28.
 CATTLEYA LADIATA GASKELLIANA (white form), *Gartenflora*, June 1.
 CATTLEYA WALKERIANA, *Revue de l'Horticulture Belge*, June 1.
 CYPRIPEDEUM CALLOSUM, *Revue Horticole*, June, and *L'Orchidophile*, May.
 NECTARINE VIOLETTE MÂTIVE, *Bulletin d'Arboriculture*, &c., May.
 ONCIDIUM JONESIANUM, *Gartenflora*, May.
 PEACH ROUGE DE MAI, *Revue Horticole*, June 16.
 PLUMDAOO CAPENSIS, *Garden*, April 21.
 RHODODENDRON (JAVANICUM) MAIDEN'S BLUSH, *Revue de l'Horticulture Belge*, June 1.
 THUNDERBIA HARRISII, *Illustrierte Monatshefte*, May.
 URCEOLINA PENDULA, *Garden*, May 12.
 VITIS PTEROPHORA, Baker, *Gartenflora*, t. 1273, May 15, 1888. See *Gardeners' Chronicle*, 1883, vol. xix., p. 53, sub gonyolodes.

HOME CORRESPONDENCE.

INSECTS.—In seasons like the present these increase and multiply at a very rapid rate, and more particularly is it so as regards aphids, grub, and other garden pests. This is at once seen in the case of Peaches and Nectarines, which are very susceptible to greenfly, but, by timely attention, these may easily be got rid of, as there are many ways of killing such insects, one of the readiest of which is by the aid of tobacco-powder, which may quickly be dusted over the affected parts. After it has been on a few hours it ought to be washed off by giving the trees a good syringing or sousing with the garden-engine, and the same if any other insecticide is used. Another speedy way of destroying aphids is to boil some Quassia chips in a copper, and while the water is hot, to dissolve some soft-soap in it; it is very potent, and safe to apply. The strength at which the liquid may be made is about 1 lb. of Quassia, and the same weight of soft-soap to 5 gallons of water, and if used warm its action is more certain, as then it quickly penetrates the shiny, almost impervious coats of the insects. Unless the trees have been allowed to get much infested, it is better not to syringe the stuff on, but to

dip each shoot separately, but do not dip the fruit, as it may injure the delicate skin, and more especially that of Peaches. To keep off red-spider from Peaches and Nectarines there is nothing equal to clean cold water, which, during hot sunny weather, should be applied every evening by means of a good engine, but the stream should be broken in such a way as not to injure the leaves. One of the chief causes of the appearance of the last insect referred to is dryness in the air and at the roots of the trees as well; for, though we may get a fair amount of rain, Peaches and Nectarines against high walls and on raised sloping borders very seldom receive their due share. This in all cases ought to be provided against by timely mulching and the application of water, so as to give at least one thorough soaking when the fruit is swelling, as at that particular time there are great demands on the roots. Carrants, like other things, are also showing bad symptoms of fly; but as the fly is mostly on the points of the young growth, they need cause but very little trouble, as the ends of the wood may quickly be removed by snipping them off with a knife and popping them into a basket, when they should be carried away and buried or burned. If the bushes are attended to at once and treated in the way mentioned, the fruit will be saved from that disfigurement which is so often seen, as when the insects are left on long the excreta they exude falls in such quantity as to coat the berries and bunches, and spoil them for use. J. S. [With regard to the insects infesting the Apples, Pears, Roses, and other plants this season, it is to be feared we gardeners have not as yet mastered their life-history, and do not know how to deal with them effectively. The syringe, lime, and soot, and the other so-called remedies are useless, or nearly so. We must begin in the autumn and winter with our defensive remedies, destroy the eggs, webs, chrysalids, which abound in the bark, the soil around the trees, on the bark of other trees, and on fences, by scrubbing the bark, burning the soil in heaps, digging to expose the under parts of the crust to the frost and to the attention of the hungry birds, by dressing with gas-lime, soot, lime. If these operations were carried out always wherever there had been an attack from the Gooseberry-caterpillar, the Apple-moth, American blight, and many other gardeners' foes, the results would be such that no gardener would leave them undone in the future, provided his resources in labour and material are what they should be. Let every man who has a garden study Miss Ormerod's *Injurious Insects*, and thereby save valuable fruit and vegetables, and his employers' pocket at the same time. Ed.]

THE PLAGUE OF MAGGOTS AND CATERPILLARS ON APPLES.—From whence they came or whither they are going, unless utterly to devour our trees, I cannot certainly tell; but that they are or have been here with an enormous destructive force and in incredible number seems certain from the havoc they have worked among our Apple leaves and fruit the enclosed fair sample of their doings will show. But the rapidity and semi-invisibility of their work is almost as marvellous as its completeness. It is hardly an exaggeration to say that we have hardly a perfect leaf left in the garden or orchard. The majority of the trees look as if they had stood in a direct line of a full charge of grape or other shot. They are riddled and riven into all forms and in all directions. But notwithstanding this the number of maggots and caterpillars captured bears a beggarly proportion to the work of destruction. They have begun, continued, and virtually ended their work of destruction with amazing rapidity, virtually unseen, and with the most rigid impartiality. Some large trees, the relics of an ancient orchard in the pleasure ground, seem equally hard hit, with the pyramids and cordons of different forms and that constitute the bulk of our Apple trees. So far as I can see not one form of tree nor a single variety has escaped the plague of maggots or of caterpillars. This is the more singular as we have never been seriously tried with either pest before. Hence it is probably a legacy or penalty of the intense heat and drought of the summer of 1887. Being scarce of water we were not able to spare any for our Apples which, however, ripened a very fair crop, and ripened their wood pretty well without showing much distress under the intense heat and drought. Growth, however, was considerably arrested as well as shortened, with the somewhat unique result that it scarcely reached its normal vigour or maturity before the end of the growing season. Hence I was not greatly

surprised when the spring revealed a paucity of blossoms on many of our Apple trees; and not a few of our cordons that have not failed before, since they were weighted with fruit at two years or less, were blossomless this spring. The lack of colour in Apple blossom has also been a notable feature of the spring in this district, and proved the sure and certain harbinger of coming failure—coming events thus casting their pale shadows before. Can the Editor or the many experienced fruit growers that read the *Gardeners' Chronicle* throw any light upon the probable causes or cure of this tolerably sure and certain sign of coming disaster? Nor can this lack of colour in Apple-blossom have any possible connection with the plague of maggot. Thus, assuming that the colouring of the flowers of fruit may be the last finishing touches of vital force and growing power, would not the lack of colour reveal the presence of debility? If so, we know we are sure that debility, either of force or of motion, opens out the very citadel of life to the inroad of insect or other pest, and all sorts of enemies and diseases. If, therefore, I might venture to assign a cause for the unprecedented energy and force of the pest of maggots this spring, it would be that the heat and the drought of last summer somewhat disarranged the functions of their, on the whole, temperate climate, and enfeebled their health, and the maggots and caterpillars failing such masses of vegetable food then specially fitted for their use, have made haste to devour its leaf shootlets and fruitlets. By commencing operations in the crown of the buds of course all the leaves were torn and riven before they were opened, and hence mostly the ragged look of the trees, and also the practical difficulty of finding a proportional number of grubs or caterpillars at work in proportion to the enormous wreck and ruin accomplished. Of course there are other explanations that might be given as to the abnormal plague of Apple maggots this year; as, for example, the unusual stimulus afforded to the grubs and moths through the unusual heat and drought of last summer; but the conditions must meet together before such wholesale destruction can be accomplished, viz., the presence of the destroyer and the presence of the juices or substance of vegetation in such a state as shall tempt and sustain their rapacity. It is in this latter direction that the weakness or disease of plants work with insect pests to compass their injury or destruction. D. T. F.

BLIND NARCISSUS POETICUS.—In the hope of elucidating the mystery which seems to surround the common production of blind flowers by the Poet's Narcissus, I conferred with one of our largest local growers of these flowers, and found that he had ample experience of this too common defect. It is, perhaps, more marked amongst doubles than singles, but seems to be more a feature of the poeticus strain than of others. My neighbour informed me that at least one-half of his doubles threw blind flowers this year, and he attributes the malady to low night temperature, just at the moment that the buds burst through the soil. Just then, and after being for several days developing and pushing through the soil in a semi-blanching state, of course the flower-buds are exceedingly tender, and the least frost, in his belief, suffices to destroy the flowers. Of course that is a purely theoretical opinion, and may not be the right one. He remarked that one of the best batches of bloom he ever had were from a lot of bulbs buried deeper than usual, because some soil from a cutting made to draw off water from the land was spread over the bed after the bulbs were planted; that kept blooms later than usual, and thus are assumed to have escaped late spring frosts. He proposes to test another year the value of some sort of protection in the shape of a mulch of litter, through which the bloom-sheaths must take two or three days in pushing, and thus gradually harden; or else to plant the bulbs in double rows close together, with intervals of some 18 inches or 2 feet between each such double row, and to cast up before the leaves appear a ridge of light loose soil over them. Of course the benefits from either course are uncertain, but no remedy can be hoped for unless sought for and tested. Naturally it may be assumed that if the late blooming poeticus forms suffer in this way from frosts the earlier blooming varieties of other sections of the family of Narcissus should suffer even more. That does not, however, appear to be the case, and if it be not so then it seems obvious that the late bloomers are naturally the most tender, assuming, of course, that the theory put forth as to the effects of late frosts on the buds is the correct one. Possibly something may

be due to the nature of the preceding season and its effect upon the bulbs. Late bloomers must of necessity be late ripeners, and it may be that sometimes, perhaps often, heat and drought check growth too early, and the bulbs are not sufficiently matured to produce fully developed flowers. Most of these bulbs like ample warmth to ripen them, but they like good soil and amply moisture at the proper time to mature them also. *A. D.*

— It does not seem to be clear what the cause of this is. It would, however, appear to be due mostly to shallow planting and warm situations. In the colder North blindness in this flower usually occurs—only so far as my experience goes—when the bulbs, originally planted rather deeply to be safe from the hard frosts of that part of the island, have been forced upwards by constant additions of new bulbs, the shallowness being aggravated by the removal of the surface soil by cleaning. The evil

the surface, which none but the hardiest species are able to withstand. An example of this was seen in the display of Crocus last winter, when shallow-planted corms bloomed bravely at an early date, only to be spoiled by severe frosts long before their natural duration of bloom was at an end: deeper planting would have saved them. *M. W.*

— The behaviour of this flower here is very curious. I have a large number of bulbs of the single form in a border in my garden which every year bloom splendidly. Some years ago a few bulbs from this very border, and of the same stock I am now flowering so well, were removed to my brother's garden, which consists of the same kind of soil as mine, and is only divided from it by the roadway, yet these invariably go blind. For the first year or two they matured their flowers, but now the flower-buds never open. Last season the bulbs were lifted and

being abundant croppers. The seeds are very small and dark. *W. Smythe, The Gardens, Basing Park, Alton, Hants.*

MULBERRY PRODUCING MALE FLOWERS.—Nearly twenty years ago I planted a young Mulberry for my present employer. It was well treated in good maiden loam, and it produced, after a year or two, good crops for, say, ten years. We looked for another good crop the following year, when, to our disappointment, it bore almost exclusively male bloom-spikes of which it produced, I may say, many thousands, but hardly any fruit. Since then it has been root-pruned, and two years later we commenced feeding it alternately with water and with liquid manure. The result is, that it has borne a little more fruit, which grows in groups at the ends of a few of the smaller boughs. But, speaking in a general sense, I can only report that the tree is now again covered with many thousands of the unprofitable and unwelcome catkins. If you saw the tree I think that you would, from its foliage, judge it to be in excellent health. I need hardly trouble you by adding that I shall be grateful for any practical suggestions of a remedy. I enclose cuttings. *Blackheath.* [It is not unusual for the Mulberry and other bi-sexual flowering plants to produce, under certain climatal conditions which are not under our control, male flowers only. You seem to have done the right things by root-pruning and manuring the tree. *Ed.*]

PICKING SEED-PODS FROM RHODODENDRONS.—Although the picking of seed-pods from Rhododendrons is a work of time where many are grown, yet nothing, perhaps, pays better for the doing than relieving the plants of the seed-vessels, for if these are left on and no heavy rains happen to fall the plants make but little growth, and are, therefore, unable to form many flower-buds. It is necessary to be careful in removing the bunches of seed-pods, which snap off readily if taken whilst they are still young. Rhododendrons are assisted very much to set their flower-buds by good waterings, the soil being mulched after the first of these, to keep the roots moist by preventing too rapid evaporation. *J. S.*

PRIMULA RETICULATA.—It is always a matter of regret when the name of new or rare plants is wrongly applied, and spurious plants circulated, as it often takes years to undo the errors of a season. This has been so with a variety of *Polemonium coeruleum*, which still does duty in nurseries for *P. Richardsoni*, which it does not resemble. We are now in the same danger with regard to *Primula reticulata*, for which forms of *P. sikkimensis* are in common circulation—one firm describes it "as more amenable to cultivation than *P. sikkimensis*, and somewhat taller growing." This is not so. I distributed twenty plants of *P. reticulata* last summer amongst skilful gardeners, and I am afraid only four or five remain alive, and those weakly. The true *reticulata* is much slenderer and smaller in all its parts than *sikkimensis*; the flowers, besides being much smaller, are fewer, and more nearly white: but an unfailing distinction from *sikkimensis* is found in the leaf, which on a long slender petiole always has a distinctly cordate base, while *sikkimensis* never has this form. *C. Wolley Dod, Edge Hall, Malpas.*

THE STRAWBERRY PROMISE.—Whilst complaints are rife as to the considerable number of blind plants seen this year—due, without doubt, to last year's drought—yet is the bloom fine and abundant on those plants which are not blind. The recent general heavy rains have come at a most favourable time for the plants, and have helped to set the bloom admirably. Where mulching has not been done it is now being carried out rapidly, but those who did this work earlier have the satisfaction of seeing the litter well washed. If the drippy weather should continue for another week, a really good crop of fruit, because a fine sample, will be ensured. Generally, frosts have done no harm to the bloom, so that the earliest flowers have set well. There does not promise to be any great abundance of outdoor ripe fruits before the end of the month, but much depends upon the situation. *A. D.*

DISEASE OF ORNITHOGALUM.—The note on *Heterosporium Ornithogali* on pp. 658-9, May 26, is very interesting. *Ornithogalum umbellatum* is one of the most abundant plants in my neighbourhood, and almost every clump in the district is attacked by a fungus apparently identical with your correspondent's.

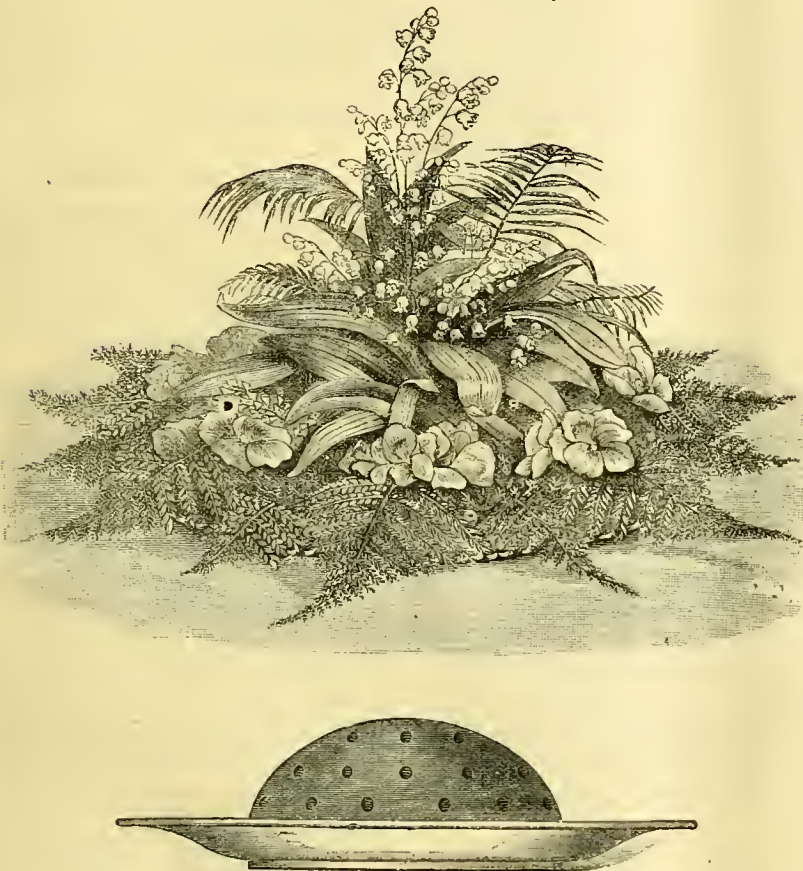


FIG. 107.—TUBULAR FLOWER HOLDER. (SEE P. 780.)

due to shallow planting, and of the bulbs becoming slightly buried, in the lapse of time, when bulbs are not replanted every two or three years, seems to point to cold having something to do with the failure to bloom properly. The influence of cold in this way may be obviated by deep planting—7 to 9 inches, according to size of bulb; or by piling coal ashes, cocoa-nut fibre, or leaf-soil, over the sites of the bulbs to the depth of 6 inches. As a rule, the planting of bulbs of all kinds is made at too shallow a depth. I know of late Tulips in flower-beds, which were planted at such a depth, that digging with the spade could be carried out in the autumn without disturbing the bulbs. These always flowered well in May, and were but little later than those planted much less deep. Of course, shallow planting, when it is not done from ignorance of results, is carried out with the idea of getting early bloom from the bulbs, and were our winters of a constant character, it would always be followed by the looked-for results; but the variable weather experienced, with sometimes summer warmth in mid-winter, has an exciting effect on bulbs at 3 or 4 inches beneath

the soil manured, but the result this year is precisely the same. *D. J. Yeo.*

THE FERTILISATION OF SCARLET RUNNERS AND FRENCH BEANS.—I may inform "*A. D.*" (see p. 755) that I have been most successful, and made many changes both in the Scarlet Runner and also in the French Bean by fertilisation, and have had many coloured flowers from the Scarlet Runner crossed with the French Bean, *Ne Plus Ultra*. The flowers on some were scarlet and also various, like the Scarlet Runner, and the plants only 18 inches high; others had white, and creamy-white, and scarlet flowers. The bean-pods were like those of the Scarlet Runner, and also the leaves; the seeds were smaller than those of the Scarlet Runner, but much larger than the French Beans, and darker in colour than either of the parents—midway between the two. I also fertilised *Ne Plus Ultra* with Canadian Wonder French Bean, and I got a fine improvement—the plants 3 inches higher than *Ne Plus Ultra*, but much shorter than Canadian Wonder; the pod is longer and wider, and of a beautiful green, besides

Moreover, clumps of *O. nutans*, growing in the midst of its infected relatives, are perfectly free from disease up to the present date. The plants which are attacked seem prostrated beyond recall; they have a carbonised, baked appearance. When touched clouds of spores fall to the ground, and blacken it perceptibly. *W. Cross, Lytham.*

GLADIOLUS THE BRIDE.—Everyone having a garden or greenhouse to furnish with flowering plants or rooms to supply with cut flowers should grow this excellent free-flowering Gladiolus. Just now (the middle of June) there is a grand display of it in the conservatory attached to Clovelly Court, the charming residence of the Misses Hamlyn Fane, on the North Devon coast. Three or four bulbs were planted last March in a 6-inch pot, of which about 200 were so filled, using a mixture of three parts of the rich Devon loam of which the kitchen garden consists, and of short well-decomposed manure and sweet leaf-mould. The pots were then placed in an orchard-house and brought gradually on, transferring the plants to the pretty conservatory as soon as they came into flower. There are also several rows of the same Gladiolus in the kitchen garden, which, in a month or five weeks, will also render a good account of themselves. The village of Clovelly, I may say, is situate on the face of a steep and lofty cliff in a bay 11 miles from Bideford, 20 miles north-east from Ilfracombe, and 15 miles from Lundy Island. *H. W. Ward.*

COLOURED POTATOS.—On reading "A. D.'s" note on Rufus Potato, in your issue for June 9, p. 728, I find that he makes mention of the Vicar of Laleham as being perhaps the most popular of all coloured varieties. In support of "A. D.'s" statement I would remark that I have grown Vicar of Laleham for eight years, and I have, moreover, twenty different varieties of Potatoes, and amongst them six coloured well known varieties; but I always considered Vicar of Laleham by far the best of the late ones, either wholly or partly coloured. Seeing that the parents of Rufus are both good growers and of superior quality, and which are extensively grown in this part of Lincolnshire, should like to know where Rufus can be obtained at the proper season. I may remark that I am making a trial of a new Potato called The Daniel; it is a cross between the well-known varieties Magnum Bonum and White Elephant, and to-day (June 12) the plants are in flower, and look like turning out well. They have splendid tops, and every set came up well. *F. Grant, Epworth.*

THE LATE MR. THOMAS JACKSON.—A very wide circle of Chrysanthemum growers will have learnt from your pages of last week with exceeding sorrow of the death of Mr. T. Jackson, of Kingston. That esteemed nurseryman had been for many years the secretary of the Kingston Chrysanthemum Society—really the premier Chrysanthemum Society of the South, until the National Society sprang into existence and carried off the honours. But all who from year to year at Kingston were brought into contact with Mr. Jackson readily acknowledge his quiet unassuming disposition, his affable demeanour, his admirable capacity to arrange his shows and perform his work without fussiness and in the most admirable way. He seemed to be always of a peculiarly retiring disposition—perhaps to some extent from innate physical disability. It would be, indeed, a graceful act on the part of the committee of the Kingston show were they to establish a special Jackson Memorial Medal or Cup class for Chrysanthemums as a pleasant reminder of one to whom the show at Kingston and the growers of Chrysanthemums owe so much. It is but right mention should here be made of the very efficient help always given to the late secretary by his excellent foreman—Mr. Puttick. *A. D.*

REPOTTING LILIES.—I can assure Mr. Ward I had no intention whatever of making extreme statements, much less of departing from well established facts, nor, indeed, have I done so; and while Mr. Ward accuses me of so doing, he fails to prove it by the argument he adduces at p. 754. I am well aware that many gardeners find it extremely difficult to attempt a departure from the stereotyped laws of plant culture as practised years ago; yet we have only to look into Covent Garden Market to see the great advance which departures from the old ways have brought about in plant growing and witness the success attendant thereon. When I read Mr. Ward's advocacy to shake the old soil from the

roots of Lilies in the first week in May, I considered his advice sufficiently random to require a challenge. Your correspondent now desires to substitute the word "loose" for "old," as originally supplied, but this will not meet the case; seeing that Mr. Ward distinctly recommends immediately afterwards that the soil must be "worked well among the roots." From this statement it is clear that Mr. Ward either anticipated giving his plants a good shift, or shaking off a good deal of the old soil, to allow of the new being "worked well among the roots." Nothing having been said at p. 558 about potting into larger pots, I could only draw one natural conclusion—viz., that the plants had to be returned into similar sized pots again, and to do this a considerable portion of the old soil must necessarily be removed. Moreover, these conclusions are supported by Mr. Ward's statement at p. 754, where he gives his *modus operandi* of shifting into larger pots. Your correspondent suggests that "I would prefer potting them when they have made a few inches of growth to the time when the flower-buds are first visible;" but with neither method will I have anything to do. The supplying of bulbous plants such as these with suitable food should be done at the right moment, and I contend that all bulbs which put forth new basal roots annually should be potted immediately preceding their issuing from the bulbs, which invariably in Lilliums follows closely upon the maturation and decay of the current flowering stems. Beyond this, there is this decided advantage to be gained by the autumn potting of Lilies, and which cannot be performed in May with the new flower-stem present. All who grow Lilies in pots to any extent are aware of the great mass of stem-roots which are formed upon the flower-stem. In many Lilies, particularly auratum varieties, these roots come in sufficient number to exhaust the soil down to the very apex of the bulbs; the removal of this soil, and supplying fresh in its stead, is a matter of annual importance, and can only be done thoroughly by the removal of the old stem, either by cutting it off close to the bulb, or carefully removing from the bulb itself, which may be readily done when the stems are decayed, a slight twist being all that is necessary. This new supply of food must be of great help to the stem-roots, as they issue forth in such numbers. Mr. Ward, however, appears content to forego this advantage, and prefers that the new stem-roots shall feed on the exhausted soil and old roots of the last season rather than give his plants proper food at the right moment: and what I consider the right moment is the time when potting may be performed without interference with coming roots, for have we not to depend upon these for the best results?—and can this be expected if the plants, roots and all—are tampered with in full growth? Lilies which require shading after repotting have been unnecessarily disturbed at the root, hence checked, therefore suffer in a corresponding degree. *E. Jenkins.* [Notwithstanding our correspondent's censure of Mr. Ward's methods, his Lilies are admirable specimens of cultivation. *Ed.*]

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

TUESDAY, June 12.—Present: Professor Church, F.R.S., in the chair; and Messrs. A. D. Michael, G. Murray, J. O'Brien, H. N. Ridley, and Professor Scott.

Mr. Linden, Brussels, sent for exhibition a plant of *Dendrobium macphyllum* var. *bleichroderianum*, from New Guinea. A Botanical Certificate was proposed by Mr. O'Brien and seconded by Mr. H. N. Ridley.

Mr. J. Douglas exhibited a plant of an *Oncidium*, introduced with *Odontoglossum triumphans*. It was referred to Mr. Ridley for name.

Mr. Wolley Dod sent young leaves of a Weeping Ash which had turned black at the base of the petiole, and fallen off. He thought it might be due to drought, and the matter was referred to Mr. Murray and Mr. Michael. Mr. Wolley Dod also sent an abnormal flower of *Campanula Allioni* (Villars), with a double corolla, a sport of a typical plant.

The Hon. and Rev. J. T. Boscawen sent two Primroses with phylloidy of the calyx.

Mr. Ridley exhibited two flowers of *Catasetum macrocarpum*, from a plant obtained by him in Pernambuco, and flowered by Mr. Moore, of Glasnevin Gardens.

Mr. Veitch exhibited the flowers of a series of *Rhododendrons*, showing the effect of crossing with *R. Teysmanni*.

Lily Disease.—Mr. Murray, to whom specimens of diseased Lily stems were referred at the last meeting, reported that from fresh specimens sent him by Mr. Lewis Castle he had been able to determine the disease, which is caused by *Ovularia elliptica*, and an account of it by Rev. M. J. Berkeley may be found in the *Gardeners' Chronicle*, 1881, p. 340.

Gentiana acaulis Varieties.—Dr. Scott reported on the abnormal flowers of *Gentiana acaulis*, which had five spongy outgrowths on the corolla, corresponding in position to the petals. The microscopic structure showed that they were due to excessive superficial growth of the external tissues, especially the epidermis. The outgrowths showed large irregular intercellular spaces. At many places they had coalesced so as to form closed cavities lined by epidermis. When vascular bundles were present, the position of xylem and phloem was variable. The upper end of each outgrowth was flattened, and here the bundles, though generally concentric, showed an approximation of the xylem towards the upper surface. There was no evidence that these abnormalities were caused by insects, but if so, the regularity of the outgrowth shows that their attack must have taken place at an early age.

ROYAL BOTANIC.

JUNE 20.—The great summer show of the Royal Botanic Society was held on Wednesday last under most depressing circumstances, rain falling all day long, but notwithstanding this there was a fairly good attendance of visitors, and the tent was uncomfortably crowded. Fine specimen plants were wanting in the display, and the miscellaneous exhibits were a very important part of the show. Fruit was remarkably fine throughout.

In the competing classes Mr. H. James, Castle Nursery, Norwood, was the most generally successful competitor, securing 1st in several classes, among others for six fine-foliage plants, for six stove and greenhouse plants in flower; and again in the leading class for twelve ditto, and for *Sarracenia*, &c., having several very creditable specimens, especially of foliage plants. *Cycas revoluta*, *Dracena Shepherdii* and *Latania borbonica*, shown in the class for six, were specially so. *Anthurium Scherzerianum*, *Dracophyllum gracile*, *Stephanotis floribunda*, *Clerodendron Balfourianum*, and a few *Ericas* were the best flowering examples.

Mr. J. Offer, gr. to J. Warren, Esq., Handcross Park, Crawley, was another very successful exhibitor, carrying off leading honours for six stove and greenhouse plants in flower, for six large specimen exotic Ferns, and for six fine-foliage plants (amateurs). He, however, was placed 2nd to Mr. R. Butler, gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, N., for six specimen Palms, which were, however, excellent from both. Mr. Butler was himself 2nd to Mr. Offer for Ferns and for fine-foliage plants. Of the plants shown by Mr. Offer the following may be noted:—*Clerodendron Balfourianum* (very good), and *Erica ventricosa coccinea* minor, *Croton Williamsi*, *C. Weismanni*, both very fine plants; *Phoenix reclinata*, *Latania borbonica*, *Thrinax elegans*, *Chamaerops humilis*, and *Dasyllirion acrotrichum*. Of Ferns, *Thamnopteris nidus-avis* was a good plant, and so also were *Cyathea dealbata*, *Todea africana*, and *Alsophila australis*. Mr. Butler had, of Palms, *Areca Baueri*, *Chamaerops excelsa*, *C. gracilis*, *Corypha australis*; and he had also *Pandanus Veitchii*, *Cycas revoluta*, and *Adiantum formosum*.

Of Orchids in competition there were some first-class groups. Mr. F. Hill, gr. to H. Little, Esq., The Barons, Twickenham; Mr. Jas. Cypher, nurseryman, Cheltenham; and Mr. H. James, divided the honours here.

Mr. Cypher showed a grand lot of plants in the class for twelve. *Epidendrum vitellinum majus*, *Dendrobium Falconeri*, and very large and freely-flowered pieces of *Cattleya Mossiae*, *C. Sanderiana*, &c., were the most conspicuous.

Mr. Hill, in the corresponding class for amateurs, had *Vanda teres*, *Cattleya Sanderiana*, *C. Mossiae*, *C. intricata*, and *Anguloa Clowesii*—all represented by fine pieces. For a group of *Dendrobiums* and *Cypripediums* the same exhibitors maintained the lead in their respective sections—*D. moschatum*, *D. suavisimum*, *D. Bensoniae*, *D. B. alba*, *D. Parishii*, *D. thyrsoform*, being well represented; and of *Cypripediums*, *C. bellatulum*, *C. Stonei*, *C.*

bidorum, and *C. Dominii*. In Mr. Little's exhibit a fine piece of *D. thyrsoiflorum*, with large flowers, was conspicuous; *D. Dalhousieanum*, *Cypripedium Dayanum*, *C. niveum*, *C. ciliolatum*, and *C. Lawrenceanum*, were to be seen.

Pelargoniums fell below the old Park standard, and they were limited in quantity also. Mr. Turner states that the June plants are very late this year, and this fact may have had something to do with their scarceness. In the nurseryman's class Mr. C. Turner, Royal Nursery, Slough, was the only exhibitor of six specimens, having nice medium-sized specimens of Maid of Honour, Despot, Prince Leopold, Volonté Nationale, Prince of Prussia, and Virgin Queen.

In the amateur's class for six plants there was a sharp tussle between Mr. F. J. Hill, gr. to H. Little, Esq., The Barons, Twickenham, and Mr. D. Phillips, gr. to R. W. Mann, Esq., Langley Broom, Slough, quality of flower giving the former the benefit, he being 1st with Hermit, Fortitude, Ruth Little, Duchess de Morny, Thebais, and Flirt. Mr. Phillips had in the main varieties of the decorative type, though his plants were taking in appearance and even in size; his varieties were—Lady Isabel, Gold Mine, Kingston Beauty, Amethyst, Triomphe de St. Maude, and Mauve Queen.

Mr. Turner was the only exhibitor of fancy Pelargoniums, being placed 1st, with Ellen Beck, extra fine; Cloth of Silver, East Lynne, Delicatum, The Shah, and Lady Carrington.

In the amateurs' class there was only Mr. Phillips' half-dozen—a creditable lot—the 1st prize being awarded to him for Delicatum, East Lynne, The Shah, Nelly Fordham, Mrs. Porter, and Lady Carrington.

The specimens of zonal Pelargoniums were a good feature, there being five competing collections of six plants. Mr. Hill was 1st, with freely grown and well flowered plants of Sophia Birken, salmon; Mrs. Gordon, scarlet; Jules Simon, and Aglaia, doubles; and two others. 2nd, Mr. D. Phillips, whose best plants were Octavia, Mrs. Gordon, Ceres, and P. Neill Fraser.

Tuberous rooted Begonias were seven entries for twelve plants, but one only was staged, that from Messrs. Henry Cannell & Sons, nurserymen, Swanley, representing the fine dwarf compact and free flowering strain produced there. They were admirably grown and finely bloomed, the doubles especially being a great feature. The single varieties consisted of Fairy, Mrs. Murphy, Countess of Bessborough, Thomas Moore, and Mrs. Edwards; the doubles, Felix Crousse, Madame Arnould, Mr. F. Wilson, Louis d'Or, M. Davivier, and Gabrielle Legros. By the side of this collection was a dozen of new varieties of high quality, to which Certificates were awarded to be presently detailed.

Variogated-leaved Plants.—These were confined to stove plants mainly, Mr. C. Offer, gr. to J. Warren, Esq., Wandcross Park, Crawley, being 1st with well grown and coloured specimens of *Alocasia macrorrhiza variegata*, *Croton Mortii*, *C. roseo-pictus*, and *C. Queen Victoria*; *Alocasia metallica* and *Pandanus Veitchii*. 2nd, Mr. H. Eason, gr. to B. Noaker, Esq., Ilope Cottage, Higgate, with *Acalypha musaica*, *Dieffenbachia Baumannii*, *Pandanus Veitchii*, and *Croton Queen Victoria*, being his best specimens.

Miscellaneous.—In this section were several noteworthy exhibits, that of Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, being of special interest. They showed a group consisting of a number of new and rare plants, securing several Certificates, under which heading they will be found mentioned. There were numerous hybrid *Rhododendrons* in full flower, and a quantity of ornamental Japanese Maples; other plants included *Amorophallus Rivieri*, *Daphniphyllum glaucescens*, *Epidendrum O'Brieni* X; (see p. 770, of this issue); *Begonia Arthur Malet*, *Rosa microphylla fol. var.*, *Weigela rosea Losymanseii aurea*, a pretty golden form; a golden *Ligustrum vulgare*, *Eulalia japonica gracillima*, *Acer colchicum rubrum*, the young growth dark crimson-red; *Arundo donax variegata*, &c. A Silver Medal was awarded. Messrs. Veitch showed also a collection of cut flowers, receiving a Large Bronze Medal; *Aquilegia*, *Papaver orientale*, *Irises* (English and Spanish), *I. Susiana*, *Pyrethrums*, and *Anemones* were the chief constituents.

From Mr. T. S. Ware, Tottenham, came a group of varieties of *Papaver orientale*, *Campanula glomerata*, *Cypripedium spectabile*, Iceland Poppies, *Pyrethrums*, *Centaurea montana* vars., and numerous others of a like character, making a bright display, and for which a Large Bronze Medal was awarded.

Messrs. P. Barr & Son, Covent Garden, showed a

collection of a somewhat similar nature, in which *Tradescantia virginica*, *Paeonia albiflora* vars., *Hemerocallis Dumortieri*, *H. flava*, and *Irises* were conspicuous. (Bronze Medal.)

Messrs. Collins, Bros., & Gabriel, Waterloo Bridge Road, also showed *Pyrethrums*, *Paeonies*, &c., with *Ixias* and *Sparaxis*.

Mr. R. Scott, gr. to Miss Foster, The Holme Gardens, Regent's Park, N., showed an extensive group of plants, tastefully arranged, and in which fine specimen *Fuchsias* formed a feature.

A Large Silver Medal was awarded to Mr. B. S. Williams, Upper Holloway, for an extensive and comprehensive group of numerous small Orchids and *Sarracenia*s, arranged with *Adiantum*, &c.; and to Messrs. J. Laing & Sons, Forest Hill, for a good group of tuberous *Begonias*, backed by fine *Caladiums*, *Palms*, and *Dracenas*, with a few *Gloxinias*.

A Large Bronze Medal was given for a group of vigorous *Petunias* and numerous very pretty ornamental grasses from Messrs. J. Carter & Co., High Holborn, W.C.

A group of Orchids from Messrs. H. Low & Son, Clapton, received a Silver Medal. The best plants were *Dendrobium Bensonianum*, *D. B. zeylanicum*, *Cattleya Mendelii* in variety, *C. gigas*, *Phalaenopsis grandiflora*, *Cypripedium Lawrenceanum*, and *C. bellatulum* (see also Certificates).

A Small Silver Medal was awarded to both Mr. Hill and to Mr. G. H. Elliott, gr. to W. F. Darnell, Esq., Stamford Hill, each of whom had a pretty collection of *Cattleyas*. Messrs. F. Sander & Co., St. Albans, contributed a small number of good Orchids, of which *Phalaenopsis Kimballiana*, *Cypripodium Andersonianum*, *Cattleya Mendelii*, *Lycaste Speneri* (pure white), and *Odontoglossum Coradinei* splendens were prominent examples.

A group of *Anthuriums* from Messrs. J. Peed & Sons, Russell Park Nurseries, S.E., were very bright, and a Large Bronze Medal was given.

Messrs. C. Lee & Son, Isleworth, had *Statice floribunda*, and Mr. Balchin, Brighton, *Leschenaultia bicolor*, a fine old plant which he grows to perfection.

Messrs. Paul & Son, Cheshunt, sent a few rock plants, among which were *Dianthus alpinus*, *Ranunculus pyrenaica alba*, *Phyteuma comosum*, *Mimulus radicans*, and *Rosa speciosissima pimpinellifolia*, about 3 inches in height, with pure white flowers.

CUT FLOWERS.

Roses.—These, in combination with the fine show of fruit, made an admirable display in the annexe.

In the amateurs' class for twelve varieties of *Roses*, three trusses of each, Mr. P. Perry, gr. to Mrs. Rowlett, The Woodlands, Cheshunt, was 1st.

In the nurserymen's class for twenty-four varieties, three trusses of each, Mr. C. Turner was 1st, with some remarkably good flowers for the season of Annie Laxton, La France, Boileau, Mdle. Eugene Verdier, Rubens, Dr. Andry, Duchesse de Valombrosa, Captain Christy, Devoniansis, Lady Mary Fitzwilliam, Celine Forestier, Marguerite Brasseur, Marguerite de St. Amand, Gloire de Dijon, Prince Camille de Rohan, Sir Garnet Wolseley, and Souvenir d'un Ami. 2nd, Messrs. Paul & Son, Old Nurseries, Cheshunt.

In the class for twelve blooms, one variety, Mr. Robins, gr. to Colonel Lee, Hartwell House, Aylesbury, was 1st, with some superbly-coloured flowers of *Maréchal Niel*.

In that for twelve trusses of any colour, Messrs. Paul & Son were 1st with Lady Mary Fitzwilliam.

Then came a class for six fine-scented *Roses*, three blooms of each—a useful one, as showing the most fragrant varieties. Messrs. Paul & Son were again 1st with Lady Mary Fitzwilliam, &c., Maurice Bernardin, La France, American Beauty, *Violette Brouyere*, and *Senateur Vaisse*.

Hardy Herbaceous Flowers.—These made a great feature, being arranged in large bunches, and it was a close struggle for supremacy between Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, and Messrs. Paul & Son, the prizes being awarded in the order named. Mr. Ware had *Hemerocallis flava*, two fine varieties of *Papaver orientale*, and the orange and yellow form of *P. nudicaule*; some fine bunches of *Lilies*, double *Pyrethrums*, *Gladioli Colvillei alba*, *Cypripedium spectabile*, *Campanula glomerata dahurica*, *Dictamnus fraxinella*, *Paeonies*, *Delphiniums*, &c.

Stove and Greenhouse Cut Flowers.—There was but one collection of twenty-four trusses, a very good one indeed, which came from Mr. H. James, and included *Anthurium ferriense*, *A. Scherzerianum* in two fine varieties: *Bougainvillea glabra*, *Brassia verrucosa*, a fine scarlet *Cactus*, *Ixora Cypheri*,

Cattleya Skinneri, *Calanthe Dominiana*, *Stephanotis floribunda*, *Epacris miniata splendida*, &c.

Trusses of Orchids.—Two fine stands of these were shown by Mr. J. Douglas, gr. to F. Whitbourn, Esq., Great Gearies, Ilford, and Mr. J. Cypher, Exotic Nurseries, Cheltenham. The effect of Mr. Douglas' undoubtedly fine flowers was marred by being set up in ordinary flower-pots, which materially detracted from their effectiveness. Mr. Cypher had put his up in elegant glasses, which helped their attractiveness.

Collections of Iris.—Messrs. Barr & Son, Kiog Street, Covent Garden, were placed 1st, with a fine lot of bunches, fresh, bright, and effective, mainly of the 1. germanica type; Mr. T. S. Ware was placed 2nd, with a rather more representative collection, but many of the bunches much soiled by the weather, and deficient in good blooms; 3rd, Messrs. Paul & Son.

Pelargoniums.—Stands of twenty-four bunches of show varieties made a good display, Mr. C. Turner leading the way with a very fine lot, chief among them being Maid of Honour, Marion, Magnate, Mandarin, Duke of Norfolk, Pluto, Corinna, Spotted Beauty, Vivid, Outlaw, Sister of Mercy, The Czar and Maggie.

Zonal Pelargoniums, in twenty-four bunches, were a good feature also, Mr. D. Phillips coming 1st, with a very fine lot.

FRUIT.

This was of a uniformly high quality, and the competition well sustained. Mr. J. Roberts, Gunnersbury House, Acton, was 1st for a collection of dishes of fruit, in competition for the prizes offered by the Fruiters' Company, and made a most creditable show in all instances. Grapes, Black Hamburg and Foster's Seedling, were remarkably good in finish and form, and large in both berry and bunch. Brown Turkey Fig, Lord Napier Nectarine, Keen's Seedling Strawberry, Smooth Cayenne Pine, and several Melons, were also of high quality. He showed eighteen dishes in all. Mr. Edmonds, Bestwood Gardens, Arnold, Notts, was a good 2nd, Peaches and Nectarines being very fine, but variety was wanting here. Pines and Melons were good, and he also sent the Cape Gooseberry, which attracted a deal of notice. This exhibitor was 1st for three bunches of Black Hamburg Grapes, showing bunches satisfactory in every way; and with the same variety he led for the best basket of black Grapes, showing equally well.

For the best three bunches of black Grapes (not Hamburgs) Mr. J. Roberts led with grand bunches of Madresfield Court, with very large berries and good in form. Mr. Cakebread, Rayners, Bucks, was 2nd, showing the same variety, and this exhibitor took 1st for a capital Queen Pine. Mr. J. Coomber, The Hendre Gardens, Monmouth, coming in as a close 2nd—Mr. J. Muir, gr. to Hon. Talbot, Margam, Glamorganshire, taking the chief position in the class for any other Pine, showing a good example of Smooth Cayenne.

White Grapes were also very satisfactory. Mr. Chuck, gr. to P. Thelluson, Esq., Broadsworth, Doncaster, showed very good Duke of Buccleuch fairly free from spot, and took leading honours in the class for three bunches of white Grapes, the 2nd place being accorded to Mr. J. Roberts for excellent and large bunches, of fine shape, of Foster's Seedling. Muscats generally were not ripe, Mr. G. Grimmett, gr. to A. Richards, Esq., Blenheim House, Hounslow, having the best, which were fairly well ripened; and he took 1st in this class—the best basket of white Grapes being sent from Mr. R. Griadrod, gr. to Mrs. Greathead, Whitfield, Herts, who also showed good Muscats.

It is rather difficult to see why prizes are offered for "a basket of Grapes," and it would be of more practical value if the same prizes were devoted to baskets of Grapes as packed for transit, or for market.

Melons were numerous, the chief prize going to Mr. T. Hare, Grantham, with medium sized fruit.

Mr. Blair, gr. to the Duke of Sutherland, Trentham, Stoke-on-Trent, was 1st with excellently grown *Violette Blative* and Lord Napier, and he also had the best Cherries with Black Tartar and Bigarreau Napoleon.

For Peaches and Strawberries Mr. W. H. Divers, Ketton Hall Gardens, led with British Queen and Sir C. Napier Strawberries, and Royal Albert and Royal George Peaches; Mr. J. Worthing, gr. to A. Moss, Esq., Chadwell Hall, was 2nd for Strawberries, very fine fruits of Sir Charles Napier.

From Messrs. Rivers & Sons, Sawbridgeworth, Herts, came a collection of Peaches and Nectarines fruiting in pots, and *Citrus vulgaris* also in fruit. Fruits

of Nectarine Lord Napier, Peach Crimson Galande, and Plum The Czar, were also shown. (Bronze Medal.)

BOTANICAL CERTIFICATES.

Phalaenopsis speciosa var. *Imperatrix* (Major-Gen. E. S. Berkeley), differing from the type by its uniform darker colouring.

Ardisia mamillata (Veitch), fully described in our issue for December 31, 1887, p. 809, with illustration.

Gymnogramma Pearcei robusta (Veitch), finely divided fronds, pale bright green in colour.

Nepenthes Curtisii (Veitch), see *Gardeners' Chronicle*, December 3, 1887, p. 689.

Elaeagnus pungens maculatus (Veitch), golden variegation in the centre of the leaf.

Senecio elaeagnifolia (Veitch), leaves ovate obtuse, entire, dark green, with a buff under-surface and narrow border of the same.

Aralia Maximowiczii (Veitch), leaves digitate palmate, five to seven, dark green; petioles reddish-brown; 4 feet high.

Sambucus racemosa serratifolia (Veitch), leaves with a deeply jagged margin.

Erigeron aurantiacum (Ware), disc and rays orange; height about a foot.

Cattleya Mendelii, var. II. Little (Hill), sepals and petals suffused rose, more intense at the tip of the petals; lip very deeply coloured median lobe, rest white, throat yellow lined with purple-rose.

Cattleya Mossiae claptoniensis (Low), rose-purple, median lobe of lip large and very deep in colour, which runs down the throat.

Cattleya Mossiae Fuchii (Low), petals suffused rosy-purple, tips more intense, lip dark, expanded; rest white.

Cypripedium bellatulum (Low, Cypher, Laing, Williams), see *Gardeners' Chronicle*, last week.

Sarracenia Williamsi × (Williams), green veined with red-brown, medium height, wide tube, and large lid.

Leea amabilis splendens (Williams), leaves pinnate, the divisions oblong, serrate, purple-bronze, with a white midrib.

Thuopsis borealis lutea (Sloccock), the young growths golden; habit compact.

Odontoglossum cordatum splendens (Sander), sepals deeply coloured; lip white, spotted brown.

Odontoglossum coradinei hemileucum (Sander), large pale spots, and the whole flower large.

Phalaenopsis Kimballiana (Sander), pale yellow, with brown transverse bars, median lobe of lip and column pale rosy-violet; the lateral lobes of the lip white, the space between yellow (first time of flowering in Great Britain).

Caladium auriflamma (Laing), red, with green margin.

Caladium La Lorraine (Laing), red self colour.

Caladium Duchesse de Montemart (Laing), leaves yellowish-white.

Anthurium Laingii (Laing), spathe white, small and narrow, spadix rose.

Ramondia pyrenaica alba (Paul & Son), see Royal Horticultural Society's report last week.

Dianthus plumarius annulatus (Paul & Son), white, eye reddish-brown, margin lacerated.

Cattleya Mossiae gigantea (Cypher), very large, pale rose; the median lobe and the lip paler, very large and expanded, spotted with dark rose towards the throat, which is yellow.

FLORICULTURAL CERTIFICATES.

Pyrethrum Jubilee (Balchin & Sons), ruby-crimson, single.

Viola Snowflake (Chambers), very free, and pure white.

Epidendrum O'Brienianum × (Veitch), see p. 770.

Begonia Arthur Mallet (Veitch), leaves a sort of rosy wine-colour; promising character.

Rhododendron (greenhouse) *Aurora* (Veitch).

Rhododendron (greenhouse) *Ophelia* (Veitch).

Begonia Camellia (Laing).

Begonia Claribel (Laing).

Begonia Duchess of Teck (Laing), deep yellow, double.

Begonia Lord Loughborough (Laing).

Begonia Lady Idlesleigh (Laing).

Begonia Monarch (Laing).

Begonia Viscountess Cranbrook (Laing).

Gloxinia Meteor (Laing), pinkish-purple.

Gloxinia Nalis (Laing), spotted flowers.

Pyrethrum (double) *Leonard Kelway* (Kelway).

Pyrethrum (double) *Queen Sophia* (Kelway), a very fine delicate blush.

Pyrethrum, single, Mr. Santley (Kelway).

Pyrethrum, single, Duke of Connaught (Kelway), a ruby-colour, large size, and fine form.

Pæony Lady Gwendoline Cecil (Kelway), a pale variety.

Pæony Millais (Kelway), maroon.

Begonia, single, J. E. Midson (Cannell).

Begonia, single, Prince of Orange (Cannell).

Begonia, double, Mrs. Midson (Cannell), white.

Begonia, single, Mrs. B. Wynne (Cannell), rose, with fine shell-like petals.

Begonia, single, Sir J. Pendel (Cannell), crimson.

EDINBURGH BOTANICAL.

JUNE 14.—The Society met this evening in the class-room, Royal Botanic Garden, Dr. Craig, President, in the chair.

The following communications were read:—

I. Obituary notice of Professor De Bary. By Professor Bayley-Balfour.

II. "Dimorphism in New Zealand Veronicas." By Robert Lindsay, Curator of Royal Botanic Garden.

III. "On the Leaves of Climbing Plants." By W. E. Pothergill, M.A.

IV. "On Similar Modifications in the Characters of Different Plants." By P. Sewell.

V. "On Temperature and Vegetation at the Royal Botanic Garden, Edinburgh, during May." By R. Lindsay, Curator.

The month of May was, in general, dry and cold, with easterly wind. The thermometer was six times at or below the freezing point during the month, indicating collectively 5° of frost as against 12° during last May. The lowest readings were—on the 3rd, 32°; 9th, 31°; 10th, 32°; 11th, 29°; 12th, 31°; 29th, 32°. The lowest day-temperature was 54° on the 4th of the month, and the highest 70° on the 17th. The foliage of most of the ordinary forest and ornamental trees and shrubs came rapidly forward, and notwithstanding the backward kind of weather experienced, fine luxuriant leaves have been developed. Those which have already flowered, such as Horse Chestnut, Lilac, Azaleas of sorts, Magnolias, and the various species of *Pyrus* and *Prunus*, have been considerably above the average in this respect. The profuse manner in which the many varieties of Holly have flowered is very remarkable. Herbaceous plants are generally late in flowering, but promise to be fine later on. The rock-garden was very attractive during the month from the large number of plants in blossom; 367 species and varieties came into flower during May, while a large proportion of those which began to flower during the previous month were still in good condition. Among the best of those which opened in May were:—

Andromeda fastigiata, *Androsace Hookeriana*, *A. villosa*, *Anemone alpina*, *A. a. sulphurea*, *A. narcissiflora*, *A. polyanthes*, *Anthemis aizoon*, *Anthyllis erioacea*, *Arnebia echioides*, *Atragene alpina*, *Bryanthus erectus*, *Corbularia tenuifolia*, *Corydalis nobilis*, *Cytisus Arduini*, *C. decumbens*, *Daphne cneorum*, *D. collinum*, *Dianthus glacialis*, *Dracocephalus grandiflorum*, *Enkianthus himalaicus*, *Erinus alpinus*, *Erythronium americanum*, *Gentiana verna*, *Iris cengiali*, *Pentstemon Menziesii*, *Primula farinosa*, *P. involucreta*, *P. longiflora*, *P. Olgae*, *P. Reidi*, *P. sikkimensis*, *Ranunculus amplexicaulis*, *R. anemonoides*, *R. insignis*, *R. pyreneus*, *Rhododendron lepidotum*, *Silene acaulis*, *S. pusillus*, *Trifolium uniflorum*.

VI. "On Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, for May, 1888." By E. Bullen, Curator.

"The thermometer has been at or very near the freezing point six times during the month. The night temperature for the remainder of the month was above the average. From the 1st to the 18th the day temperature (in the shade) was below the average. From the 18th to the 26th (both inclusive) the day temperature was high, with bright sunny days and continuous dry weather, 69° being the maximum and 63° the minimum for the nine days. The last three days were showery. The rainfall was light until the evening of the 18th, when we experienced a severe thunderstorm, which was repeated with still greater severity on the afternoon of the 19th. Such a storm of thunder, lightning and rain, accompanied by hailstones seldom, if ever, been experienced in this part of the country. The rainfall within one hour amounted to three quarters of an inch, which Professor Grant states exceeded any rainfall in the same space of time recorded in the annals of the Glasgow Observatory with the exception of the memorable rainfall of August 31, 1887. Vegetation has developed rapidly during the month, making considerable amends for an otherwise backward season.

Hardy trees and shrubs of all kinds are very prolific of bloom."

SCOTTISH PANSY.

This Society held its forty-fourth annual meeting in Lyon & Turnbull's Rooms, Thistle Street, Edinburgh, on the 15th inst. While the show in point of quality and size of blooms was distinctly superior to that of last year there was a perceptible falling off in numbers in some of the classes. Eastern and Northern growers have had a very disastrous time for many weeks back, the weather in these districts having been very unfavourable for Pansy culture or indeed for anything else. The Western growers may be said to have made the show, and they carried off the largest share and the chief of the honours. The President's (Mr. John Sutherland, Lenzie) prize—a Gold Medal to the competitor taking the largest number of prizes—went to Mr. R. Stewart, gr., Lenzie. Mr. Sutherland, Lenzie, in the open class of twelve show Pansies, in twelve varieties raised by competitor between 1884 and 1888 inclusive, took the Gold Medal awarded to that class. Mr. A. Irvine, Tigh-na-bruaich, took 1st honours in the nurseryman's class of twenty-four show Pansies, dissimilar; Messrs. Laird & Sons, for twenty-four fancy Pansies, dissimilar, carried off the 1st prize. Messrs. Dicksons & Co. had the best bunches of bedding Violas. Amongst practical gardeners, Messrs. R. Stewart, Borrowman, Beeslack, Mark, Craighinning, divided the honours pretty fairly between them.

Amateurs were well to the front in point of quality, Messrs. Russel, Cawdor; Ross, Laurence-kirk; Ritchie, Dennie; Kay, Gargannock; Stewart, Lennoxton; R. White, Bathgate; and Dick, Kirknewton, keenly competed for the honours, and each had his share—the first-named gentlemen taking the two 1st prizes for eighteen blooms in each section (show and fancy) respectively. Mr. Borrowman exhibited a collection of new seedling fancy Pansies, to which was awarded a First-class Certificate. The most remarkable flower in the lot was one named David Strachan, which for size, substance, and richness and novelty of colouring well deserved the award given it by the judges. Deep black blotches on the base, and lateral petals boldly bordered with deep vermillion; the upper petals, orange-yellow flamed with deep maroon, and the whole edged, picotee fashion, with light canary, roughly indicates colours but inadequately describes the splendid effect of the combination. Mr. Campbell, Higher Blantyre, also received a First-class Certificate for several excellent seedlings, the most striking of which was Lizzie Duncan, with deep maroon lower and lateral petals, the upper ones rich purple and all belted with pure white and picotee edge. Mr. Robert White, Bathgate, received a First-class Certificate for William Davidson, a fancy variety of excellent points, and rather novel colouring, all petals being blotched with deep black and edged boldly with rose-crimson. Messrs. R. B. Laird & Sons had an excellent exhibit of Violas, as also had Messrs. Dicksons & Co.

The ladies' competition for table decorations is always a pleasing feature at these shows, and was especially so on this occasion, Mrs. Black, Liberton; Miss Greive, Pilrig Cottage; Mrs. Lance, Pinkhill, and others vying with each other for the honours keenly.

ROYAL NATIONAL TULIP.

JUNE 9.—The annual exhibition of this Society took place as usual in the gardens of the Manchester Botanical and Horticultural Society at Old Trafford. Considering the season with its rapid alternations of weather, from great heat to biting east winds and frost in the space of twenty-four hours, the wonder was that the exhibition was so good as it proved. The Rev. Mr. Horner, in the further north of Kirkby Lonsdale, had some very fine blooms this year, but he was unable to exhibit owing to the flowers being past; and for the same reason, Mr. James Thurston, of Cardiff, was also unable to be present.

Seedlings.—In the leading class for twelve dissimilar Tulips, two feathered and two flamed of each division, Mr. Alderman Woolley, Stockport, was 1st out of five competitors, with bizarre, feathered, Sir Sidney Smith and Sir J. Paxton; flamed, Sir J. Paxton and Dr. Hardy; rose, feathered, Heroine and Mabel; feathered, Triomphe Royale and Mabel; bybloemen, feathered, Seedling and Jeannette, a new Stockport raised flower; flamed, Chancellor and Walker's Duchess of Sutherland.

There were also five collections of six dissimilar

Tulips, and here Mr. J. H. Wood, Royton, was 1st, with byblömen, feathered, Masterpiece; flamed, Sir J. Paxton; rose, feathered, Modesty; flamed, Mabel; byblömen, feathered, Talisman; flamed, Duchess of Sutherland.

This same class is also repeated, the competition confined to half-guinea subscribers only. Here Mr. Isaac Hesford was 1st, with bizarre, feathered, Sir J. Paxton; flamed, do.; rose, feathered, Industry, and flamed, Mabel; byblömen, feathered, Mr. Pickrell; flamed, Talisman.

Then followed one of the most interesting classes, viz., for three feathered Tulips, one of each division, seven stands competing, Mr. Alderman Woolley being 1st with bizarre, Typo; rose, Alice, and byblömen, Adonis. 2nd, Mr. Isaac Hesford, with bizarre, Sulphur; rose, Mrs. Collier; byblömen, Sylvestre. 3rd, Mr. E. H. Schofield, with bizarre, Waterloo; rose, Modesty; and byblömen, Mary; 4th, Mr. J. H. Wood.

There were also seven stands in the following class for three flamed Tulips, Mr. A. Fearnley, Lowton, being 1st, with bizarre, Sir J. Paxton; rose, Mabel; byblömen, Maid of Orleans. 2nd, Mr. W. Kitchen, with bizarre, Sir J. Paxton; rose, Mabel; and byblömen, Lord Denman. 3rd, Mr. J. H. Wood, with bizarre, Sir J. Paxton; rose, Aglaia; byblömen, Lord Denman. 4th, Mr. E. H. Schofield.

Then followed two classes for two dissimilar Tulips, one class was for maiden growers only, and in this there was but one competitor, Mr. Thomas Holden, Royton, being awarded the 1st prize with rose, flamed, Seedling; byblömen, feathered, Mrs. Jackson, a small but very correct flower. In the open class for the same number, Mr. Thomas Simpson was, 1st with bizarre Sir J. Paxton, both feathered and flamed.

A large number of blooms was staged in the classes for single flowers; commencing with the bizarres, the feathered flowers were arranged as follows:—1st, Mr. W. Prescott, with Lord Lilford.

Bizarres, Flamed.—1st, Mr. Alderman Woolley, with Sir J. Paxton.

Roses, Feathered.—1st, Mr. Alderman Woolley, with Lizzie.

Roses, Flamed.—1st, Mr. H. Housley, with Annie McGregor.

Byblömens, Feathered.—1st, Mr. Alderman Woolley, with King of the Universe.

Byblömens, Flamed.—1st, Mr. H. Housley, with Adonis.

The premier feathered flower was byblömen, Dymock's King of the Universe; and a First-class Certificate of Merit was accorded to the raiser for this fine addition to a restricted class. The premier flamed Tulip was bizarre Sir Joseph Paxton, both premier blooms being shown by Mr. Alderman Woolley.

Breeder Tulips.—As is usual these were finely shown, though not so large in size as is sometimes the case; but they were generally bright in colour, and S. Barlow, Esq., won the leading prizes. In the class for six dissimilar flowers, two of each class, Mr. Barlow was 1st, with two seedling bizarres; roses, Miss Burdett Coutts and Mr. Barlow; byblömens, Glory of Stakehill and George Hardwick. 2nd, Mr. W. Kitchen, with bizarres Sir J. Paxton and Seedling; roses, Mabel and Annie McGregor; byblömens, Seedlings. 3rd, Mr. J. H. Wood, with bizarres, Lord Delamere and Sir J. Paxton; roses, Miss B. Coutts and Mabel; byblömens, Alice Grey and Glory of Stakehill. 4th, Mr. A. Moorhouse.

There were nine stands of three dissimilar breeders, one of each class; and here Mr. S. Barlow was again 1st with bizarre, Hepworth's 29s. 6d.; rose, Miss B. Coutts; and byblömen, Glory of Stakehill. 2nd, Mr. W. Kitchen, with bizarre, Sir J. Paxton; rose, Annie McGregor; and byblömen, Adonis. 3rd, Mr. J. H. Wood; 4th, Mr. Alderman Woolley.

Then came the classes for single blooms—bizarre breeders: 1st, Mr. Thomas Holden, Unknown; 2nd, Mr. Alderman Woolley, with Sulphur; and 3rd, with Dr. Hardy. 4th, Mr. S. Barlow, with Richard Yates; then followed in order of merit, William Lea, Sir J. Paxton, and Horsti. Rose breeders: 1st, Mr. S. Barlow, with Mabel; 2nd, Mr. T. Holden, Seedling; 3rd, Mr. E. H. Schofield, with Annie McGregor; 4th, Mr. S. Barlow, with Miss B. Coutts, followed by Annie McGregor, Burlington, Juliet, and Lucretia. Byblömen breeders: 1st, Mr. E. H. Schofield, with Mrs. Hardwick; 2nd, Mr. S. Barlow, with Seedling; and 3rd with Talisman; 4th, Mr. T. Simpson, with Fanny. Following these in order of merit were Martin's, 117, Alice Grey, and Glory of Stakehill.

The premier breeder Tulip was byblömen Glory of Stakehill, shown by Mr. Isaac Hesford.

GARDENERS' ORPHAN FUND.

A MEETING of the Executive Committee took place at the "Clarendon" Hotel, Adelphi, on Friday evening, June 15, at 7 pm., Mr. George Deal, chairman of the committee, presiding over a full attendance. The minutes of the last meeting having been read, the hon. secretary announced there is a balance at the bank of £439 19s. 5d.

A meeting of the General Committee of the late Floral Fête was then held, Mr. Assbee, the Superintendent of the Market, and a goodly number of growers, being present. Mr. W. Richards, the hon. secretary of the sub-committee which carried out the details of the Fête, then read the following report [abridged]:—

"To the Committee of the Gardeners' Orphan Fund Evening Promenade Fête.

"Your sub-committee have to report that the fête held in the Flower Market, kindly lent for the occasion by his Grace the Duke of Bedford, and under the patronage of H.R.H. Princess Mary Adelaide, Duchess of Teck, on Wednesday evening, June 6, proved a brilliant success—the total number of ladies and gentlemen present being nearly 7000. The Press notices, copies of which are submitted, were of an extremely favourable character. The total expenses of the fête amount to £74 8s. 7d. The amount of money collected in the boxes presided over by twenty-eight young ladies was £127 7s. 10d.; this, with the handsome donation of £100 from his Grace the Duke of Bedford, and a few sums received subsequently, make up a total of £237 11s. 4d., leaving a balance of £163 2s. 9d. to the credit of the Fund. Your sub-committee desire specially to express their hearty thanks to the various officials and growers connected with the market for their liberal assistance so cheerfully rendered, and recommend that the best thanks of this meeting be accorded to them.

"Signed, on behalf of the sub-committee,

"GEO. DEAL, Chairman.

"W. RICHARDS, Secretary."

The report having been duly received a vote of thanks was passed by acclamation to the Duke of Bedford for granting the use of the Flower Market for the purposes of the fête, and the Chairman was requested to convey the same to his Grace. A letter of thanks to the market growers, 250 in number, was approved, and a copy ordered to be forwarded to each. Hearty votes of thanks were also passed to Messrs. Bourne, W. Richards, and Assbee; and the latter, in responding, said he was quite certain that if another fête should be attempted the market growers would be quite willing to render their assistance; and with the experience they had gained he thought a second attempt would prove very much more successful than the first, satisfactory as that had been.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending June 18, is furnished from the Meteorological Office:—

"The weather during this period has undergone a decided change; at first it was dull and very showery in the west and north, fine and rather warm in the south-east; on Wednesday night, however, a change took place, the wind shifted to the north-westward and northward at our eastern stations, with cold rains, while the disturbed weather in the west and north-west showed signs of improvement. Gloomy, cold weather continued prevalent in the east, with rain at times, while in the west it gradually became bright, dry, and at times warm. Thunderstorms occurred in many places on the 13th and 14th.

"The temperature has been below the average everywhere, the deficit ranging from 4° to 6° over the English districts, from 2° to 3° in Ireland, and from 1° to 2° in Scotland. The highest of the daily maxima were registered on very various dates; over the Midlands and eastern parts of England they were recorded mainly on the 12th, and varied from 69° to 74° in value; in Scotland and Ireland (as a whole) they occurred towards the end of the period, and varied in value from 74° to 78° in the former country, and from 70° to 75° in the latter; in Wales and the west parts of England the conditions approximated

to those of Ireland. The lowest of the minima (and they were very low for the time of year) occurred in central and southern England on the 18th, but over Norfolk on the 14th and 15th, in Scotland and Ireland on the 12th or 13th. Over some parts of the Midlands and southern counties the thermometer fell to 36° or 37° in the shade, and to rather below the freezing point on the grass early on the 18th, while in the north of Norfolk frost occurred on the grass both on the 14th and 15th.

"The rainfall was more than the mean in 'Ireland, N.,' and equal to it in 'England, E.;" in all other districts it was less, the deficit being as great as four-tenths of an inch in 'Scotland, W.," and three-tenths in the northern parts of Great Britain.

"Bright sunshine was very deficient over the eastern parts of England (where it had been in excess previously), but was abundant in the west and north. The percentage of the possible duration varied from 24 in 'England, E.," and 26 in 'England, N.E.," to 44 in 'England, N.W.," to 56 in 'Ireland, S.," and to 57 in the 'Channel Islands' and 'Scotland, N.,"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
	Above or below the Mean for the week ending June 18.	ACCUMULATED.			
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1883.	Below 42° difference from Mean since Jan. 3, 1883.
Principal Wheat-producing Districts.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	2 below	63	0	— 69	+ 201
1. SCOTLAND, E. ...	1 below	76	0	— 143	+ 157
2. ENGLAND, N.E. ...	4 below	70	0	— 145	+ 73
3. ENGLAND, E. ...	5 below	78	0	— 156	+ 154
4. MIDLAND COS. ...	6 below	72	0	— 104	+ 150
5. ENGLAND, S. ...	5 below	79	0	— 248	+ 204
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 below	81	0	— 151	+ 107
7. ENGLAND, N.W. ...	4 below	76	0	— 173	+ 117
8. ENGLAND, S.W. ...	4 below	79	0	— 249	+ 254
9. IRELAND, N. ...	3 below	76	0	— 162	+ 67
10. IRELAND, S. ...	2 below	91	0	— 156	+ 113
— CHANNEL ISLANDS	3 below	90	0	— 205	+ 154

DISTRICTS.	More or less than the Mean for the Week.	RAINFALL.		BRIGHT SUNSHINE.	
		No. of Rainy Days since Jan. 3, 1883.	Total Fall since Jan. 3, 1883.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1883.
Principal Wheat-producing Districts.	Tenths of Inch.		Inch.		
0. SCOTLAND, N. ...	3 less	117	18.5	71	29
1. SCOTLAND, E. ...	3 less	96	12.8	57	31
2. ENGLAND, N.E. ...	2 less	85	9.9	31	27
3. ENGLAND, E. ...	1 less	84	8.4	28	29
4. MIDLAND COS. ...	2 less	75	8.7	37	27
5. ENGLAND, S. ...	0 (aver.)	78	9.8	34	28
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	4 less	85	18.8	61	32
7. ENGLAND, N.W. ...	3 less	87	8.9	53	29
8. ENGLAND, S.W. ...	2 less	85	12.7	60	35
9. IRELAND, N. ...	1 more	92	14.7	62	28
10. IRELAND, S. ...	1 less	83	16.3	65	33
— CHANNEL ISLANDS	3 less	103	12.6	64	38

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JUNE 30. (AVERAGE OF FORTY-FOUR YEARS.)

June 24	63°·0	June 28	62°·4
.. 25	62°·1	.. 29	62°·5
.. 26	62°·2	.. 30	62°·6
.. 27	62°·3	Mean for the week	62°·3

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

AMARYLLIS DOUBLE FLOWER: *H. J. R.* The doubling of flowers of the Amaryllis is a comparatively rare occurrence; still there are many such recorded.

ASPARAGUS BEETLE: *B. B.* What you send are the eggs of the Asparagus beetle, which is only too common. Cut off the shoots and burn them. When the grubs appear, dip the shoots in a mixture of soft-soap, $\frac{1}{2}$ lb.; flowers of sulphur, $\frac{1}{4}$ lb.; and one pail of hot water.

BROCCOLI, EDINBURGH LATE: *T. M. & Sons.* A close well protected head, and useful at this season of the year; seems to be identical with the one noticed in our last issue.

CORRECTIONS.—In article "The Botanical Gardens, Old Trafford," at p. 744, Mr. Clapham, who put up the rockwork there, resides at Stockport, not Southport, as there stated.—In report of Bath and West of England show, p. 757, read Tagart, not Sayart; Derham, not Derlaw; A. W. Summers, not H. W. Summis; Giddings, not Gibbins.

FASCINATION IN CONVULVULUS: *T. W.* Not uncommon in any vigorous and quick-growing plant.

GLOIRE DE DIJON ROSE-HUDS FALLING OFF: *Subscriber.* In the absence of details of management, we can merely surmise that the loss of buds in the spring may have been due to insufficient ventilation, when they would "fog off"; dryness at the root may have caused them to fall; or the undue development of shoots which grew coarse and strong at the expense of the more moderate flowering shoots. It is not wise to let these big shoots grow, as it will usually be found that the other parts of the tree will eventually suffer from it, but cut them at the base, and by doing so get a few less rampant growths, which will be more floriferous, instead of one very strong one.

GRAPES CRACKING: *R. J. H.* The berries will sometimes "crack" when too much water is given, especially if the soil is not porous, or the drainage is defective. Vines should not have any water, if planted out, after a thorough watering given just when the stoning process is completed; and if in pots, considerable caution is required. Allowing pot-vines to root through into dung, or moist tan, might produce cracking. If the roots are outside, or many of them, vines in unprotected borders suffer greatly if, when near the period of ripening, rain fall heavily, and early crops are more liable to injury of this kind than later ones—owing, probably, to the soil being drier later in the summer. Leaving too few berries on a bunch will tend to cause the berries to crack their skin; as will injury to the skin from the too free use of sulphur on the pipes.

HARDY FERNS FOR UNHEATED GREENHOUSE: *A Constant Reader.* *Osmunda regalis*; *Athyrium filix-femina*, many forms; *Adiantum Capillus-veneris*; *Polystichum angulare*; *Polypodium vulgare*; *Woodwardia radicans*; *Scolopendrium vulgare*, many beautiful varieties; *Cystopteris fragilis* in variety; *Lastrea dilatata*, do.; *L. filix mas*, do.; *Trichomanes radicans*; *Woodsia alpina*, and *W. ilvensis*; and *Blechnum spicant* in many varieties. Some of these are evergreen, and remain in good condition through the winter. Given a little heat,

many more fine Ferns of New Zealand, Tasmania, and Australia, might be added to the list.

INSECTS: *H. H.* The beetle sent, found on a decayed Potato-stem, is one of the burying beetles (*Necrophorus Vespillo*). It had nothing to do with the withered condition of the plant.—*W. I. S.* The young Apple-shoots and leaves have been gnawed and fastened together with fine threads by the caterpillars of several kinds of small moths. One is a small Geometer, which agrees with Hubner's figure of the larva of *G. vanaria*; some larvae of small Tortricæ, one of them like that of one of the Rose moths, which has just arrived at the winged state. Hand-picking the injured leaves is the best remedy. *I. O. W.*—*A. B.*, *Hendon.* Your Genista is covered with a Dodder (*Cuscuta*), probably introduced in the peat. It is pretty enough, but very destructive. Destroy it at once.

LAWN GREEN IN WINTER: *E. B. R.* If the land is in good heart, and moss is allowed to take possession of the turf—and that is not likely if the grass seeds were sown this season—it will remain green during the winter. Do not mow after there is any appearance of frosts occurring in October.

LEAVES AND FRUIT DROPPING FROM PEACH: *A Subscriber.* The effect, doubtless, of the too severe fumigation with tobacco-paper. You can do nothing.

LILIUM AURATUM, &c.: *Westfield.* No; not in a collection of greenhouse and stove plants.

MUSHROOMS: *H. W.* The specimens were much decayed, but they are either the true Mushroom or the Horse Mushroom; in either case wholesome when fresh.

NAMES OF PLANTS: *C. W. D.* 1 and 2, *Eremurus spectabilis*.—*C. M. O.* Indeterminable; please send specimens further advanced.—*J. Falconer.* 1, *Genista radiata* (*Cytisus radiatus*); 3, *Aira precox*.—*Constant Subscriber.* We cannot undertake to name florists' forms of Pelargoniums.—*Cefulla.* *Tamarix gallica*.—*T. T. S.* *Fraxinus Ornus*; 2, *Cornus sanguinea*.—*J. S.* 3, *Sedum sarmentosum*, variegated; usually called *carneum*.—*A. B. B.* *Hedera Regeneriana*.—*A. L. H.* did not affix numbers to his specimens. The shrub is *Skimmia japonica*; the red flower, *Centranthus ruber*; the yellow flower, *Asphodelus luteus*; a specimen with finely cut leaves is *Thalictrum flavum*; then there are two *Geraniums*, one *G. pratense*, with purplish-blue flowers, and one with crimson-lilac flowers and more finely divided leaves, *G. sanguineum*.—*Broomyard.* 1, *Ulmus campestris suberosa*; 2, *Carpinus betulus* (*Hornbeam*); 3, *Ulmus montana* (*Wych Elm*).—*J. W.* 1, *Magnolia acuminata*; 2, *Diervilla*, or *Weigela rosea*.—*J. Smith.* 1, *Mesembryanthemum polyanthum*; 2, *M. blandum*.—*J. Morgan, Paisley.* *Philodendron* sp.; send leaf, and we will name it for you.—*W. P.* 1 and 2, *Cypripedium barbatum*; 3, *C. villosum*.—*Capt. Hinks.* *Cattleya Mossiae* var.; and the colouring of the lip is rather remarkable.—*E. S. B.* A good coloured form of *Dendrobium nobile*.—*F. C. W.* *Epidendrum falcatum*.—*S. S. Borden.* 1, *Saxifraga Macnabiana*; 2, *S. aizoon* var. *rotata*; 3, *Viburnum opulus* (*Guedres Rose*); 4, *Philadelphus coronarius*; 5, *Weigela rosea*; 6, *Sedum glaucum*; 7, *Vinca major*.

PLANTAINS ON A LAWN, AND GUANO: *E. W.* The extirpation of these weeds, when large, can scarcely be accomplished by dressings of guano, without first spudding out the main portion of them; but any manure, loamy soil, wood-ashes, &c., applied in winter or early spring, has the effect of making the grass grow with vigour, so that the weeds, which are usually in the minority, are smothered out of existence by it in course of time. The guano, as fine powder, might be applied in rainy weather at the rate of 3 cwt. per acre—say, rather under 2 lb. per square rod of ground.

CATALOGUES RECEIVED.

E. H. KRELAGE & SON, Haarlem, Holland—List of Coloured Plates of Plants.

EUG. VERVAE DE VOS, Snyvaerde, Ghent—Trade List of Indian and other Azaleas, Camellias, Palms, Rhododendrons, &c.

COMMUNICATIONS RECEIVED.—*H. W. W.*—*W. W.*—*J. B.*—*W. B.*—*J. E.*—*H. C.*—*W. C.*—*H. M.*—*E. R.*—*J. C.* & Co.—*T. T.*—*Dr. Retzema Bos*.—*Jules Van Utterberghe*.—*E. D.*—*H. G.*—*H. K.*.—*Rochester, N.Y.*—*C. N.*—*Prof. Coreu, Paris*.—*L. V. de S.*—*W. S.*—*E. B.*—*J. M. W.*, *Durham*.—*J. D.*

W. C.—*E. G. W.* (with thanks).—*O. O. W.* (with thanks).—*Wernoleu, Homeria, Heuchera, Schubertia* (with thanks).—*W. Stevens* (next week).

DIED.—On the 18th inst., CHARLES CAMPBELL BOCK, eldest son of Charles W. Buck, of Covent Garden, aged forty years.

MARKETS.

COVENT GARDEN, June 21.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

Our market has been very quiet this week, Grapes meeting with a slow sale. Prices generally unaltered *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Grapes, per lb.	1 6-3 6	Pears, per dozen	3 0-6 0
Kent Cobs, 100 lb.	40 0-45 0	Fine apples, Eng., lb.	1 0-2 0
Lemons, per case	12 0-21 0	— St. Michael, each	2 0-5 0
Melons, each	1 0-3 0	Strawberries, lb.	1 6-5 0
Peaches, dozen	4 0-12 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz.	4 0-...	Mushrooms, punnet	1 0-1 6
Asparagus, Fr., band.	1 0-5 0	Mustard and Cress,	
— English, 100	3 6-6 0	punnet	0 4-...
Beans, Kidney, lb.	1 6-...	Onions, per bushel	5 0-...
Beet, red, per dozen	1 0-2 0	Parsley, per bunch	0 4-...
Carrots, per bunch	0 6-...	Potato, per cwt.	4 0-5 0
Cauliflowers, each	0 8-...	— Kidney, per cwt.	4 0-5 0
Celery, per bundle	1 6-2 6	Rhubarb, per bundle	0 4-...
Cucumbers, each	0 9-1 0	Shallots, per lb.	0 6-...
Endive, per dozen	2 0-...	Spinach, per bushel	2 0-...
Green Mint, bunch	0 4-...	Spruce, per bundle	1 0-...
Herbs, per bunch	0 4-...	Tomatos, per lb.	2 0-...
Leeks, per bunch	0 6-...	Turnips, per bunch,	
Lettuce, per dozen	1 6-...	new	1 3-...

POTATOS.—Jersey Flukes, 11s. to 13s.; dn. Kidneys, 8s. to 10s. per cwt. Trade, heavy.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Foliage plants, vari-	
Bouvardias, per dozen	9 0-12 0	ous, each	2 0-10 0
Calceolarias, dozen	4 0-9 0	Fuchsia, doz.	4 0-9 0
Coleus, dozen	3 0-6 0	Heliotropes, dozen	6 0-9 0
Cyperus, per dozen	4 0-12 0	Hydrangeas, dozen	9 0-18 0
Dracæna terminalis,		Lobelia, per dozen	3 0-6 0
per dozen	30 0-80 0	Marguerites, doz.	9 0-12 0
— viridis, per doz.	12 0-24 0	Mignonette, 12 pots	4 0-8 0
Ericas, various, per		Musks, dozen	1 6-3 0
dozen	9 0-18 0	Myrtles, per dozen	6 0-12 0
— ventricosa, doz.	18 0-30 0	Palms, in variety,	
Eucalyptus, in var.,		each	2 6-21 0
per dozen	6 0-18 0	Pelargoniums, doz.	6 0-15 0
Evergreens, in var.,		— Ivy-leaf, dozen	3 0-6 0
per dozen	6 0-24 0	— scarlet, dozen	3 0-9 0
Ferns, in var., doz.	4 0-18 0	Roses, dozen	12 0-24 0
Ficus elastica, each	1 6-7 0	Spiræas, dozen	6 0-12 0

BEDDING-OUT PLANTS.

By the box, 2s. to 6s.; or by the dozen, 1s. to 2s. Now coming good.

OUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemone, 12 bun.	1 6-4 0	Pansies, 12 bun.	1 6-3 0
Arum Lilies, 12 blms.	2 0-4 0	Peonies, 12 bun.	6 0-12 0
Azaleas, 12 sprays	0 6-1 0	Pelargoniums, 12 spr.	0 6-1 0
Bouvardias, per bun.	0 6-1 0	— scarlet, 12 spr.	0 3-0 6
Carnations, 12 blms.	1 0-2 0	Pinks, 12 bun.	3 0-6 0
Chrysanthemums,		Poppies, 12 bun.	4 0-6 0
annual, 12 bun.	2 0-4 0	Primulas, double, 12	
Cornflower, 12 bun.	2 0-4 0	sprays	0 9-1 0
Eucharis, per dozen	3 0-6 0	Pyrethrums, 12 bun.	4 0-6 0
Forget-me-nots, 12		Ranunculus, 12 bun.	2 0-4 0
bunches	2 0-4 0	Roses, Tea, per doz.	0 6-1 6
Gardenias, 12 blooms	1 6-4 0	— coloured, dozen	2 0-4 0
Heliotropes, 12 spr.	0 6-1 0	— red, per dozen	2 0-4 0
Lilium longiflorum,		— Safrano, dozen	0 9-1 6
12 blooms	3 0-5 0	Spiræa, 12 bun.	4 0-6 0
Marguerites, 12 bun.	3 0-6 0	Stephanotis, 12 spr.	2 0-4 0
Mignonette, 12 bun.	3 0-6 0	Tuberose, 12 blms.	0 6-1 0
Narcissus, double, 12		White Lilac, French,	
bunches	4 0-6 0	per bunch	4 6-6 0

*. Orchid bloom in great variety, but the demand not very good.

SEEDS.

LONDON: June 20.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market bare of buyers, and consequently a

complete absence of business." Quotations for all descriptions remain purely nominal. For both red and white Clover seed there is a firmer feeling, owing to the continued unfavourable reports of the growing crops. Sowing Mustard and Rape seed meet with increasing attention. Blue Peas are also inquired for. Other articles at this quiet season offer no subject for remark.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended June 16:—Wheat, 31s. 7d.; Barley, 25s. 3d.; Oats, 17s. 3d. For the corresponding week in 1887:—Wheat, 35s. 1d.; Barley, 21s. 10d.; Oats, 17s. 4d.

FRUIT AND VEGETABLES.

SPITALFIELDS AND COLUMBIA: June 20.—Abundant supplies of all kinds of fresh vegetables, demand good, prices fair. Good supplies of new Potatoes and Peas. Old Potato trade very slow. Quotations:—Gooseberries, 2s. 6d. to 3s. per half sieve; Peas, 2s. 6d. to 3s. 6d. per bushel; ditto in sacks, 7s. to 8s. per sack; Asparagus, 1s. to 1s. 6d. per bundle; Cabbages, 1s. 9d. to 4s. per tally; Cauliflowers, 5s. to 7s. do.; Turnip Radishes, 1s. 9d. to 3s. 6d. do.; Greens, 1s. to 1s. 3d. per dozen bunches; Parsley, 1s. to 1s. 6d. do.; Mint, 1s. 6d. to 2s. do.; spring Onions, 2s. to 2s. 6d. do.; Rhubarb, 1s. 6d. to 2s. 3d. per dozen bundles; Horseradish, 1s. 4d. per bundle; Seakale, 1s. 3d. per punnet; Endive, 1s. to 2s. per dozen; Mustard and Cress, 2s. per dozen baskets; Beetroot, 8d. per dozen; Cabbage Lettuces, 2d. to 6d. per score of 22; Cos Lettuces, 4d. to 8d. do.; foreign Onions, 5s. 6d. to 6s. per bag of 110 lb.; Mangels, 20s. to 22s. per ton.

STRATFORD: June 19.—The supply has been good during the past week, and a brisk trade was done at the following prices:—Cabbages, spring, 3s. to 5s. per tally; Mangels, 14s. to 20s. per tan; Onions, Egyptian, 5s. to 6s. per bag; Gooseberries, 3s. to 4s. per half sieve; do., 5s. 6d. to 7s. per flat; Cherries, 4s. per box; do., 4s. 6d. per flat; Radishes, 2s. to 2s. 9d. per tally; Cucumbers, Dutch, 1s. 3d. to 1s. 6d. per dozen; do., frame, 3s. to 6s. do.

POTATOS.

BOROUGH AND SPITALFIELDS: June 19.—Supplies of new Potatoes continue to steadily increase, and prices ease down accordingly. Quotations:—New: Jersey kidneys, 13s. to 20s.; Cornish, 12s. to 14s.; Lisbon, 9s. to 11s. per cwt. Old: Magnum Bonums, 25s. to 70s.; Regents, 40s. to 80s.; Champions, 20s. to 60s. per tan.

SPITALFIELDS AND COLUMBIA: June 20.—Quotations:—New: Jersey kidneys, 8s. 6d. to 10s.; Lisbon rounds, 6s. to 6s. 6d. per cwt. Old: Champions, 10s. to 30s.; Magnums, 12s. 6d. to 30s. per ton.

STRATFORD: June 19.—Quotations:—Old: Scotch Magnums, 40s. to 70s.; English light-land, 30s. to 50s.; do. dark, 10s. to 30s. per ton. New: Lisbans, 7s. to 8s.; Jersey kidney, 10s. to 11s. 6d. do.; flukes, 11s. 6d. to 12s.; Malas, 8s. to 9s. per cwt.

Imports.—The imports into London last week consisted of 41,438 boxes and 2675 half-boxes from Lisbon, 100 boxes from Lagos, 334 packages 32 cases and 184 casks from Malta, and 1067 cases from Bordeaux.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 84s. to 102s. 6d.; inferior, 74s. to 82s.; bay, prime, 84s. to 97s. 6d.; inferior, 75s. to 80s.; and straw, 34s. to 47s. per load.

PALMS AND PANDANUS.—Mr. Craig, Philadelphia, fires his Palm-house all summer, and gets a big growth on his young Palms in one summer. He considers Pandanus Veitchii a very profitable thing. Dracena fragrans is a very handsome decorative plant. It is propagated from canes imported from Trinidad. The canes are laid thickly together on the cutting bench, and when the eyes break the shoots are taken off and rooted. Propagation is much more rapidly accomplished in this way. *American Florist.*

"ARCHIMEDEAN"

AMERICAN LAWN MOWERS.



AWARDED
HIGHEST PRIZE

AT THE
Paris Exhibition, 1878;
and the JURY, in their REPORT
say:—

"The 'ARCHIMEDEAN' did the
BEST WORK of any Lawn
Mower exhibited."

ALSO AT
Sydney Exhibition, 1879-80
AND AT
Melbourne Exhibition, '80-1

Opinions of the Press:
"Far superior to any of ours."
—*Vide The Field.*

"Remarkably easy to work."
—*Vide Gardeners' Magazine.*

"The quickest, most simple, and
most efficient mower ever used."
—*Vide Gardeners' Chronicle.*

"We feel bound to recommend it to
our readers as one of the best mowers
we have as yet made acquaintance
with."—*Vide Floral World.*

PRICES FROM
25s.

Delivered Carriage Free to all Railway
Stations in Great Britain.

WILLIAMS & CO. (Limited), Manufacturers and Patentees.

SELLING
AGENTS:

J. G. ROLLINS & CO. (LIMITED), AMERICAN
MERCHANTS,
OLD SWAN WHARF, LONDON, E.C.

PEAT.—The best in England. First and
Second Class. For sale in any quantity. By railway
track load, loose, in casks, or sacks. Samples 12 penny stamps
carriage free in the United Kingdom.
W. SHORT, Horticultural Depot, Midhurst, Sussex.



Supplied by us to Royal Gardens, Kew, the Crystal Palace, &c.

For Destroying Weeds on Carriage Drives, Garden Walks,
Stable Yards, &c. Prices: per gallon, 2s. 10d. included; 5 gal-
lons, 1s. 6d. per gal.; 10 to 20 gallons, 1s. 4d. per gal., carriage
paid. Special quotation for larger quantities. One gallon makes
26 gallons.

Mr. W. G. HEAD, Superintendent of the Crystal Palace
Gardens, says:—"We were so satisfied with your Weed Killer
and its price, that we have used it absolutely. I have every
confidence in recommending it."

The "Invicta" Insecticide.—For Destroying Mealy-bug,
Scale, Thrips, Red Spider, &c. In tins, 1s. and 2s.; per gallon,
9s., carriage paid.

The "Invicta" Mildew Destroyer.—An unfailing
remedy for Mould and Mildew on Roses, Vines, &c. In bottles,
1s. and 2s., per gal. 7s. 6d., carriage paid. Used by Messrs.
Veitch & Sons, Chelsea, and other Rose Growers.

The "Acme" Worm Killer.—For Eradicating Worms
from Tennis Courts, Lawns, and Plants in Pots. Prices in
bottles, 1s. 3d. and 2s. 6d.; per gallon, 6s., carriage paid.

Kentish Garden Manure.—For Vines, Plants in Pots,
Vegetables, &c. Guaranteed to Analysis by Mr. Bernard
Dyer, B.Sc., &c. Highly recommended. Prices, in tins, 3d.,
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The Kentish Salubrious Manure.—For use in Conservatories
and on Plants in Rooms. No disagreeable smell. A perfect
plant food. In tins, 3d., 9d., and 2s.; 28lb., 7s. Sample tins
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Sole Proprietors and Manufacturers,
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CARSON'S PAINT

Patronised by 16,000 of the Nobility, Gentry,
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1 Cwt., and Oil Mixture, Free to all Stations.
Liquid Non-Poisonous Paints for Inside of Conservatories, &c.
Prices, Patterns, and Testimonials, Post-free.

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BACHELOR'S WALK, DUBLIN.—Discount for Cash.

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IMPROVED & ONLY GENUINE

"Medicated Tobacco Paper"

(READY CUT UP FOR USE),
Reduced Price 16 per lb.;
28lbs. & upwards—Carriage Paid.
Parcels for trial, sent Free by Parcels Post, viz.:
2 lbs. 3/4, 4 lbs. 6/8, 6 lbs. 9/9, 8 lbs. 13/4, 10 lbs. 16/4.

IMPROVED FUMIGATING PAN

Is vastly superior to any other.
Price 6/6 (in iron with heater) each,
or in Copper, 21/-

DICKSON'S Improved
MUSHROOM SPAWN
MOST SUPERIOR, 5/- PER BUS.

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monials, post free on application.

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"Royal" Seed Warehouse,
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W. H. BEESON, Carbrook Bone Mills, Sheffield.

PEAT for ORCHIDS,

AZALEAS, HEATHS, FERNS, RHODODENDRONS, &c.
The Best in the World.
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Is admitted by the leading Nurserymen to be the Best Quality obtainable in the Trade.

Consumers should Buy Direct from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS.

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GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight, 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in rather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

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GARDEN HOSE.—The Antimonial Red Rubber Hose is cheapest in the long run. Buy direct, and avoid useless stuff, which seems cheap, but is not so. Antimonial Hose is best. Prices free.

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(Twelve years with Merryweather & Sons.)

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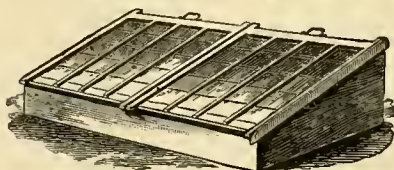


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Our 8 by 6 feet
2-LIGHT MELON AND CUCUMBER FRAMES



are £3 each, carriage paid.

Made of the best red deal, English 21-oz. glass, painted 3 coats best colour.

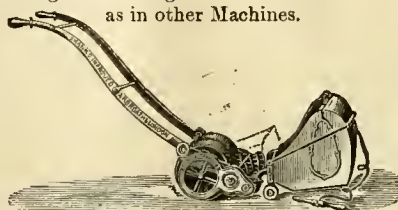
3-LIGHTS, 12 by 6 feet, £4 5s.

For other sizes, see NEW PRICE LISTS, Post-free.

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SHANKS'S IMPROVED LAWN MOWER.

THE ONLY LAWN MOWER FITTED WITH
DOUBLE EDGED SOLE-PLATE,
Enabling the Cutting Parts to last twice as long
as in other Machines.



THESE MACHINES are strong, substantial, and very easily worked. They make the Lawn like velvet, and are not liable to get out of order.

Prices of Hand Machines, with Grass Boxes, complete.

To cut 10 in. wide...	£3 10 0	To cut 19 in. wide...	£8 0 0
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" 14 " "	5 10 0	" 24 " "	9 0 0
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Small Lawn Mowers, 6 in., 25s.; 7 in., 35s.; 8 in., 45s.
Horse and Pony Machines, with or without Patent Delivery Apparatus.

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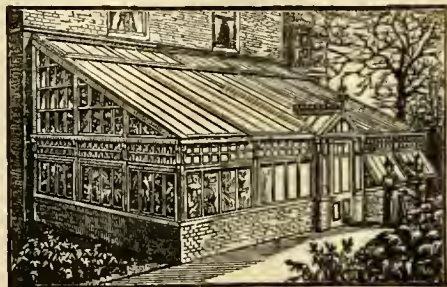
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GARDEN NETTING, 2 yards wide, 1 $\frac{1}{2}$ d., or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s.

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TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece. SHADING BLINDS made up any size.

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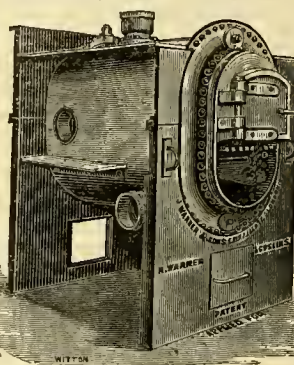
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NETTING.—Buy your Netting direct from the Makers. Write for sample piece, of our best quality, waterproof, tanned and oiled, 4 yards by 50 yards, 8s.; second quality, 5s. 6d. Any size made to order. Trade supplied. SPASHEIT AND CO., Net Manufacturers, Lowestoft.

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HOT-WATER BOILER,

For Greenhouses, Vineries, Conservatories, Forcing Houses, &c.



Advantages

Equally applicable for Domestic or Warehouse Heating. Baths, Lavatories, and Laundries. Minimum Cost of Setting. Free Access to all Flues. Certain Continuance of Heating at night. Night Watching required. Slow Combustion. Minimum Cost for Fuel. Large Heating Surface.

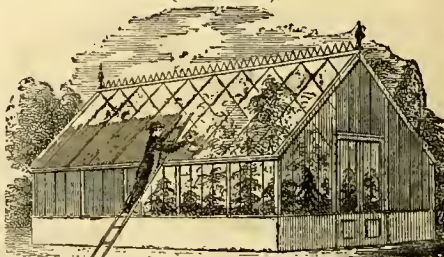
Equally Suited for Gas Coke, common or Anthracite Coal.

For full particulars and Prices apply to the Manufacturers.

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A GREEN COLOURING WASH

For Conservatories, Greenhouses, and similar structures.

The best and most economical Shading before the public. Sold in 1s. tins sufficient for 100 square feet, is easily applied, and one dressing will stand the whole season.

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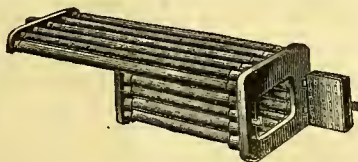
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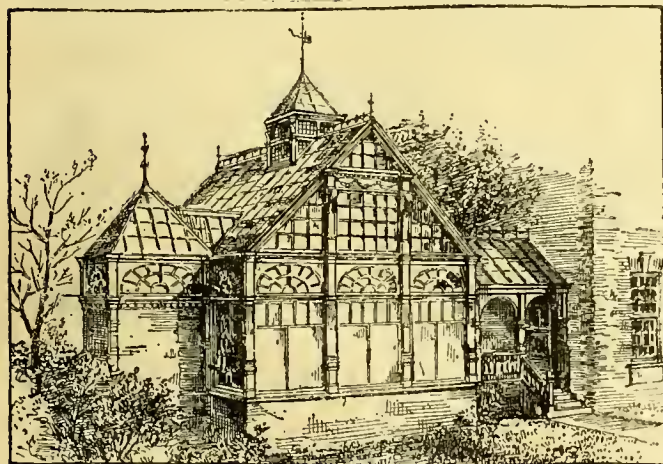
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1888.

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Cheques should be crossed "DRUMMOND."

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June 23, 1888.

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Has an Open Steel Roller.

A man can work a 24-inch machine, cutting Grass 5 inches high clean to roots.

There is no easier working, no better finished, no stronger, no more durable mower in the market.

The Front Roller, with simple adjustment, enables the machine to cut very close to the ground, and to do fine work.

The machine will also cut verges.

To be obtained through all the leading Ironmongers or Seedsmen, or from the Sole Licensees—

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85, Queen Victoria St., London, E.C.**THOMAS'S TRAINING TRELLISES.**

No. 81. GALVANISED AFTER MADE.



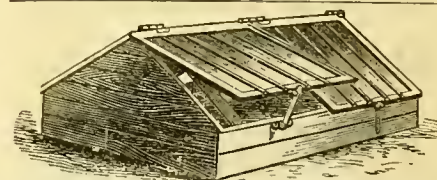
For training Peas instead of sticks. Training plants to walls, &c. IN PANELS.

6 feet by 3 feet ... 2s. each.
6 feet by 4 feet ... 3s. each.
6 feet by 5 feet ... 4s. each.
6 feet by 6 feet ... 5s. each.

Made any size to order at following prices:—

6 in. 4 in. 3 in. 2 in. 1 1/2 in. mesh.
2d. 3d. 3d. 4d. 4d. per foot super.

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The above are without exception the most useful kind of Frame for Plant Growing, and every one with a garden should possess one. The sashes turn right over one on to the other, and the boxes are put together with wedges, and can be taken apart in a few minutes. Sizes and prices, carriage paid to any station in England, ready glazed and painted:—

6 feet long, 4 feet wide, packing cases free £2 15 0
12 feet long, 4 feet wide, " " " 4 15 0
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The glass is nailed and puttied in.

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21-OZ. Foreign of the above sizes, in 100 and 200 feet boxes, 3rds and 4ths qualities, always kept in stock.

A large stock of similar current sizes of 15-OZ. glass in 200 feet boxes.

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Stock List and Prices on application. Price List of Colours, Varnishes, Designs of Stained & Leaded Glass. Quote Chronicle.**EXTENDING LADDERS.**—Lengthen and shorten telescopically; are light, strong, durable, inexpensive, and can be used either in or out of the house. Lists free. J. H. HEATHMAN AND CO., 2, Endell Street, and 11, High Street, Bloomsbury, London, W.C.

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11 " ..	0 6 6	22 " ..	0 12 0
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26 words, including name and address, 1s 6d.,
and 6d. for every additional line (about 9 words) or part
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This scale does not apply to announcements of Vacant
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against having Letters addressed to *Initials at Post-offices*, as
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BIRTHS, DEATHS and MARRIAGES, 5s. each insertion.
Advertisements for the current week MUST reach the Office by
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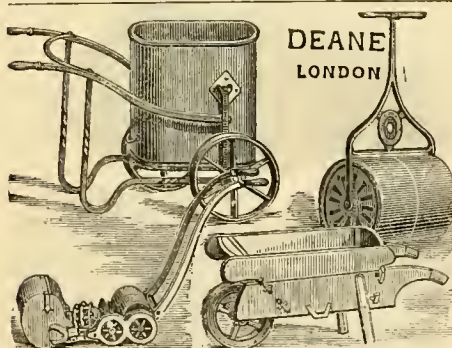
All Subscriptions Payable in Advance.

THE UNITED KINGDOM: 12 Months, 15s.; 6 Months,
7s. 6d.; 3 Months, 3s. 9d.

FOREIGN (excepting India and China): including Postage,
17s. 6d. for 12 Months; India and China 19s. 6d.

Post-office Orders to be made payable at the Post Office,
42, DRURY LANE, W.C., to W. RICHARDS.

PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS,
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LAWN MOWERS.
All the best makes in stock:
Excelsior, Invincible, Godiva,
Shanks', Green's, Ransome's,
GARDEN SEATS, TABLES,
WIREWORK, TOOLS, &c.
Swing Water-Barrows.
15 Gall. ... 30s. 30 Gall. ... 46s.
20 Gall. ... 36s. 40 Gall. ... 54s.
DEANE AND CO.'S ILLUSTRATED GARDEN CATALOGUE
(the most complete published) free by Post.
All orders Carriage Paid to any Station. Discount for Cash.

DEANE & CO.,
46A, King William Street,
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HORTICULTURAL GLASS.

A large quantity of all descriptions and
sizes in stock, at the lowest possible prices.

NICHOLLS & CLARKE,
SHOREDITCH, LONDON, E.

ROCKERIES, FERNERIES,

WINDOW CASES, CAVES, WATERFALLS, WINDOW
BOXES, AQUARIA, ARTIFICIAL ROCKWORK for Ball-
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GARDENING APPOINTMENTS.

Mr. C. HONESS, late of Copped Hall, Tot-
teridge, Herts, has been appointed Gardener to
C. COMBE, Esq., Cobham Park, Cobham, Surrey.

Mr. J. VICKERY, for many years Head Gar-
dener, at Woodend, Chichester, and Porter's
Park, Shenley, Herts, has been appointed Gar-
dener and General Manager to Mrs. KEEN,
Cedar House, Herne Hill, S.E.

Mr. W. H. AGGETT has been appointed from
the Royal Gardens, Kew, as Head Gardener to
J. H. HOPKINSON, Esq., Holmwood, Wimble-
don, S.W.

Mr. H. PARRISH, late Foreman at Thorne's
House, Wakefield, has been appointed Head
Gardener to A. B. SHERIDAN, Esq., Frampton
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GARDENER (HEAD WORKING).—Thoroughly experienced. The highest recommendations as to ability and character.—J. H., 11, Southwood Lane, Highgate, N.

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GARDENER (UNDER), private place or Market Garden, where Fruit and Cut Flowers are Grown.—Age 22; good character.—J. HOATH, Steel Farm, Rotherfield, Sussex.

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JOURNEYMAN (FIRST), in the Houses.—Age 23; eight years' experience. Good references from present and previous employers.—W. H., Lockerley Hall, Romsey, Hants.

JOURNEYMAN in the House, and Outside in a good Garden.—Age 21; four years' good character.—E. MELLISH, Station Road, Swinage, Dorset.

JOURNEYMAN.—Good all-round knowledge, both of Plants and Fruit Growing. Eight years' experience. First-class character.—W. EVANS, Croome Court Gardens, Severn Stoke, Worcester.

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SHOPMAN, with a good knowledge of Seeds, Plants, and General Nursery Stock. Good character.—MENTHA, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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TRAVELLER.—L. H. DENNIS, for the last ten years Traveller for the late firm of Waite & Co., seeks re-engagement. Has a good connection through the Midland Counties and Wales.—Address, 13, Cromwell Avenue, Highgate, London, N.

TO FLORISTS.—Required, Management of Small Shop or Branch, by young Lady, thoroughly experienced and of business habits.—Please address full particulars to TERRENCE, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

HOLLOWAY'S PILLS and OINTMENT.—Glad Tidings.—Some constitutions have a tendency to rheumatism, and are, throughout the year, borne down by its protracted tortures. Let such sufferers bathe the affected parts with warm brine, and afterwards rub in this soothing Ointment. They will find it the best means of lessening their agony, and, assisted by Holloway's Pills, the surest way of overcoming their disease. More need not be said than to request a few days' trial of this safe and soothing treatment, by which the disease will ultimately be completely swept away. Pains that would make a giant shudder are assuaged without difficulty by Holloway's easy and inexpensive remedies, which comfort by moderating the throbbing vessels and calming the excited nerves.

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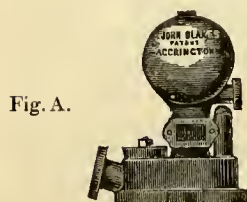
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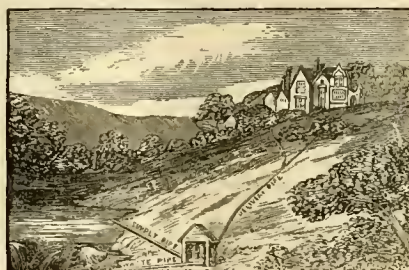
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SPECIAL RAMS for HIGH FALLS, to send up One-Third of the Water passing through them.



This Ram raises a portion of the same water that works it.



View of Ram Worked by Water from a Spring, and supplying the House and Garden on the Hill.

This Ram, whilst worked by a stream of impure water, will pump clean water from a well or spring.



Fig. B.

EXTRACTS FROM TESTIMONIALS.

VILLAGE WATER SUPPLY.

From Mr. THOMAS VARLEY,

Agent to the Trustees of the late William Roundell, Esq., Gledstone Estate, West Marton, Skipton, August 11, 1887.

"DEAR SIR,—The Patent Hydraulic Ram you fixed five years ago on this estate is still working as well as it did on the day it started. It is driven by spring water carried along the hillside in 950 yards of iron pipe, and forces up an abundant supply to an underground tank on the hill at a distance of 2 miles from, and at an elevation of 280 feet above the ram. The water is then gravitated through several pipes and branches, having a total length of about 4 miles, for the supply of the mansion, gardens, stables, estate work-shop, and steam boiler, the village of West Marton, and several farms. There are five fire-plugs inside the mansion and seven outside; and as the underground reservoir is 70 feet above the mansion, seven jets of water can be thrown over the house in case of fire. As there is still a considerable overflow from the underground reservoir running to waste, I intend to form a second reservoir at a lower level, and utilise the water for other farms. I have much pleasure in being able to report as above."

From J. B. McCALLUM, Esq., C.E.,

Borough and Water Engineer, Blackburn, November 1, 1886. Guide (Borough of Blackburn) Water Supply.

"DEAR SIR,—Following is the short report I promised to send as to the work performed by the Hydraulic Rams—supplied by you to the Blackburn Corporation—after they had been in operation sufficient time to take proper observations.

"The district of Guide—population about 500—in the Borough of Blackburn, is situated above the highest reservoir of the Blackburn Waterworks, and had no regular water supply until last July, when the Water Committee caused two of your Patent Hydraulic Rams to be put down and worked by water from a reservoir having a varying but maximum head of 34 feet 3 inches on the Rams—the waste (clean) water gravitating to a lower adjacent reservoir.

"You contracted to supply rams which would force 8000 gallons per day each through 1295 yards of delivery pipe to a service tank 170 feet above the rams, and I am bound to state that the result has considerably exceeded my expectations, as the rams are capable of pumping, and have pumped, much more water than you promised. The percentage of efficiency exceeds all I expected, and is, in my opinion, much more than is usually obtained from hydraulic rams.

"From a test I made on September 29, I found that two rams with 4-inch and 3-inch strokes respectively, supplied with 191,630 gallons per day, together pumped 26,090 gallons per day to a height of 170 feet, giving 71.43 per cent. of efficiency, and one ram working at 3-inch stroke, and with only 16—18 feet of working fall, supplied with 154,557 gallons per day, pumped 10,587 gallons per day to the same height, showing 72.75 per cent. of efficiency.

"At a subsequent test on October 11, one ram at 3-inch stroke, and having 31 feet 9 inches of working fall supplied with 121,083 gallons per day, pumped 17,583 gallons per day to an elevation of 171½ feet, the efficiency in this case being 79.57 per cent.

"In arriving at these results the greatest care was taken to positively measure the water, besides having a meter check on feed and delivery pipes.

"The work carried out by you at Blackburn is substantial and satisfactory in every way, and if any engineer wishes to make his own observations he is at liberty to come here and do so."

From Mr. HENRY ROBINSON,

Engineer to the Stockport District Waterworks Company, September 8, 1883.

"DEAR SIR,—I can now report well of the two Hydraulic Rams we have fixed to your instructions for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 65 feet, but on testing them I am convinced that 50,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equal to half the capacity of the 6-inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found."

From Mr. J. A. RUTHERFORD,

Agent to C. F. H. Bolekow, Esq., Estate Office, Marton Hall, Middlesborough, September 26, 1883.

"DEAR SIR,—I am glad to say that the Rams you put down on the Hambledon Estate, for Mr. C. F. H. Bolekow, are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a day, and with enough water to work the Rams at full power, 2000 gallons a day. With a supply of 1½ gallons per minute they are lifting 2200 gallons, and when working full power, 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start, and have gone well since.

The Delivery Pipe, in the above case, is 9000 feet in length.

From THOMAS ROBERTS, Esq.,

Estate Surveyor to His Grace the Duke of Sutherland, K.G., Surveyor's Office, Trentham Hall, Staffordshire, April 13, 1886.

"DEAR SIR,—I am pleased to say that the Hydraulic Ram you supplied and fixed at Titensor (the residence of the Marquess of Stafford, M.P.) does its work very satisfactorily, with a fall of 9 feet 6 inches, raising 9000 gallons daily to a height of 150 feet. The Duke of Sutherland, K.G., inspected the working of the Ram, and expressed his entire satisfaction with it.—I am yours faithfully,

"THOMAS ROBERTS."

From HENRY MORTON, Esq.,

Agent to the Most Honourable the Marquess of Ripon, K.G., Ripon, April 12, 1886.

"DEAR SIR,—The Patent Ram, with 1½ mile of service pipe, a large galvanised tank, and other fittings, which you fixed for the Marquess of Ripon, for the conveyance of water from Hutton Moor Springs to Blows Hall and Copt Hewick Hall, are highly satisfactory to all concerned, both as an engineering success and the intrinsic merits of the materials supplied. About 6000 gallons of water per day are forced into the tank at Blows Hall, nearly a mile distant, and 127 feet above the Ram, the overflow falling into a 20,000 gallon underground tank, from which it gravitates through the 4-inch main 800 yards long, with a fall of 70 feet to the service-cocks and fire-plugs at Copt Hewick Hall, where in case of fire, two or three powerful jets of water can be thrown on to the roof of the Hall.

"I consider your method of carrying out the work is everything that could be desired, and, whilst the waste-power water from the Ram is less than you specified, the quantity elevated is just what you guaranteed.—I am, dear sir, yours very truly,

"HENRY MORTON."

From WILLIAM DICKINSON, Esq.,

Agent to the Most Honourable the Marquess of Abergavenny, K.G., Eridge Estate Office, Hargate Lodge, Tunbridge Wells, July 3, 1885.

"SIR,—I am instructed by the Marquess of Abergavenny to say that the Patent Hydraulic Ram, with over two miles of pipes, forcing water to a height of 230 feet, which you erected at Eridge Castle about nine months ago, has given his lordship entire satisfaction, and he has every confidence in its continuing to do so.—I am, sir, yours faithfully,

"WILLIAM DICKINSON."

From Captain TOWNSHEND,

Wincham, February 10, 1877.

"In answer to your inquiry I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long, at the rate of 80,000 gallons per day, although you only promised 50,000."

JOHN BLAKE, ENGINEER, ACCRINGTON, LANCASHIRE, ENGLAND.

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ROYAL BOTANIC SOCIETY.

Gardens, Regent's Park, N.W.
EVENING FETE and SPECIAL EXHIBITION of TABLE DECORATIONS and FLORAL WORKS of ART on WEDNESDAY NEXT, July 4. Gates open at 8 o'clock. The Gardens will be illuminated from 8 to 12 o'clock. Four Military Bands will be in attendance. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 10s. each; or, on the day or evening of the Fête, 15s. each.

CRYSTAL PALACE.—

The NATIONAL ROSE SOCIETY'S GRAND EXHIBITION of ROSES, SATURDAY, July 7, 1888. Admission, Half-a-crown. Schedule of Prizes and Forms of Entry on application to the HON. SECRETARIES, National Rose Society, Crystal Palace. Entries Close, Tuesday next, July 3.

NATIONAL CO-OPERATIVE FLOWER SHOW.

CRYSTAL PALACE, AUGUST 18, 1888.
FIVE HUNDRED POUNDS and MEDALS in PRIZES, for FLOWERS, FRUIT, VEGETABLES, and HONEY, open to members of Co-operative Societies throughout the Kingdom, also for Skill of Workmen in All Trades for Amateur Work, Entomological and other Specimens. Schedules of Prizes on application to
WM. BROOMHALL, Secretary.
1, Norfolk Street, Strand, W.C.

FARNHAM ROSE SHOW, JULY 4, at Farnham Castle.

Many open classes.
J. H. KNIGHT, Esq., Secretary, Bawfield, Farnham.

BEDFORD and BEDFORDSHIRE HORTICULTURAL SOCIETY.

FIFTH ANNUAL SHOW, at Bedford, JULY 11, 1888. Special Prizes for Plants, Roses, and Cut Flowers. Open to all England. Entries Close July 3. Schedules and Entry Forms to be obtained of
HENRY TEBBS, Hon. Sec.
Stonleigh, Bedford.

GLASGOW INTERNATIONAL EXHIBITION.

General Manager—H. A. HEDLEY.
GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.—Grand SUMMER ROSE and FLOWER SHOW will be held, by Special Arrangement, within the International Exhibition, Glasgow, on WEDNESDAY and THURSDAY, July 11 and 12, 1888. Admission to Exhibition and Flower Show—on Wednesday, 2s. 6d.; and on Thursday, 1s.; or by Season Tickets. The Magnificent Bands at the Exhibition will perform.
NOTE.—Entries for Competition must be made early.
FRANC GIBB DOUGALL, Secretary.
167, Canining Street, Glasgow.

CARTERS' FLORISTS' FLOWERS.—INVINCIBLE.

CARTERS' FIRST-PRIZE PRIMULA,
CARTERS' FIRST-PRIZE CINERARIA,
CARTERS' FIRST-PRIZE CALCEOLARIA.
Seed of each, in Sealed Packets, price 1s. 6d., 2s. 6d., 3s. 6d., and 5s. per packet, Post-free.
CARTERS', Seedsmen by Special Royal Warrants to H.M. the Queen, and H.R.H. the Prince of Wales,
237 and 238, HIGH HOLBORN, LONDON, W.C.

PRIMULAS—PRIMULAS—PRIMULAS.—

Nineteenth year of distribution, Williams' superb strain, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS same price.
Also double white PRIMULAS, 6d. each.
Carriage free for cash with order.
JOHN STEVENS, The Nurseries, Coventry.

BEDDING PLANTS, established,

and so sure to give satisfaction.
CHRYSANTHEMUMS, the very choicest sorts, in good plants.
DAHLIAS, an unsurpassed collection. Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BEGONIAS A SPECIALTY.—Awarded Four

Gold Medals. Quality unsurpassed. Named Singles, from 12s. to 42s. per dozen; unnamed Seedlings, 12s., 18s., and 21s. per dozen; Bedding, choicest, 8s. and 9s. per dozen; choicest named Doubles, from 42s. per dozen; unnamed, very choice, 24s. and 30s. per dozen; choicest mixed, 18s. per dozen. Order direct from us, to procure our splendid strain. The best and cheapest combined procurable. CATALOGUES gratis.
JOHN LAINO AND SONS, Begonia Growers, Forest Hill, S.E.

PRIMULAS, Double White, 5s. per Doz., 35s.

per 100. Price for quantities on application.
TAYLOR AND CO., Nurseryman, Timperley, Cheshire.

FERNS! FERNS!—50 hardy roots, 1s. 6d.,

free; 10 varieties, Maidenhair, Ceterach, Adiantum, Ruta, &c., in Moss.—E. ANDREWS, Beaminster, Dorset.

FERN FRONDS for SALE, at 8s. per dozen

bunches of 40 fronds each.
Apply, J. McNAIR, Ilam Hall Gardens, Ashbourne.

SAMUEL HILL, Jun., is open to RECEIVE

CHOICE CUT FLOWERS in any quantity. Best Market Prices returned weekly.—Address, 21, Charlotte Street, Fitzroy Square, W.; and at Covent Garden Market, W.C.

SQUELCH AND BARNHAM,

North Row, Covent Garden, W.C., are OPEN TO DISPOSE of any quantity of MUSCATS and BLACK GRAPES, TOMATOES, CUCUMBERS, FRENCH BEANS, STRAWBERRIES, CHOICE FLOWERS, &c. Highest Market Prices obtained. Account Sales daily; Cheques weekly or as preferred by Sender. Baskets and Labels supplied. References given.

CHOICE FRUIT and FLOWERS.—Highest

Market Prices guaranteed. Prompt cash.
HENRY RIDES (late Wise & Rides), Covent Garden, W.C.

Surplus Cut Flowers.

HOOPER AND CO. (Limited) RECEIVE and DISPOSE of any quantity of above at best Market Prices. Boxes, &c., supplied.—Address, Commission Department, HOOPER AND CO. (Limited), Covent Garden, W.C.

MESSRS. GREGORY AND EVANS,

NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

WANTED, MAIDENHAIR FERNS, in small

60's. Send Sample, and lowest cash price per 1000. Also STRAWBERRY RUNNERS, the leading kinds, for Forcing.—Address, R. T. HOUSE, Lawn, Privett, Gosport.

Myrtles—Out-of-door Plants.

WANTED, by the first week in September, about 300 sprigs of broad 3-leaved MYRTLES, not spotted, and very clean and perfect, from 15 to 18 inches in length. Apply, at once, to
Mr. COHEN, Bookseller, Chichester Place, Harrow Road, W.

NOTICE OF REMOVAL.—

RUTLEY and SILVERLOCK, SEED MERCHANTS, late of No. 412, Strand, beg to intimate Removal of their Business to VICTORIA EMBANKMENT, W.C., corner of Savoy Street.

The Best Present for a Gardener.

VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.

Price 5s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

SUTTON'S FLORISTS' FLOWER SEEDS.

Begonia, Calceolaria, Cineraria, Cyclamen, Gloxinia, Primula, &c., the finest strains in existence. See SUTTON'S AMATEUR'S GUIDE. Sutton's Seeds Genuine only direct from SUTTON AND SONS, Reading.

SIMPLE INSTRUCTIONS by which an

abundance can be insured of delicious MUSHROOMS.
See Seed LIST, Free.

RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

CHOICE NEW CACTUS DAHLIAS, in-

cluding William Pearce, the new early yellow; Juarezii (crimson), Constance (white), Mr. Tate (white), Fire King (scarlet), Mrs. Hawkins (yellow, tipped white), Empress of India, King of the Cactus, Prince Imperial. Twelve varieties, including above, for 4s. 6d. per dozen.

DOUBLE, magnificent varieties, 12 kinds, 4s. 6d. per dozen.

SINGLE, magnificent varieties, 12 kinds, 4s. 6d. per dozen.

The above packed free and put on Rail for cash with order. Carriage paid, 6d. extra.

CHARLES RUXLEY, Nurseries, Brentwood.

Hyacinths, Tulips, Crocus, Lilies, &c.

C. G. VAN TUBERGEN, Jun., Haarlem, Holland.—Wholesale CATALOGUE now ready, and may be had free on application to Messrs. R. SILVERKRAAD AND SON, 25, Savage Garden, Crutched Friars, London, E.C.

ADIANTUM WALTONII (New Hybrid).—

This graceful Fern is now being sent out. For full description see *Gardeners' Chronicle* for June 23, 1888. Good strong plants with 5 to 7 fronds, 2s. 6d. each, 6 for 12s. 6d.; smaller plants, 1s. 6d. each, 6 for 7s. 6d.
Exports of HENRY WALTON, Edge End Nursery, Drierfield, Burnley, Lancashire.

CREEPERS FOR WALLS.—By planting

what is suitable, an ugly object may easily be made beautiful. Most being in pots, can be sent and put out at any time. Descriptive LIST and advice free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PRIMULA SINENSIS.—Magnificent strain,

including Chiswick Red, Alba magnifica, The Bride, Purpurea magnifica, Village Maid, Coccinea magnifica, and other superb varieties in splendid mixture. Per pkt., 1s. 6d. and 2s. 6d., post-free.—DANIELS BROS., The Royal Seedsmen, Norwich.

New Sowing Rape and White Mustard Seed.

H. AND F. SHARPE have to offer fine clean samples of the above-named Seeds, which they will be pleased to submit, with Lowest Prices, on application. Seed Growing Establishment, Wisbech.

NEW CABBAGE,

"DICKSON'S PERFECTION."
A new, valuable, and distinct variety, with wonderfully solid and compact heads, of good size and excellent quality; vigorous habit, constitution extremely hardy. Invaluable for market purposes as well as private gardens. Per packet, 1s., post-free.
JAS. DICKSON AND SONS, 108, Eastgate Street, Chester.

PEAT for Orchids, Hard-wooded Plants,

Ferros, &c., of best quality, can now be supplied from Summer Cutting, Wholesale or Retail. Samples and quotations on application to.

The PEAT ASSOCIATION, 10, Cullum Street, London, E.C.

W. H. LASCELLES AND CO.,

HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.

Plans and Estimates Free.
See large Advertisement on June 2, page 679.

SALES BY AUCTION.

Thursday Next.—(Sale No. 7704.)

VALUABLE ESTABLISHED ORCHIDS,
Comprising Choice CYPRIPEDIUMS, &c.MR. J. C. STEVENS will include in his
SALE BY AUCTION, at his Great Rooms, 38, King
Street, Covent Garden, W.C., on THURSDAY NEXT, July 5,
a choice Collection of CYPRIPEDIUMS, comprising fine
plants of:—

Cypripedium Salteri Hya-	Cypripedium microchilum
onm	„ vexillarium
„ Schrodere splendens	„ Leechii
„ villosum aureum	„ albo-purpureum
„ Crossianum superbum	„ chlorocarpum
„ Boxallii superbum	„ Harrisianum planum
„ Dautherli superbum	„ nitens
„ superbiens Demidoff	„ Wanceyzeii
„ Neo-Guineense	„ &c., &c.

From a well-known Belgian Amateur.

Also some splendid pieces of CYPRIPEDIUM PRESTANS,
LISSOCHILUS GIGANTEUS, CATASETUM BUNGEROTHII
(true), collected by Mr. Bungehoth; AGANISIA CYANEA,
and GALEANDRA GRACILIS (Lindley), by order of L'Horti-
culture Internationale (Linden) of Brussels.A fine specimen of AERIDES AFFINE SUPERBUM, with
seven growths, in flower; AERIDES LEONII, CYPRIPEDIUM
HIRSUTISSIMUM, C. SPICERIANUM, C. MAULEI VIR-
GINALE, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7704.)

VALUABLE IMPORTATION OF ORCHIDS.

MR. J. C. STEVENS will SELL BY AUCTION,
at his Great Rooms, 38, King Street, Covent Garden,
W.C., on THURSDAY NEXT, July 5, at half-past 12 o'clock
precisely, by order of Mr. F. Sander,

LELIA PURPURATA.

A very fine importation just to hand, with fine healthy foliage
and dormant eyes, comprising many large masses in good con-
dition; CATTLEYA AMETHYSTINA,
collector describes this as a most superb dark variety, the
plants are in very good condition, having many green leaves,
and some nice masses are offered;

CYPRIPEDIUM SCHLIMMI,

just received in finest possible condition: the plants offered are
as good as established;

SOPHRONITES GRANDIFLORA,

splendid importation just received in grand order. Collector
states that exceptionally fine varieties will be found amongst
this consignment—many fine masses are offered.

Also fine importations of the following:—

CATTLEYA MENDELII, in fine order,
CATTLEYA BOWRINGIANA, in fine order,
WHITE LELIA ANCEPS, in fine order,
ADA AURANTIACA, CATASETUM BUNGEROTHII, CYPRIPEDIUM
STONEL, AERIDES FIEBIGERII, ONCIDIUM
FLEXUOSUM, O. FORBESII, CATTLEYA MOSSIE, ODONTOGLOSSUM
CITROSIMUM, O. NEBULOSUM, O. CERVAN-
TESI, ONCIDIUM CAESIUM, DENDROBES, SACCOLA-
RIUMS, &c.

On view morning of Sale, and Catalogues had.

Valuable and Extensive Herbarium.

MR. J. C. STEVENS has been favoured with
instructions from the Executors of the late John Day,
Esq., of High Cross, Tottenham, to include in his SALE BY
AUCTION, at his Great Rooms, 38, King Street, Covent
Garden, W.C., on WEDNESDAY July 18, his splendid
HERBARIUM, contained in seven well made Pice Cabinets,
comprising specimens of Ferns of nearly every known variety.

On view morning of Sale, and Catalogues had.

Unique and Valuable Water-colour Drawings of
ORCHIDS.MR. J. C. STEVENS has been favoured with
instructions from the Executors of the late John Day,
Esq., of High Cross, Tottenham, to include in his SALE BY
AUCTION, at his Great Rooms, 38, King Street, Covent
Garden, W.C., on WEDNESDAY July 18, the Unique and
Valuable Collection of Life-size WATER-COLOUR DRAW-
INGS of ORCHIDS, by Darum, contained in 22 bound volumes,
together with 44 loose Drawings, and 5 framed, ditto.

On view morning of Sale, and Catalogues had.

The Remaining Portion of the Valuable Collection
of ORCHIDS formed by the late JOHN DAY, Esq., of
Tottenham.MR. J. C. STEVENS begs to announce that
he has been favoured with instructions from the
Executors of the late John Day, Esq., to SELL BY AUCTION,
at his Great Rooms, 38, King Street, Covent Garden, W.C.,
on WEDNESDAY, July 18, at half-past 12 o'clock precisely,
the Remaining Portion of his valuable COLLECTION of
ORCHIDS, comprising—

Odontoglossum Andersonia-	Cattleya Trianae, superb forms
um lobatum	Angrecum eudatum
„ Wilckeanum	Odontoglossum Alexandre
„ Ruckerianum	„ Pescatorei
Cattleya Warneri, superb	Thysiotopsis elegans, with
forms	7 fronds—very rare

A choice collection of Cypripediums, &c.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that
his next SALES of ORCHIDS in FLOWER and BUD
will take place at his Great Rooms, 38, King Street, Covent
Garden, W.C., on WEDNESDAY and THURSDAY, July 18
and 19, and he will be glad to receive Lists for Catalogues
as soon as possible.

Scotland Nurseries, Tansley, Matlock.

MR. GEORGE MARSDEN will SELL BY
AUCTION, at the "Old English" Hotel, Matlock
Bridge, on MONDAY, July 16, 1888, at 5 o'clock in the after-
noon, the old-established and widely known NURSERY, as
founded by the late Mr. Joseph Smith, with the residence called
Scotland House, and Workman's Cottage, Stables and Appurte-
nances, situate at Tansley, having a total area of 9a. 1s. 8p.
For further particulars, apply to the Auctioneer, Wirksworth;
or at the Office of JOSEPH H. STONE, Solicitor, Wirksworth and
Winstanley.—June 20, 1888.

Tuesday Next.

BRAZILIAN ORCHIDS for SALE, WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS are
instructed by Messrs. Sanger & Tropp, to SELL BY
AUCTION, at their Central Sale Rooms, 67 and 68, Cheap-
side, London, E.C., on TUESDAY NEXT, July 3, at half-past 2
o'clock precisely, a splendid lot of LELIA PURPURATA.
This importation has arrived in the best possible condition,
nearly the whole being compact masses well furnished with
leaves; all the plants have finished their growths, while many
of them show flower-sheaths which will certainly develop
themselves in flowers, together with many other imported BRAZILIAN
ORCHIDS, for Sale without reserve. Also a few plants of the
rare and beautiful DENDROBium MCCARTHYI, ODONTO-
GLOSSUM ASPERSUM, and HUMEANUM, ONCIDIUM
UNDULATUM, CYPRIPEDIUM SCHROEDERE MORGANÆ,
a NEW HYBRID, in bud, &c. The Sale will also include a
very fine assortment of well-grown established ORCHIDS.

On view morning of Sale, and Catalogues had.

Sydenham.

Short Notice.—Wednesday next. Unreserved CLEARANCE
SALE of STOVE and GREENHOUSE PLANTS, ORCHIDS,
&c., by order of T. Christy, Esq., in consequence of the
Gardens being required for building purposes.MESSRS. PROTHEROE AND MORRIS will
SELL BY AUCTION, on the Premises, Malvern House,
Sydenham, on WEDNESDAY NEXT, July 4, at 12 o'clock
precisely, without reserve, the whole of the well-grown
STOVE and GREENHOUSE PLANTS, CROTONS, specimen
CAMELLIAS and AZALEAS, two fine specimen LAPAGERIA
ALBA and ROSEA, large plants of EUCHARIS AMAZONICA,
ODONTOGLOSSUMS, ONCIDIUMS, CYPRIPEDIUMS, CATTLEYAS,
and other ORCHIDS, together with a large assort-
ment of ECONOMIC PLANTS.On view the day prior and morning of Sale. Catalogues had
on the premises, and of the Auctioneers, 67 and 68, Cheap-
side, London, E.C.

Friday Next.

ODONTOGLOSSUM CUSPIDATUM PLATYGLOSSUM, new
variety, Rehb. filis. The whole for Sale without reserve.MESSRS. PROTHEROE AND MORRIS are
instructed by Mr. G. T. White to SELL BY AUCTION,
at their Central Auction Rooms, 67 and 68, Cheap-
side, London, E.C., on FRIDAY NEXT, July 6, at half-past 12 o'clock,
precisely, without the least reserve, a fine importation of the
new ODONTOGLOSSUM CUSPIDATUM PLATYGLOSSUM.This variety is described by Professor Reichenbach, who
writes as follows:—"I described this curious plant as early as
1876 in *Görke's Linne*, xlii., page 26. It is also represented in
Xen's Or. hidgea, ii., tab. 18. It stands in the neighbour-
hood of *Odontoglossum luteo purpureum*, but the petals are
very acuminate, and not edged, and the narrow lip is ter-
minated by an abrupt cuspidate apex in lieu of being blunt or
usually bi-lobed, both sepals and petals are usually very rich in
dark blackish brown showing very little yellow. I have just
now specimens at hand of a variety with a broader lip. The
plant has been found quite isolate at a special spot where there
are no other *Odontoglossa*. Mr. W. Kahlreyer has just brought
over living plants, the bulbs are said to be much more like
those of *Odontoglossum crispum* than those of *O. luteo-purpureum*.
The flowers have a most powerful and agreeable
smell according to Mr. W. Kahlreyer."The Sale will also include a fine importation of CATTLEYA
SANDERIANA, and a small importation of ODONTOGLOSSUM
CRISPUM in splendid condition, together with ODONTOGLOSSUM
SPECIES, a very distinct-looking plant from a
new district. To these latter plants Mr. G. T. White begs to
call attention.

On view morning of Sale, and Catalogues had.

Friday Next, July 6.

WITHOUT THE SLIGHTEST RESERVE.

MESSRS. PROTHEROE AND MORRIS are
instructed by Mr. J. Charlesworth, Heaton, Bradford,
to SELL BY AUCTION, at their Central Sale Rooms, 67 and
68, Cheap-
side, London, E.C., on FRIDAY NEXT, July 6, at
half-past 12 o'clock precisely, the following:—The plants are in very fine condition, having been brought
home by the Collector.

NEW CATTLEYA.

Provisionally named CATTLEYA HENNISIANA.
Mr. W. Hennis discovered the plant in an unsearched district,
but the flowering season being over, he did not actually see
the flowers himself, but was assured on very good authority that
the flowers are of a deep yellow colour, the lip having a dark
purple centre, with lighter-coloured lines running through the
purple. The stout dried flower-spikes prove it to be very
floriferous, as many as eight flowers can be counted on them.
The growth of the plant is quite distinct from any known
Cattleya, the nearest one in habit being Cattleya Skinneri.To assure buyers of Mr. Charlesworth's confidence in the
above description, the purchase-money will remain in Messrs.
Protheroe & Morris' possession until the plants flower.

1000 ODONTOGLOSSUM VEXILLARIUM.

From a description of the collector, who has had a great
experience in collecting ordinary Frontino varieties, the
plants offered will be found of a superior type, a much larger
proportion of dark ones being amongst them; but they vary
greatly, some having pure white lips, with very dark sepals
and petals. Amongst the latter many flowers will be found
with dark rose-coloured veins running over the entire lip, pro-
ducing a quite novel effect. Some flowers measured 4 inches
across the lip. Dried flowers will be shown.

CATTLEYA GIGAS, new type.

When exploring remote districts Mr. Hennis discovered
this remarkably fine variety of gigas, with short stout leaves,
and took it at first to be C. Sanderiana; but closer inspection
revealed it to be superior in colour, and is very free-flowering,
even the smallest bulbs having flowered at home. The plants
offered are in capital condition, perfectly dormant and well
leaved. The dried flowers will show what a magnificent
Cattleya this is. Also

CYPRIPEDIUM SCHLIMMI,

ODONTOGLOSSUM HARRYANUM,

ODONTOGLOSSUM LUTEO-PURPUREUM.

The above all in fine condition. Large buyers will find it a
good opportunity to secure these varieties.In the above without reserve Mr. Charlesworth has
confidence the plants will sell on their own merits.

On view morning of Sale, and Catalogues had.

Monday, July 9.

SPECIAL SALE OF ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are
instructed by Mr. F. Sander to SELL BY AUCTION, at
their Central Sale Rooms, 67 and 68, Cheap-
side, London, E.C., on MONDAY, July 9, at half-past 12 o'clock precisely,
a quantity of ESTABLISHED ORCHIDS. Amongst those
offered for sale are:—

Cattleya Gaskelliana alba	Cypripedium Laurenceanum
„ (true) with sheath	„ (fine variety in flower)
„ Wagneri	Bollea Lalande
„ Reineckiana	Angrecum Sanderianum
„ Rothschildiana	Dendrobium Ainsworthii
„ aurea	„ Leechianum
„ imperialis	„ noble Sanderianum
Cypripedium Calceolatum	Masdevallia calceolaria (20 leaves)
„ Gernianum	„ acrochordia
„ Dominum, with eight	„ Reichbachiana
„ growths and two	„ Infrecta purpurea
„ flower-spikes	Utricularia montana in flower
„ To grandis	Zygopetalum aromaticum (3
„ Selligerian majus	growths)

On view morning of Sale, and Catalogues had.

The Downside Collection of Orchids.

HIGHLY IMPORTANT EIGHT DAYS' SALE of the whole
of this renowned Collection, including many plants match-
less in point of rarity, and the whole remarkable for culture
and condition, embracing unquestionably the most valu-
able and extensive Collection of

ESTABLISHED ORCHIDS

ever submitted to Public Competition.

MESSRS. PROTHEROE AND MORRIS will
SELL BY AUCTION, on the Premises, Downside,
Leathridge (fifteen minutes' walk from the London and
South-Western and the London, Brighton, and South Coast
Railway Stations).On TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY,
July 10, 11, 12, and 13, 1888,at 12 for half-past 12 o'clock precisely each day, by order of
Wm. Lee, Esq., who is Selling the Estate of Downside, and
relinquishing the cultivation of Orchids, the First Portion of
this extremely valuable Collection of

ESTABLISHED ORCHIDS.

Amongst the plants included in this First Sale the following
may be specially mentioned:—

Cattleya Trianae Leana	Cattleya Trianae Vestal
„ „ Dodgsoni	„ „ margiana
„ „ Osmani	„ „ Normanii
„ „ Dayana	„ „ Victoria Regina
„ „ Emper	„ „ belliosa
„ „ Empress	„ „ magnifica
„ „ Backhouseana	„ „ lilacina
„ „ Coleman	„ „ Thomsonii
„ „ alba	„ „ Rollisoni
„ „ elegantissima	„ „ beatifica
„ „ eboracensis superba	„ „ Archduke
„ „ regina	„ „ bella
„ „ implicata major	„ „ Jamesiana

and many others not yet named, with their portraits by
G. Macfarlane, the whole forming probably the grandest
collection of fine varieties of the Trianae section ever brought
together, many of the plants, moreover, being of the largest
size.

Cypripedium amandum	Cattleya Domiana
„ „ Arthuriatum	„ „ labialis (autumn flower- ing)
„ „ albo-purpureum	„ „ var. Pescatorei
„ „ euryandrum	„ „ Skinneri
„ „ Io	„ „ alba
„ „ Morgaia	„ „ Percivaliana, special
„ „ Swainianum	„ „ varieties
„ „ vernixium	„ „ alba
„ „ selligerum	„ „ Mossie alba
„ „ microchilum	„ „ Alexandrie
„ „ javanico-superbiens	„ „ iricula
„ „ chlorocarpum	„ „ Mendelii, special vars.
„ „ cardinal	„ „ Selbournensis
„ „ Crossianum	„ „ Morgania
„ „ marmosphyllum	„ „ Williamsi, of the gutta- tum section
„ „ vexillarium	„ „ Leana
„ „ Schroderae	„ „ Lelia elegans alba
„ „ Winnianum	„ „ Leana
„ „ Wallisii	„ „ Houtteana
Deodrobium Leechianum	„ „ purpurata Brysiana
„ „ enosum var. leucop-	„ „ albo lilacina
„ „ terum	„ „ nceps Schroderae
„ „ eodocharis	„ „ Veitchiana
„ „ rhodostoma	„ „ bella
„ „ Kingium album	„ „ flammæ
„ „ nobile nobiliss	„ „ Cologney cristata alba
„ „ elegans	„ „ Lemniana
„ „ arachnites	„ „ Massangeana
„ „ Schroderi	„ „ Dayana
Vanda Sanderiana	„ „ Cymbidium Parishii
„ „ suavis	„ „ Maxillaria Sanderiana
Cattleya fausta	
„ „ calummatia	
„ „ exoniensis	

MASDEVALLIA SECTION

comprises a grand and complete collection of Masdevallias,
many of the highest class, and some very rare.

ODONTOGLOSSUM SECTION.

There is a large and very choice collection of the finest
varieties, large plants, true to name, which have been
grown at Downside for several years, and are models of
successful cultivation.

PHALANOPSIS SECTION.

Amongst the Phalanopsis are two plants of P. Brymeriana,
also intermedia, Portei, one of the true variety Dayana, and
several leucorrhoda and casta.The plants may be viewed any day prior to the Sale, on
presentation of card to view. Catalogues are now ready, and
may be obtained on the Premises, of Mr. WOLFEORD, the
Head Gardener; or of the Auctioneers and Valuers, Central
Auction Rooms, 67 and 68, Cheap-
side, London, E.C.NOTE.—THE SECOND SALE will take place on the Premises,
on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY,
July 24, 25, 26, and 27.A List of the principal plants in the entire Sale appeared
in the *Gardeners' Chronicle* on June 9th last.

FRIDAY NEXT. } ODONTOGLOSSUM CUSPIDATUM PLATYGLOSSUM, New variety, Rehb. fls. The whole for Sale Without Reserve.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. G. T. WHITE, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, July 6, at half-past 12 o'clock precisely, without the least reserve, a fine importation of the new **ODONTOGLOSSUM CUSPIDATUM PLATYGLOSSUM**.

This variety is described by Professor Reichenbach, who writes as follows:—"I described this curious plant as early as 1876 in *Garike Linnaea*, xli., page 26. It is also represented in *Xenia Orchidaceae*, ii., tab. 18. It stands in the neighbourhood of *Odontoglossum luteo purpureum*, but the petals are very acuminate and not edged, and the narrow lip is terminated by an abrupt cuspidate apex in lieu of being blunt or usually bi-lobed. Both sepals and petals are usually very rich in dark blackish-brown, showing very little yellow. I have just now specimens at hand of a variety with a broader lip. The plant has been found quite isolate at a special spot, where there are no other *Odontoglossum*. Mr. W. Kalbreyer has just brought over living plants. The bulbs are said to be much more like those of *Odontoglossum crispum* than those of *O. luteo-purpureum*. The flowers have a most powerful and agreeable smell according to Mr. W. Kalbreyer."

The Sale will also include a fine importation of **CATTLAYA SANDERIANA** and a small importation of **ODONTOGLOSSUM CRISPUM** in splendid condition, together with **ODONTOGLOSSUM SPECIES**, a very distinct-looking plant from a new district. To these latter plants Mr. G. T. White begs to call special attention.

On view morning of Sale, and Catalogues had.

FRIDAY NEXT, JULY 6.—WITHOUT THE SLIGHTEST RESERVE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. CHARLESWORTH, Heaton, Bradford, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, July 6, at half-past 12 o'clock precisely the following. The plants are in very fine condition, having been brought home by the Collector:—

NEW CATTLLEYA.

Provisionally named **CATTLLEYA HENNISIANA**.

Mr. W. Hennis discovered the plant in an unsearched district, but the flowering season being over, he did not actually see the flowers himself, but was assured on very good authority that the flowers are of a deep yellow colour, the lip having a dark purple centre, with lighter-coloured lines running through the purple. The stout dried flower-spikes prove it to be very floriferous, as many as eight flowers can be counted on them. The growth of the plant is quite distinct from any known *Cattleya*, the nearest one in habit being *Cattleya Skinneri*.

To assure buyers of Mr. Charlesworth's confidence in the above description, the purchase-money will remain in Messrs. Protheroe & Morris' possession until the plants flower.

In offering the above, Without Reserve, Mr. Charlesworth has confidence the plants will sell on their own merits.

On view the morning of Sale and Catalogues had.

1000 ODONTOGLOSSUM VEXILLARIUM.

From a description of the collector, who has had a great experience in collecting ordinary *Frontino* varieties, the plants offered will be found of a superior type, a much larger proportion of dark ones being amongst them; but they vary greatly, some having pure white lips, with very dark sepals and petals. Amongst the latter many flowers will be found with dark rose-coloured veins running over the entire lip, producing a quite novel effect. Some flowers measured 4 inches across the lip. Dried flowers will be shown.

CATTLLEYA CIGAS, NEW TYPE.

When exploring a remote district Mr. Hennis discovered this remarkably fine variety of *gigas*, with short stout leaves, and took it at first to be *C. Sanderianum*; but closer inspection revealed it to be superior in colour, and is very free-flowering, even the smallest bulbs having flowered at home. The plants offered are in capital condition, perfectly dormant and well leaved. The dried flowers will show what a magnificent *Cattleya* this is. Also

CYPRIPEDIUM SCHLIMMI.
ODONTOGLOSSUM HARRYANUM.
ODONTOGLOSSUM LUTEO-PURPUREUM.

The above all in fine condition. Large buyers will find it a good opportunity to secure these varieties.

Havant.

FIRST ANNUAL SUMMER SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Ewing & Co. to SELL by AUCTION, on the Premises, the Sea View Nurseries, Havant, on WEDNESDAY, July 11, at 12 o'clock precisely, 5000 TEA, NOISEETTE, and other ROSES in pots; 2000 IVIES of the choicest green leaved and variegated kinds, 1000 AMPELOP-SIS VEITCHII, and other VIRGINIA CREEPERS; a large quantity of Hardy PASSION FLOWERS, including the new *White Constance Elliott*; Japanese and other HARDY EVER-GREENS, choice flowering and foliaged TREES and SHRUBS, Hardy CLIMBING PLANTS, &c., all in pots suitable for immediate removal.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, at the principal Hotels in the district, and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone.

Friday, July 20.

Important SALE of the whole of the COLLECTION of ESTABLISHED ORCHIDS (excepting the Cool-house ORCHIDS), by order of the Executors of the late H. Littleton, Esq., of Westwood House, Sydenham, without reserve.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, July 20, at half-past 12 o'clock precisely, without reserve, the COLLECTION of ESTABLISHED ORCHIDS, formed by the late H. Littleton, Esq. (except the Cool-house ORCHIDS), including fine specimen *Pescatorea Lehmanni*, several fine *Vandas*; about 200 *Cattleyas*, including *gigas*, *labiata*, *Mendellii*, *Mossii*, *Trianae*, and others; six pieces of *Odontoglossum*, *Uro-Skinneri*, *Insleyi*, *Leopoldianum*, and *Londesboroughianum*; several large *Cyclopogon cristata*, *Cypridium venustum*, *vellosum*, *hirsutissimum*, *caudatum*, and others; fine piece of *Epidendrum prismatocarpum*; specimen *Cymbidium eburneum* and *Parishii*; *Aërides* and *Dendrobis* in variety; a fine lot of *Cypridium niveum*, and *Calanthe Veitchii Phalaenopsis*; also twelve fine specimen *Eucharis amazonica*, in splendid health, and four *Panacrastrum fragrans*.

On view morning of Sale, and Catalogues had.

Monday, July 23.—Special Sales of Orchids.

MESSRS. PROTHEROE AND MORRIS beg to give notice that they will SELL, by order of Mr. F. Sander, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on the above date, large quantities of Imported and Established ORCHIDS.

Further particulars will be announced.

Friday, August 17.

The remaining portion of the valuable Collection of Established ORCHIDS, formed by F. A. Philbrick, Esq., Q.C., of Oldfield, Rickley.

MESSRS. PROTHEROE AND MORRIS beg to give notice that they will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, August 17.

Further particulars will appear.

Nurserymen, Florists, and Gardeners.

FOR SALE (through dissolution of partnership), the BLACKHEATH NURSERIES, a going concern, in the centre of a wealthy residential neighbourhood, 7 miles from Covent Garden. The long Lease of a compact well-established Nursery of 2 acres, with Stand in Covent Garden Floral Market, 6 Greenhouses, 125 by 13 feet; and 1 House, 105 by 30 feet; all exceptionally well built and heated. A good jobbing business could also be done.

Apply, R. J. SUTER, 6, Eastcombe Terrace, Blackheath.

TO BE DISPOSED OF, a FLORIST'S and SEED BUSINESS, near an important town in the South of England. An excellent opportunity for a persevering man with small capital. For particulars apply to A. Mr. Fry, South Western Hotel, Micheldever, Hants.

TO BE SOLD (a rare opportunity), a

Valuable and most Eligible FREEHOLD and FLORIST'S NURSERY. The property is pleasantly situated on a main road about 2 miles out of Leicester—which is one of the most thriving manufacturing towns in the Midlands—in a good locality. It consists of three (red brick and slated) well-built bay-windowed Villa Residences, containing eight rooms and two cellars each, with Gas and Water, at the rear of which are seven large Glasshouses (numerous Pits and Outhouses) heated by hot-water. Superficial Area of Glass, over 4000 feet. All in good state of repair. Also a large Garden, with river frontage, well stocked with Fruit Trees in full profit. The whole standing on about 2600 square yards of Land, and bringing in a rental of £36 per annum. Stock low.

For further particulars apply on the Premises to the owner, Mr. S. WALKER, Aylestone Park, Leicester; or HARRISON AND SONS, Market Place, Leicester.

TO BE SOLD, a MARKET NURSERY, 2½ Acres, s. a going concern. Glass, &c., in good condition. Rent low. All at. Roses a specialty. Ten miles from Covent Garden. Splendid opportunity.

A. S. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W. C.

Gardeners, Nurserymen, and Others.

THE LEASE of a compact NURSERY, situate in the heart of a fashionable wealthy West end neighbourhood, comprising 7 Greenhouses, Stabling, Foreman's Cottage, Cart Sheds, about an acre of Ground, held for a long unexpired term, at the low rental of £50.

Price £45 or offer.

HERBERT DRAKE, 343, Harrow Road, Paddington, W.

To Florists and Small Capitalists

Seeking a pleasant and remunerative occupation. **T**HE LEASE and GOODWILL of a well-established BUSINESS, successfully carried on for over 50 years, the present owner retiring. Every investigation counted in personal application. Price £300, Stock at valuation.

W. A. CLINGO, Nurseryman and Florist, 18, Finchley Road St. John's Wood, N. W.

Durant's Arbour Estate, Ponder's End, Middlesex.

TO NURSERYMEN, FLORISTS, and OTHERS.

TO BE LET, on Lease, for 21, 60, or 80 years, 1 to 50 acres of excellent MEADOW LAND, from £3 to £11 per acre, with the option of the purchase of the freehold within the first 9 years. No title or land tax. Apply to A. AND G. GUIVER, Land Agents, &c., Ponder's End, N.B. Several Nurseries established on the estate.

TO BE LET, 1 to 10 acres of GRASS LAND, on Lease for 7, 14, or 21 years. Rent from £3 to £12 per acre, with the option of purchase of the freehold within the first 7 years. Near the main road Enfield Highway, about 9 miles from London. Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

TO BE LET, from Michaelmas next, but may be entered upon at once, a small compact NURSERY, containing 9 Greenhouses, 6-room Cottage, Stable, Sheds, &c., in all about an acre. Situate N.W., within 5 miles of Covent Garden. Rent £32. Small stock at valuation. Address, Y. L. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W. C.

TO LET, an Old-established SEED, MARKET GARDENER and FLORIST BUSINESS. Several good Greenhouses. Good position in good Market Town. Excellent opportunity for energetic business man. Can be seen any time.—J. F. Gardeners' Chronicle Office, 1, Wellington Street, Strand, W. C.

BIRMINGHAM BOTANICAL and HORTICULTURAL SOCIETY.

A ROSE SHOW will be held in the Gardens, Edgbaston, on THURSDAY and FRIDAY, July 12 and 13, 1888. Entries Close on July 7. For Schedules, apply to

W. B. LATHAM, Curator.

SALTERIEBBLE and DISTRICT ROSE SOCIETY, JULY 19, 1888. Two Silver Cups awarded. Schedules and particulars from

ARTHUR M. BEECROFT, Secretary.

8, Heath Lane, Halifax.

TAUNTON and SOMERSET.—THE TWENTY-FIRST GRAND ANNUAL EXHIBITION of the Taunton Denno Horticultural and Floricultural Society will be held on THURSDAY, August 16, 1888. TWO HUNDRED and FIFTY POUNDS in PRIZES. See Tent. Schedules of the

HON. SECS., 5, Hammat Street, Taunton.

HUDDERSFIELD CHRYSANTHEMUM SOCIETY.

The FIFTH EXHIBITION of the above Society will be held in the Town Hall, Huddersfield, on FRIDAY and SATURDAY, November 16 and 17, 1888. Schedules are now ready, and may be had on application.

JOHN BELL, Hon. Sec., Marsh, Huddersfield.

GARDENERS' ORPHAN FUND.
1888 ELECTION—JULY 13th.
Dear Sir (or Madam), Your Vote and Interest is earnestly solicited on behalf of
ALBERT LACEY (age 5 years),
a Candidate at the above Election, whose Mother (the Widow of an Under Gardener) has been left with four children totally unprovided for, the eldest being only 13 and the youngest 2 years of age. The case is strongly recommended by—
Mrs. Otter, The Walsingham, Chislehurst; Rev. E. F. d'Anvergne, Vicar of Lindfield; S. C. Gibbons, Esq., Great Walsingham, Lindfield; Mr. J. Hodges, Walsingham, Lindfield, and others.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The Forty-fifth Anniversary

DINNER

IN AID OF THE
FUNDS OF THIS INSTITUTION,

WILL TAKE PLACE AT THE
"ALBION," ALDERSGATE STREET,

ON
WEDNESDAY, JULY 4 NEXT,

WHEN THE

Right Hon. JOSEPH CHAMBERLAIN, M.P.,
will Preside.

Tickets 21s. each.

In order to provide for the comfort and convenience of the Guests no Tickets will be issued after Friday, June 29.—By order,
EDW. R. CUTLER, Sec.
50, Parliament Street, S.W.—May 30, 1888.

GARDENERS' ORPHAN FUND.

A Public

DINNER

AND GREAT

Gathering of Gardeners

WILL BE HELD ON THE OCCASION OF THE

FIRST ANNIVERSARY AND ELECTION,

ON

FRIDAY, JULY 13, 1888, at 5 P.M.,

AT THE

Cannon Street Hotel.

Sir JULIAN GOLDSMID, Bart., M.P.,
IN THE CHAIR.

Tickets 5s. each, to be had of the Hon. Sec.,
Mr. A. F. BARRON, Royal Horticultural
Society's Gardens, Chiswick.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS

WILL BE THANKFULLY RECEIVED BY

A. F. BARRON, Hon. Sec.,

Royal Horticultural Society's Gardens,
Chiswick, London, W.

THE GARDENERS' ORPHAN FUND. NOTICE.

THE ANNUAL GENERAL MEETING of the SUBSCRIBERS to this FUND will be held at the CANNON STREET HOTEL, on FRIDAY, July 13 next, for the purpose of receiving the Report of the Committee and the Accounts of the Fund for 1887-8, Electing Officers for the ensuing year, Amending Rule II., so as to read as follows:—"Foremen in private, public, and market gardens;" also for the Election of Six Children to the benefits of the Fund.

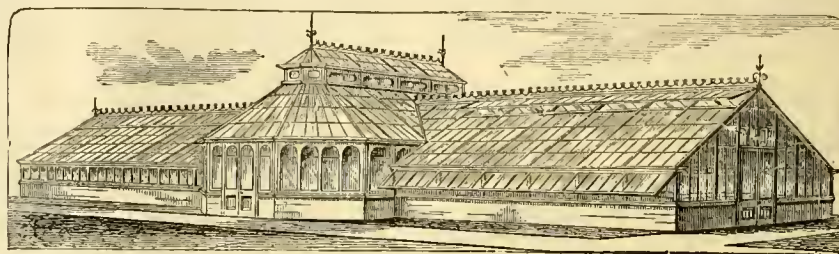
The Chair will be taken at 2 o'clock precisely, and the Ballot will Close at 4 o'clock. The DINNER will be held the same evening, at 5 o'clock, as previously advertised. Tickets 5s. each.

A. F. BARRON, Honorary Secretary.

Royal Horticultural Society's Gardens, Chiswick, London, W., June 25, 1888.

P.S.—The Voting Papers have all been issued. Any Subscriber not having received one is requested to communicate with the Secretary.

Five 1st Prize Medals recently awarded in open competition.



Five 1st Prize Medals recently awarded in open competition.

R. HALLIDAY & CO., HOTHOUSE BUILDERS and HOT-WATER ENGINEERS, ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that the VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm, from the smallest to the largest. Hot-water Heating Apparatus, with really reliable Boilers, erected, and success guaranteed in all cases. Melon Frames, Sashes, Hotbed Boxes, &c., always in stock.

Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.



THE "PERFECT" WEED KILLER.

The best preparation for Destroying Weeds, Moss, &c., on Garden Walks, Carriage Drives, Stable-yards, &c.

Price per gall., 2s.; 5 galls., 1s. 9d. per gall.; 10 galls., 1s. 6d. per gall.; 40 gall. casks, 1s. 4d. per gallon.

THE "SWIFT AND SURE" INSECTICIDE.

Awarded Certificate of Merit at the Royal Horticultural Society's Show.

THE MOST EFFECTIVE, THE SAFEST, AND THE CHEAPEST INSECT DESTROYER.

Prices: Bottles, 1s. 6d. and 3s. 6d.; per half-gallon, 6s.; gallon, 10s. 6d.

THE "PERFECT" MILDEW DESTROYER.

A CERTAIN REMEDY FOR MOULD AND MILDEW.

Prices: Bottles, 1s. and 2s.; per half-gallon, 5s.; gallon, 8s.

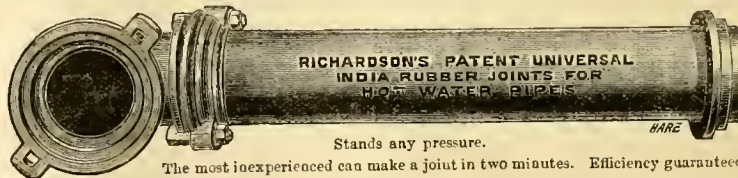
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THE HORTICULTURAL & AGRICULTURAL CHEMICAL CO., 103, Holm Street Glasgow.
Please note our Trade Mark, without which none is genuine.



HOT-WATER PIPES.



Stands any pressure.

The most inexperienced can make a joint in two minutes. Efficiency guaranteed.

RICHARDSON'S PATENT UNIVERSAL INDIA-RUBBER JOINT HOT-WATER PIPE SYSTEM
is the cheapest and most durable joint in use. Never leaks.

IMPROVED HEATING COILS, Ornamental and Plain, and COIL CASES, Garden ROLLERS, VASES, FOUNTAINS, SEATS, &c.

Manufactured by **THE MEADOW FOUNDRY CO. (Limited), MANSFIELD.**

See Gardeners' Chronicle, May 12.

THE COTTAGER'S CALENDAR OF GARDEN OPERATIONS.

Price 3d., Post-free 3½d.;

Twenty-five Copies, 5s.; fifty, 10s.; and one hundred, 20s.

Parcels of not less than twenty-five delivered, Carriage Free, in London only.

Not less than one hundred Carriage Paid to any part of Great Britain.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, LONDON, W.C.



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.
—Too well known to require description. Price, 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH AND SON (Limited), Nurserymen and Seed Merchants, Highgate Nurseries, N.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received large and fine importations of the following

ORCHIDS:—

CATTLEYA MENDELLI.
" AMETHYSTOGLOSSA,
" GUTTATA LEOPOLDI,
LÆLIA PURPURATA,
MILTANIA CANDIDA GRANDIFLORA,
" SPECTABILIS MORELIANA,
SOPHRONITIS GRANDIFLORA, &c.

Full particulars on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

PRIMULAS—PRIMULAS—PRIMULAS.—
Grand Premier Prize and Covent Garden strains. Fine large trusses, beautifully fringed flowers, and new colours. Good Plants, to bloom well, per dozen, 1s. 3d.; extra strong, 1s. 6d.; per 100, 9s. All carriage free.

CINERARIAS—CINERARIAS.—Bull's and Cannell's celebrated Prize Strains, and most brilliant colours. Cannot be excelled. Good Plants to bloom well, per dozen, 1s. 3d.; extra strong, 1s. 6d.; per 100, 9s. All carriage free.
S. SHEPPERSON, Florist, Prospect House, Belper, Derbyshire.

FAST LOTHIAN INTERMEDIATE STOCKS.
THOMAS METHVEN AND SONS
offer their choice strain of the above, in five varieties, viz., Scarlet, Purple, White, Crimson, and White Wall-leaved, at 1s., 2s. 6d., and 5s. each colour. Price to the Trade on application.
By Royal Warrant, Nurserymen and Seedsmen to the Queen, Edinburgh.

THE TRADE.
ANEMONE FANNINI, strong cultivated roots, scarce, 12s. per doz.
AMARYLLIS VITTATA, red, white centre, fine bulbs, 75s. per 100.

CYRTANTHUS MAKENI, a fine novelty, 20s. per 100.
FREESIA REFRACTA ALBA, strong, 30s. per 1000.
HEMANTHUS ALBIFLOS, flowering roots, 40s. per 100.
INANTOPHYLLUM MINIATUM, flowering roots, 15s. per 100.
NERINE FLEXUOSA, flowering roots, 20s. per 100.
SPARAXIS BULBIFERA, flowering roots, 6s. per 100.
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100 healthy and established plants, in fifty good varieties, £10
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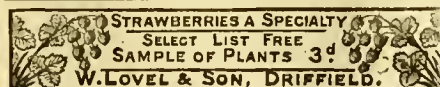
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As a Supplement

TO THE

GARDENERS' CHRONICLE

FOR

Next Week, July 7,

WILL BE

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OF

"THE DELL," HYDE PARK,
LONDON.



THE

Gardeners' Chronicle.

SATURDAY, JUNE 30, 1888.

ECONOMIC BOTANY.*

UNDER the above title the Royal Botanic Society of London has recently published in their *Quarterly Record* for January, February, and March an essay, for which the Council awarded the Jubilee prize of a Gold Medal and fifty guineas offered by the Society last year.

Considering the value of the prize, the interest of the subject, the immense resources available to one capable of dealing with them, we were led to expect, as the result of the Society's offer, some really useful contribution to Economic Botany, useful alike to commercial men as well as to botanists, and we were interested in seeing what would be the result of this offer on the part of a Society, Botanical in name, but in not much besides. In these matters, however, we are grievously disappointed, for we do not hesitate to say, that the Essay to which the Council has awarded the prize will be of no use whatever to either class.

The author classifies his subjects under the following eight heads:—Textile Materials, Materials for the Manufacture of Paper, Gun-cotton and its Derivatives, Materials used in Dyeing and Tanning, Gutta-percha and other Commercial "Gums," Vegetable Oils and Fats, Foods and Beverages, Timber.

Under the first heading—namely, Textiles—we look in vain for any adequate mention of Jute, which has made such rapid strides as a commercial article in this country, and has given to Dundee a notoriety besides that for making marmalade. In 1846 only 9300 tons of Jute were imported into this country, while in 1886 the imports had risen to 267,724 tons. At first

* Fifty Years of Economic Botany: an Essay upon the Vegetable Substances introduced into Britain for Use in the Arts and Manufactures, and as Food, during the reign of Her Majesty Queen Victoria. By John W. Ellis, L.R.C.P.

Jute was used only for mixing with wools in cheap druggets and carpets; now it is applied to a great variety of purposes, such as imitation tapestry, and even for mixing with cheap silks, to which it lends itself on account of its bright glossy appearance. These, then, are the primary uses of Jute with us, and not alone as a paper material, to which a short paragraph only is given in the Prize Essay.

Why Gomuti fibre, Piassava, or Bass and Coir, should be included among textiles is beyond our comprehension. The first is described as "the produce of the Sago Palm (*Saguerns saccharifer*)." This is incorrect, for the Sago Palm is *Metroxylon sagu*, Rottb.; *Arenga saccharifera*, however—the Gomuti Palm—does yield a small proportion of Sago from its stem, in the same way that some other Palms do. The fibre which is obtained from the sheathing base of the leaves is almost as stiff as Bass itself, and is only used in India for the coarsest kind of ropes or cables. Piassava, or Bass, is disposed of in a very brief paragraph. The author refers to it as the produce of *Attalea funifera* of Brazil; he is apparently unaware that two qualities are known in commerce under the names of Bahia and Peria Piassava—the first from *Attalea funifera*, and the second from *Leopoldinia Piassava*. The only reason for including Coir amongst textiles seems to be its application for making the well known cocoa-nut matting.

Pita fibre, or Silk-grass, is said to be "manufactured from a plant belonging to the N. O. Bromeliaceae, probably *Nitidularium* (*Bromelia*) karatas." We suppose *Nitidularium* is here intended, but the plant referred to is more correctly *Karatas Plumieri*, E. Morren. It may interest the author to know that the short, flossy fibre from the seeds of *Calotropis gigantea* (p. 141) was experimented upon not many years since. Messrs. Thresher & Glenney, the well-known hosiers, tried it in weaving socks. It was found, however, to have neither staple nor strength. The prospect of its being used as a textile is extremely small.

We have not space to point out the numerous errors in botanical nomenclature that occur throughout the whole Essay, but we will content ourselves with supplying a few omissions of a very important character from a long list that we might readily give. Amongst paper materials, for instance, we look in vain for *Yucca brevifolia*, *Bronssonetia papyrifera*, *Pollinia diapoda*, *Uiola virgata*, and others. Our readers will well remember that all these have been brought into use during the past few years, and particular prominence given to *Yucca brevifolia*, as being the source for some time of the paper used by the *Daily Telegraph*.

Caoutchouc, which has played such an important part in the telegraphy and telephony of the world, is dismissed very briefly without a note of what has been done at Kew in the wide diffusion of Caoutchouc-yielding plants over the face of the globe; while not a single scientific name of any of the African or Eastern species is mentioned.

Some of the most important omissions, however, are in the chapter on oils and fats. Cotton seed oil is not referred to, although the trade in this oil has increased enormously within the last five years, and although its refinement has been carried to such perfection that it is even substituted in France for Olive oil. A long list of oil seeds might be given which have not even a passing allusion in the Essay. A few will suffice:—*Telfairia occidentalis*, *Myristica angolensis*, *M.*

surinamensis, *M. guatemalensis*, *Hyptis spicigera*, *Polygala rarifolia*, *Lophira alata*, &c.

Under fruits and vegetables, though preserved fruits are referred to, not a word is said about what was done at the Colonial and Indian Exhibition in 1886, when this source of food was brought more prominently to notice than at any other period of history. Still more notable, perhaps, is the absence from the Essay of any mention of the subject of drugs. Not a single reference is given to Cinchonas, the acclimatisation of which has proved of such vast benefit to the human race; nor is there the slightest allusion to the countless new drugs introduced during the period under review. The want of an index completes the inefficiency of a Prize Essay which reflects little credit on a society which claims to be a botanical society and none at all on the judges it appointed to make the award.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM BERGGRENIANUM $\times$, n. *hyb.*

THIS is stated to be a cross between *Cypripedium Dauthieri* and *C. insigne*. Which was the pollen parent is unknown, but probably *C. Dauthieri*. Mr. Sander, the possessor, wishes it named in honour of his assiduous traveller, Mr. Berggren. Leaves ligulate acute, light garlic-green, with very sparse and thin-lined tessellations above, but simply green underneath. The flower is almost like that of *C. Dauthieri* Rossianum. There is no green space at the top of the upper sepal. The dark Indian-purple nerves stand on a light purple ground. A large space at the base with a few Indian-purple spots; lower sepal lightest green; the darker green nerves are covered with broken Indian-purple lines. Petals those of *C. Dauthieri*, dark purple, the inferior space at the base yellowish, with dark green spots, ciliate on the margins at the base. Lip of *C. Dauthieri*. Staminoide trilobed-forcinate, orange, very distinct from that of *C. Dauthieri*. Bracts very short, green, with an Indian-purple tinge. Peduncle dark Indian-purple. *H. G. Rehb., f.*

CATLEYA LABIATA (MOSSIE), Lindl., Mr. T. LANGE'S VARIETY.

This choice specimen is very like Mr. S. Courtauld's form (see p. 631). The lip, however, is distinct. Its anterior blade is rose-coloured, with broad, dark purple lines on a rose ground. At the base there are two rows of short, diverging, brownish lines. The sides are rose-coloured. Radiating orange lines diverge on either side of the centre. It was kindly sent me by Mr. T. Lange, of Heathfield, Gateshead-on-Tyne. *H. G. Rehb., f.*

ANGULOEA INTERMEDIA $\times$, n. *hyb.*

This is a new hybrid, raised by Mr. Seden between *Anguloea Clowesii* and *A. Ruckeri*, the former being the seed parent. It was exhibited by Messrs. James Veitch & Sons at a recent meeting of the Royal Horticultural Society, and also at the Linnean Society's centenary on May 25. The two parent species do not differ from each other in any very important details except colour, *A. Clowesii* being bright yellow, while *A. Ruckeri* is heavily marked and blotched with crimson on a light ground. The hybrid partakes most of the characters of the latter, the segments being pale honey-coloured, densely spotted with light rosy-purple. The spots on the sepals are minute, very dense, and somewhat confluent, into a kind of irregular pattern. On the petals they are larger, a little darker in colour, and more distinct. The lip is almost suffused with shiny cinnamon-brown, the disc being paler, and with a few transverse purple bars. It is thus an interesting addition to the cultivated forms of this small but interesting genus. The Messrs. Veitch inform me that this is not the first hybrid *Anguloea* raised arti-

ficially, one having been produced a few years ago by Mr. J. C. Bowring, of Forest Farm, near Windsor. This plant, however, is believed to have died shortly after flowering, and, therefore, the present one is probably the only hybrid *Anguloea* in existence. Whether Mr. Bowring's hybrid ever received a name I am unable to say; nor do I know whether its parentage was the same as that of the present one. *R. A. Rolfe.*

HARDY EUCALYPTI IN INDIA AND ELSEWHERE.

THE accurate determination of these plants is a matter of such importance practically, that we trust we may be rendering a service by further alluding to the subject. We have already figured the species which are most hardy in this country, but as the plants, or some of them, vary very greatly at different stages of their growth, and botanists have often had to pronounce an opinion upon imperfect specimens, it is no matter for surprise that considerable differences of opinion should have arisen.

E. URNIGERA.

The hardiest of all seems to be *E. urnigera*, as grown at Whittingham, East Lothian. The correctness of our identification of this species was questioned—as we expected it would be—because others, more competent than ourselves, had in former years given a different verdict. That verdict, however, was given upon much less complete evidence than we had the advantage of weighing, and in point of fact, the evidence Mr. Garrett was good enough to place before us has put the matter beyond all doubt. In so saying we have the powerful support of our excellent friend, M. Naudin, whose competency will not be denied, and who has made a special study of the genus, basing his observations on the study in all stages of their growth of a series of these fine plants under cultivation in the Villa Thuret, at Antibes. M. Naudin points out that in *E. urnigera* the young leaves differ from those on the older plants; thus, the young leaves are opposite, sessile, orbicular, and green; while the leaves on the adult plant are alternate, stalked, oblong, or elliptic, always green, never glaucous, and the flowers usually in groups of three. We are now enabled, thanks to M. Naudin's courtesy, to figure the young foliage of *E. urnigera* (A, in fig. 108, p. 799), and, for the better illustration of the species, repeat the figure of the adult foliage, flower, and characteristic fruit (fig. 110, p. 802). At p. 460 of the present volume will be found the interesting account of the tree at Whittingham, and in a subsequent number (p. 595) the comments of Dr. Landsborough.

E. COCCIFERA.

To this species belongs the fine tree at Powderham Castle, figured in these columns in vol. xii. (1879), p. 113. In this species also, as pointed out by M. Naudin, the leaves are of two forms. In the young state they are opposite, sessile, oval, oval, and more or less mucronulate; in the adult form they are alternate stalked, lance-shaped, often mucronate, the point or mucro being often curved, like a hook. The young branches are cylindrical and very white, and the flowers usually in tufts of seven. M. Naudin has also kindly enabled us to give an illustration of the young foliage (B, in fig. 108, p. 799), and to enable the reader to compare it with the adult foliage we repeat the figure of *E. coccifera* previously given (fig. 109, p. 801).

E. CORDATA.

Lastly, there is *E. cordata*, which we mention because it has been much mixed up by other observers by reason of the great similarity of its foliage to that of some other species. *E. cordata*, says M. Naudin, has the young shoots four-sided, leaves always of the same general character, opposite, sessile (even in the adult stage), covered with whitish meal when young, but glabrous, greyish, or flushed with red as the tree increases in age. The flowers are borne in tufts of three. Fruits almost hemispherical, flattened at the top. The

figure 111, on p. 803, is taken from a specimen sent us by M. Nandin.

E. coidata is noted by Baron Von Mueller, the historian of the Eucalypt, as the dwarfiest but one of all the species, and, as will be gleaned from what has been said, it is usually very distinct from *E. urnigera*, when seen in the adult fruit-bearing state; nevertheless there are, according to Baron Von Mueller, intermediate varieties linking the two species together. But even if this be so, for purposes of cultivation, it is best to keep the two distinct.

CULTURAL MEMORANDA.

CYCLAMENS IN SUMMER AND AUTUMN.

Young plants that were raised last October should by this time have made fine corms; they should be

side out-of-doors, until new growth commences. They should then be shaken out and repotted, using a similar material to that above described. Remove them inside and keep close for a few days and slightly shaded, very little water will be required until they begin to emit new roots. One of our largest London growers once informed me that it was a great benefit to the plants in autumn, after maturing their growth, to remove the lights altogether at night, for a few weeks, to allow the dew to fall upon the foliage, as greater substance and strength was ensured by so doing, but of course this should only be done on warm nights, otherwise, instead of proving a benefit, it would be really injurious. *J. G.*

SOLANUM JASMINOIDES.

This desirable climbing plant is propagated by means of cuttings from the young growths, which should be inserted in small pots filled with a soil

of the other. This most desirable *Phlox* is said to have been raised by the late Mr. Nelson, of Alderborough, and is no doubt a seedling from *P. subulata*, as this kind gives much variety of colour when plants are raised from it in that way, and there are now many named sorts that have so originated. All these procumbent *Phloxed* do well in almost any ordinary garden soil, but they succeed best where they can have a cool root-run, and as they spread quickly they may soon be increased by division, the season for doing this being just as the plants start growth in the spring. If seed is to be sown, that is best done in finely sifted soil, pressed firm and watered before the sowing, when it should be covered with a handlight and kept dark, or shaded closely, till the seed germinates. *J. S.*

TRACHELOSPERMUM JASMINOIDES (RHYNCHOSPERMUM).

There is not a more desirable plant for pillars in the greenhouse or conservatory at this time of year than this well-known plant, whose fragrant flowers are so much admired and useful for so many purposes. Owing to the milky sap of the cut shoots flowing away readily, it is of importance that this be stopped, so as to preserve the freshness of the flowers as long as possible, and that may be done by pressing the end of the shoot on a hot cinder for two seconds. The same treatment holds good for *Mandevilla* and *Poinsettia*. The plant may be propagated by cuttings taken in spring, when it is making its growth; these should be put into pots of sandy peat and loam, which may be placed under a handlight in the stove, or in a propagating frame without the handlight. Good bottom-heat is necessary for successful striking. When struck, pot off into small pots and grow on in a frame till they attain a size large enough to be planted out in a well prepared border or tub. *G. H. Merton.*



FIG. 108.—YOUNG FOLIAGE OF—A, EUCALYPTUS URNIGERA, AND, B, EUCALYPTUS COCCIFERA. (SEE P. 798.)

thoroughly looked after, for should they receive a check in any way, failure will result. Pot on as soon as the pots become full of roots, employing two parts of good fibrous loam and one of leaf-mould, or well decayed manure, adding a little silver-sand to keep it porous. Plants if properly attended to should commence to bloom in the early part of November, and continue to do so for at least three or four months. Our earliest batch we grew in 48's, and some of these had as many as forty fully expanded blooms on a plant in the first week in November. Old plants that have done blooming should have been removed from the flowering house to some light airy pit, where they can be properly looked after, but unfortunately many have an idea that after their beauty is gone, they can be stacked away anywhere so long as they are out of sight. Old plants intended to flower another season, and which have hitherto, been looked after, must be carefully attended to for a short time longer to mature and develop the crown buds, after which water must be gradually withheld to give them a rest; they can be otherwise kept in a pit, or laid on their

consisting of three parts light sandy loam and one of leaf-mould, and plunged in a gentle bottom-heat, keeping them close until rooted, when they should be potted off into 3-inch pots, and grown on. Young plants may also be raised from seed sown thinly in pots, afterwards treating the seedlings as above indicated. In the lofty and elegant conservatory attached to Watermouth Castle, near Ilfracombe, a plant of this white and sweetly-scented greenhouse perennial is in grand flower, the flowering shoots hanging loosely from the roof. *H. W. W.*

PROCUMBENT PHLOXES.

These are very desirable plants to grow on mounds or banks, or in the front of borders, or on elevated spots in the rock garden, where they can trail over, for which purpose their habit suits them, and when so placed they are very effective. The most striking with us has been *P. Nelsoni*, which has been a mass of white colour, and a very conspicuous object for some time, as it has shown in contrast with *Daphne cneorum*, the pink blossoms of the one helping to set off those

PLANTS CERTIFICATED

DURING THE HALF YEAR ENDING JUNE 30, 1888,

BY THE ROYAL HORTICULTURAL SOCIETY.

The following received First-class Certificates:—

<i>Abutilon vitifolium</i> ...	Kelway, May 22.
<i>Aërides Fieldingii</i> alba ...	Baron Schroder, May 22.
<i>Alsine verna pleissima</i> ...	Proebel & Co., May 22.
<i>Amaryllis Conqueror</i> ...	Veitch, April 10.
Emperor Frederick ...	Williams, April 10.
Finette ...	Veitch, April 10.
Miss Alaisie ...	Kelway, April 24.
Miss Roberts ...	Veitch, April 10.
Rodney ...	Veitch, April 10.
<i>Acoemone apennina</i> alba ...	Ware, May 8.
<i>Angraecum arcuatum</i> ...	Buchan, April 24.
<i>Sanderianum</i> ...	Sander, Jan. 10.
<i>Angulon intermedia</i> x ...	Veitch, May 22.
<i>Anthurium Desmetianum</i> ...	Linden, June 12.
<i>Ardisia mamillata</i> ...	Veitch, Feb. 14.
<i>Arcebia echinoides</i> ...	Paul & Son, May 22.
<i>Auricula</i> (alpine) Hetty Dean ...	R Dean, May 8.
" Mr. Harry Turner ...	Turner, May 8.
" Mrs. Harry Turner ...	Turner, May 8.
<i>Azalea Vervaeckiana</i> ...	Turner, May 8.
<i>Begonia</i> Baron Rothschild ...	Laing, May 22.
Camellia ...	Laing, June 12.
H. Adcock ...	Laing, June 12.
Mr. W. B. Miller ...	Cannell, June 12.
Princess Mand ...	Laing, May 22.
<i>Bigonia Tweediana</i> ...	Ross, April 10.
<i>Casalpinia japonica</i> ...	Veitch, June 26.
<i>Caladium Comte de Germiny</i> ...	Laing, May 22.
<i>Calochortus venustus</i> var. <i>citrinus</i> ...	Ware, June 26.
<i>Carnation</i> (tree) Mrs. W. H. Greenfell ...	Turner, April 10.
" Phyllis ...	Turner, Feb. 14.
" Purple King ...	Turner, April 10.
<i>Cattleya Wagneri</i> superba ...	Baron Schroder, June 12.
<i>Cinarraria Adnata</i> ...	Cannell, April 24.
Aspidia ...	Cannell, April 24.
Beatrice Kelway ...	Kelway, April 24.
Fanst ...	Cannell, April 24.
Marie ...	James, April 10.
Queen Victoria ...	Kelway, April 24.
<i>Cordylia australis</i> variegata ...	Williams, April 10.
<i>Cypripedium bellatulum</i> ...	Low, May 22.
bellatulum roseum ...	Tant, Jan. 10.
Tantzeanum ...	Veitch, June 26.
<i>Daphniphyllum glaucescens</i> ...	Kelway, June 26.
<i>Delphinium Bassan</i> ...	Kelway, June 26.
Figaro ...	Sir T. Lawrence, Feb. 14.
<i>Dendrobium chrysodiscus</i> ...	Sir T. Lawrence, March 27.
craspedos superbum ...	Sir T. Lawrence, March 27.
nobile Cooksoni ...	Sir T. Lawrence, Feb. 14.
splendissimum var. <i>grandiflora</i> ...	Baron Schroder, March 27.
<i>Disa racemosa</i> ...	Kew, May 22.
<i>Erythronium grandiflorum</i> albidum ...	Ware, April 24.
<i>Epilendrum atro-purpureum</i> ...	Sir T. Lawrence, June 26.
" O'Brienianum x ...	Veitch, May 22.

<i>Eulalia japonica gracillima</i> ...	Veitch, June 26.
<i>Haberia rhodopensis</i> ...	Kew, May 22.
<i>Iris Histro</i> ...	Paul & Son, Feb. 14.
<i>stylota alba</i> ...	Ware, April 10.
<i>Lælia anceps Schroderi</i> ...	Baron Schroder, Jan. 10.
<i>Lilac Marie Lemoine</i> ...	Paul & Son, March 27.
<i>Lycaste Skinneri Imperator</i> ...	Sander, Feb. 14.
<i>Narcissus bicolor</i> Mrs. J. B. M.	
<i>Camm</i> ...	Barr, May 8.
<i>incomparabilis Gloria</i>	
<i>Mundi</i> ...	Barr, May 8.
<i>Odontoglossum crispum</i> ,	
<i>Charlesworth</i> var. ...	Charlesworth, April 24.
<i>pardalium</i> ...	Sir T. Lawrence, Feb. 11.
<i>Halli magnificum</i> ...	Pollett, June 12.
<i>Humeum</i> ...	Pollett, April 24.
<i>nebulosum excelles</i> ...	Sander, June 12.
<i>Pescatorei, Pée's</i> var. ...	Pée, May 8.
<i>Rossi F. L. Ames</i> X ...	Williams, April 24.
<i>Oxera pulchella</i> ...	Ross, Jan. 10.
<i>Pæony</i> , <i>Agnes Mary Kelway</i>	Kelway, June 28.
<i>(tree) Comtesse d'Endort</i>	Veitch, April 24.
<i>Cyclops</i> ...	Kelway, June 26.
<i>Lady Carrington</i> ...	Kelway, June 26.
<i>Maria Kelway</i> ...	Kelway, June 26.
<i>Miss Brice</i> ...	Kelway, June 26.
<i>Miss Salway</i> ...	Kelway, June 26.
<i>Prince Albert</i> ...	Gordon, May 22.
<i>Peargonium (fancy), Amba-</i>	
<i>sadress</i> ...	Turner, June 26.
<i>(spotted), Spotted Beauty</i>	Low, June 12.
<i>Phalenopsis gloriosa</i> ...	Veitch, Jan. 10.
<i>F. L. Ames</i> ...	Baron Schroder, March 27.
<i>John Seden</i> ...	Paul & Son, May 8.
<i>Phyllaea decora Vilmoriniana</i>	Ware, May 8.
<i>Polemonium confertum</i> ...	R. Dean, May 8.
<i>Polyanthus J. Woodbridge</i> ...	Cannell, Feb. 14.
<i>Primula Braid's Seedling</i> ...	Crook, April 24.
<i>Crimson Beauty</i> ...	Cannell, Jan. 10.
<i>Miss Eva Fish</i> ...	Ross, May 22.
<i>Prostanthera lasiantha</i> ...	May, Feb. 14.
<i>Pteris cretica nobilis</i> ...	Kelway, June 12.
<i>Pyrethrum Beatrice Kelway</i> ...	Kelway, June 12.
<i>Metcor</i> ...	Kelway, June 12.
<i>Vega</i> ...	Kelway, June 12.
<i>Ramondia pyrenaica alba</i> ...	Veitch, June 28.
<i>Rhododendron H. p. olta</i> ...	Veitch, Feb. 14.
<i>Imogene</i> ...	Veitch, Jan. 10.
<i>Primrose</i> ...	Veitch, Feb. 14.
<i>Ruby</i> ...	Paul & Son, April 10.
<i>Rosa polyantha grandiflora</i> ...	Keynes, Williams & Co., April 24.
<i>Rose Climbing Niphotos</i> ...	
<i>Gloire de Polyantha</i> ...	Paul & Son, March 27.
<i>(Tea) Madame Hoste</i> ...	W. Paul & Son, May 8.
<i>Sappho</i> ...	W. Paul & Son, May 22.
<i>May Queen</i> ...	Rivers, April 24.
<i>Striped Brar</i> ...	D'Ombrian, June 26.
<i>Sarracenia Williams</i> X ...	Williams, June 12.
<i>Saxifraga Frederici Augusti</i> ...	Paul & Son, March 13.
<i>Selaginella cuspidata crispa</i> ...	Williams, April 10.
<i>Spathoglottis Kimballiana</i> ...	Sir T. Lawrence, March 27.
<i>Syrax Obassia</i> ...	Veitch, June 12.
<i>Utricularia longifolia chytro-</i>	
<i>phylla</i> ...	Sir T. Lawrence, March 13.
<i>Violet The Bride</i> ...	Veitch, March 13.

Botanical Certificate.

<i>Dendrobium macrorhynchum</i> ...	Linden, June 12.
<i>Bleicherodanum</i> ...	

Vegetables.

<i>Broccoli</i> , Cullington's varie-	
<i>gated</i> ...	Fulton, April 24.
<i>Cucumber</i> Lockie's Perfection ...	Lockie, June 12.

Fruit.

<i>Medlar</i> , The Royal ...	Rivers, January 10.
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BY THE ROYAL BOTANICAL SOCIETY.

Floral Certificates.

<i>Amaryllis Albert Victor</i> ...	Douglas, April 18.
<i>Aspasia</i> ...	Veitch, April 18.
<i>Exquisite</i> ...	Veitch, April 18.
<i>Monarch</i> ...	Douglas, April 18.
<i>Thackeray</i> ...	Veitch, April 18.
<i>Aricula Emperor Frederick</i> ...	Douglas, April 18.
<i>Marmion</i> ...	Douglas, April 18.
<i>Azalea Ami du Cœur</i> ...	Turner, May 16.
<i>Louise Vervaene</i> ...	Turner, May 16.
<i>Theodore Reimers</i> ...	Turner, May 16.
<i>Vervaene</i> ...	Turner, May 16.
<i>Begonia Enchantress</i> ...	Cannell, May 16.
<i>Mrs. F. W. Bennett</i> ...	Cannell, May 16.
<i>Lady Mary Fitzwilliam</i> ...	Cannell, May 16.
<i>Arthur Mallett</i> ...	Veitch, June 20.
<i>Camellia</i> ...	Laing, June 20.
<i>Claribel</i> ...	Laing, June 20.
<i>Duchess of Teck</i> ...	Laing, June 20.
<i>Lady Idlesleigh</i> ...	Laing, June 20.
<i>Lord Loughborough</i> ...	Laing, June 20.
<i>Mr. J. E. Midson</i> ...	Cannell, June 20.
<i>Mrs. Midson</i> ...	Cannell, June 20.
<i>Mrs. B. Wythe</i> ...	Cannell, June 20.
<i>Monarch</i> ...	Laing, June 20.
<i>Prince of Orange</i> ...	Cannell, June 20.
<i>Sir J. Pendell</i> ...	Cannell, June 20.
<i>Viscountess Cranbrook</i> ...	Laing, June 20.
<i>Caladium Charlemagne</i> ...	Laing, May 16.
<i>Comte de Germiny</i> ...	Laing, May 16.
<i>Cineraria Aspasia</i> ...	Cannell, April 18.
<i>Faust</i> ...	Cannell, April 18.
<i>Favourite</i> ...	James, March 21.
<i>Irene</i> ...	James, March 21.
<i>Maria</i> ...	James, March 21.
<i>Rosina</i> ...	Cannell, April 18.
<i>Clivia Orange Perfection</i> ...	Laing, May 16.
<i>Sulphurea</i> ...	Laing, May 16.
<i>Cyclamen Dixon Hartland</i> ...	Odell, April 18.
<i>Lord Hillingdon</i> ...	Odell, April 18.

<i>Epidendrum O'Brienianum</i> X	Veitch, June 20.
<i>Geum minimum</i> ...	Paul & Son, May 16.
<i>Gloxinia Madame Eleu</i> ...	Laing, May 16.
<i>Metcor</i> ...	Laing, June 20.
<i>Nalis</i> ...	Laing, June 20.
<i>Mimulus Jubilee</i> ...	Carter, May 16.
<i>Nyctotia distitiflora undulata</i>	Virgo, May 16.
<i>Narcissus bicolor</i> Rev. J. B. M.	
<i>Camm</i> ...	Barr, April 18.
<i>Leedsii, Duchess of West-</i>	
<i>minster</i> ...	Barr, April 18.
<i>poeticus grandiflorus</i> ...	Barr, May 16.
<i>Pæony Lady Gwendoline Cecil</i>	Kelway, June 20.
<i>Millais</i> ...	Kelway, June 20.
<i>Pyrethrum Duke of Connaught</i>	Belchin, June 20.
<i>Jubilee</i> ...	Kelway, June 20.
<i>Leonard Kelway</i> ...	Kelway, June 20.
<i>Mr. Santley</i> ...	Kelway, June 20.
<i>Queen Sophia</i> ...	Kelway, June 20.
<i>Rhododendron Aurora</i> ...	Veitch, June 20.
<i>Ophelia</i> ...	Veitch, June 20.
<i>Rose Duchess of Rutland</i> ...	Bennett, April 18.
<i>Lady Alice</i> ...	Paul & Son, March 21.
<i>miunifolia alba</i> ...	Bennett, April 18.
<i>(Tea) Princess Beatrice</i> ...	Bennett, May 16.
<i>Sappho</i> ...	W. Paul & Son, May 16.
<i>Viola Snowflake</i> ...	Chambers, June 20.
<i>Violet Victoria</i> ...	Chambers, April 18.

Botanical Certificates.

<i>Anthurium Scherzerianum</i>	
<i>saogunum</i> ...	James, May 16.
<i>Langii</i> ...	Laing, June 20.
<i>Scherzerianum atrosan-</i>	
<i>guineum</i> ...	Williams, April 18.
<i>Ardisia mamillata</i> ...	Veitch, June 20.
<i>Aralia Maximowiczii</i> ...	Veitch, June 20.
<i>Caladium auriflamme</i> ...	Laing, June 20.
<i>Duchesse de Montemart.</i>	Laing, June 20.
<i>La Lorraine</i> ...	Laing, June 20.
<i>Cattleya Mendelli</i> var. <i>H.</i>	
<i>Little</i> ...	Hill, June 20.
<i>Mossie claptoneusis</i> ...	Low, June 20.
<i>Firrhii</i> ...	Low, June 20.
<i>gigantea</i> ...	Cypher, June 20.
<i>Cordylis australis variegata</i> ...	Williams, April 18.
<i>Cypripedium bellatulum</i> ...	Cypher, June 20.
<i>Laing</i> , June 20.	
<i>Low</i> , June 20.	
<i>Williams</i> , June 20.	
<i>Perkins</i> , March 21.	
<i>Paul & Son</i> , June 20.	
<i>Dendrobium nobile Cooksoni</i> ...	
<i>Dianthus plumarius annulatus</i>	
<i>Eleagnus pungens macu-</i>	
<i>latus</i> ...	Veitch, June 20.
<i>Erigeron aurantiacum</i> ...	Ware, June 20.
<i>Fritillaria Thomsoniana</i> ...	Veitch March 21.
<i>Gymnogramma Pearcei</i> fo-	
<i>busta</i> ...	Veitch, June 20.
<i>Lælia purpurata Archduchessa</i>	Cypher, May 16.
<i>nobilior</i> ...	Cypher, May 16.
<i>Leea amabilis spleodens</i> ...	Williams, June 20.
<i>Nepenthes Curtisii</i> ...	Veitch, June 20.
<i>Occlidium undulatum</i> ...	Williams, April 18.
<i>Odontoglossum Coradinei</i> he-	
<i>mileum</i> ...	Sander, June 20.
<i>cordatum splendens</i> ...	Sander, June 20.
<i>Phalenopsis Kimballiana</i> ...	Sander, June 20.
<i>speciosa</i> var. <i>Impe-</i>	
<i>ratrice</i> ...	Berkeley, June 20.
<i>Puschkinia libanotica com-</i>	
<i>pacta</i> ...	Barr, April 18.
<i>Ramondia pyrenaica alba</i> ...	Ware, April 18.
<i>Saxifraga Frederici Augusti</i> ...	Paul & Son, June 20.
<i>Sambucus racemosa serrati-</i>	
<i>folia</i> ...	Paul & Son, March 21.
<i>Sarracenia Williams</i> X ...	Veitch, June 20.
<i>Selaginella cuspidata crispa</i> ...	Williams, June 20.
<i>Senecio elegnifolia</i> ...	Williams, April 18.
<i>Thuiopsis borealis lutea</i> ...	Veitch, June 20.
<i>Trillium discolor</i> var. <i>atrata</i> ...	Sloccock, June 20.
	Veitch, March 21.

PLANT NOTES.

STREPTOCARPUS PARVIFLORA.

The plant figured in the *Botanical Magazine* under this name is *S. lutea*, which differs from the true *S. parviflora* in having longer and narrower leaves, with more petiolate bases, fewer hairs, and a greener colour. The true *S. parviflora* is now in flower in the Succulent-house (No. 5) at Kew. It was raised from seeds collected in Grahamstown, where it is common in rocky places. Curiously enough this plant, which is a pretty subject for pots, has not previously been in cultivation, nor is there a figure of it anywhere. The flowers are like those of an *Achimenes* in shape, the tube being narrow, three-quarters of an inch long, and the limb flat and spreading, 1 inch across. Colour white and violet on the outside, paler inside. The scape is similar to that of *S. lutea* (*parviflora* of gardens). *W.*

CHIRONIA PEDUNCULARIS.

This is one of the handsomest of the *Chironias*, and, moreover, one which is very easily cultivated. In habit it is like that of an *Exacum*; the leaves are large, three-nerved, and sessile, and the flowers are borne profusely in terminal branching racemes, each flower having a long thin stalk. In form the flowers resemble *Exacum macranthum*, but they are not

quite so large, whilst the colour is rosy-purple. There is a poor figure of it in the *Botanical Register*, xxi., 1803, and another in *Paxton's Magazine*, 1836, under the name of *C. trinervis*. Lindley states that nothing was known of the country nor history of this plant, which was in cultivation in London nurseries in 1835. It is a native of the Cape. Plants of it may now be seen in flower in the Cape-house at Kew. They were raised from seeds brought from Grahamstown a year ago. *W.*

NYMPHEA ZANZIBARENSIS FLORE-RUBRO, N. OETGIESIANA VAR. ADELE; AND N. SCUTIFOLIA ROSEA.

Under these three names there are three plants in the collection at Kew which are in flower, and which are not distinguishable from each other. The first-named came from Karlsruhe, reputedly as a cross between *N. zanzibarensis* and *N. dentata*; the second came through seeds from Palermo, as already noted in the *Gardeners' Chronicle*; and the third was obtained from Glasgow. Whatever the origin of the plant which has somehow been named three times, it is certainly a variety of the well known African species, *N. stellata*, and so far as I can make out it is the form which has been named *N. stellata* var. *purpurea*. The flowers are 5 inches across, and a pale mauve-purple with purple filaments and yellow anthers. It is a distinct and pretty Water Lily. The flowers open before noon and remain expanded till evening. *W. W.*

IRIS DOUGLASIANA.

At Mr. Ware's nursery, Tottenham, there is now in bloom the pretty but rare *Iris Douglasiana*. It has a creeping rhizome about as thick as the little finger; leaves about a foot long and 1½ inch broad; the flowers are rosy-lilac, the exterior divisions being creamy-white, towards the base yellow, with spots and veins of a rosy-purple. The plant is of easy culture, but requires a sheltered position.

ORCHID NOTES AND GLEANINGS.

LÆLIA MAJALIS.

In speaking of this species, at p. 717, as one of the best of its kind, Mr. Ashton does it no more than justice, although perhaps our appreciation of the beauty of its flowers is heightened by the fact of our seeing them so seldom. I have had the charge of a few plants for several seasons past, and although each autumn they were exposed to the light in the manner Mr. Ashton suggests, in order to ripen off the pseudobulbs, such treatment did not induce them to flower. Last August, however, when the growth was finishing, several plants were placed out-of-doors, being hung on a shrub against a south wall; here they stayed for six or eight weeks. Owing most probably to the maximum amount of light and fresh air they thus obtained, we have been rewarded this summer by their flowering. One plant, just over, bore a flower measuring 7 inches across. Except in the matter of flowering, no difficulty attends the cultivation of this *Lælia*; our plants produce pseudobulbs as large as the imported ones. When once they have fairly commenced growing, it is best to let them have abundance of warmth and moisture; by so doing their growth is completed more rapidly, and there is a longer time allowed in which to ripen it. *W. B.*

LÆLIA ANCEPS VAR. STELLA.

The treatment recommended for these plants is to place them in an intermediate or *Cattleya*-house, fully exposed to the sun. They are kept very damp during the growing season. Warner and Williams' *Orchid Album*, May, t. 329. See *Gardeners' Chronicle*, February 26, 1887.

MORMODES FARDINUM.

For these plants Mr. Williams recommends cultivation in the East India-house during the growing period, in good fibrous peat, in well drained pots. When growth is finished water is withheld and the plant kept close to the glass in an intermediate house. Warner and Williams' *Orchid Album*, t. 330.

LÆLIA ELEOANS MORRENIANA.

A magnificent variety which adds fragrance to

the other charms of its flowers. The plant requires abundance of heat, free exposure to light, but shade from direct sun, and abundance of water when growing. Warner and Williams' *Orchid Album*, t. 331.

DENDROBIUM KINGIANUM VAR. *ALBA*.

This differs from the type in its white flowers, which are produced from February to March. Like the typical plant, it should be grown in a pot or hanging basket, using fibrous peat and sphagnum for it to grow in. A moderate supply of water should be given during the growing season, which commences immediately after the flowers have faded. After the

TREES AND SHRUBS.

ORNAMENTAL SHRUBS.

From the Royal Botanic Garden, Edinburgh, we have received specimens of the three following shrubs:—

Olearia Gunniana.—A hardy evergreen Composite shrub, remarkable for the profusion with which its starry white flower-heads are produced. The leaves measure rather less than 1 inch in length by a quarter of an inch in breadth, being

pinkish-orange, with the limb dividing into five oblong-obtuse yellowish lobes. The shrub is a native of the Eastern Himalayas, at elevations of 10,000–12,000 feet, where it was originally discovered by Sir Joseph Hooker. Mr. C. B. Clarke, in Hooker's *Flora of British India*, refers to this species as synonymous, or varietal *R. Roylei* and *blandfordiaeflorum*, and states that it is of very variable character.

Discaria Toumatu.—A straggling, Rhamnaceous shrub, of formidable appearance owing to the long straight, regularly-disposed spines with which it is



FIG. 109.—ADULT FOLIAGE OF *EUCALYPTUS COCCIFERA*. (SEE P. 798.)

growth is completed, just sufficient moisture should be allowed to keep the bulbs plump. It thrives well in the warm part of the *Cattleya* house, requires an abundance of light, and a tolerable amount of sunshine. Warner and Williams' *Orchid Album*, t. 332.

NATIONAL CHRYSANTHEMUM SOCIETY.—The first provincial show of the above will be held in November next, in conjunction with the fourth annual show of the Sheffield and West Riding Chrysanthemum Society and the Sheffield and Inhamshire Gardeners' Mutual Improvement Society. We note in the schedule that the prizes are very liberal in amount, one—that for the best representative collection of cut flowers of large flowering varieties—being of the total value of £24 15s.

linear-oblong, sinuately toothed at the margin, blackish-green above, hoary beneath. The flower-heads are on axillary stalks rather longer than the leaves, the heads three quarters of an inch across, and surrounded at the base by a many-rowed involucre of oblong appressed bracts covered, like the stalks, with star-shaped hairs. The leaves exhale an aromatic fragrance.

Rhododendron cinnabarinum.—A dwarf species, with shortly stalked membranous leaves, 2 inches long by 1 inch in width, oblong, obtuse, glaucous-green, and glabrous above, beneath studded with circular scales. Flowers at the ends of the branches on short, recurved, scaly stalks; corollas exceeding 1 inch in length, tubular, funnel-shaped,

furnished, and to which it probably owes the name given to it by the New Zealand colonists—"Wild Irishman." The leaves are minute, linear-obovate, entire, glabrous; the flowers inconspicuous, whitish, like those of a *Colletia*, but without petals. It would make a good hedge-plant. The spines were used by the natives for tattooing purposes.

A FINE *SEQUIA OIGANTEA*.

In the autumn of 1855 I planted a very small Wellingtonia. I have to-day (June 23) had it accurately measured, and the measurements may interest those who have trees of the same age. The height is 70 feet; girth of trunk (18 inches from the ground), 10 feet 6 inches; outside circumference of

branches, 80 feet; this outside circumference would have been greater, but that I have frequently removed the lower branches. *Henry N. Ellacombe, Bilton Vicarage.*

TRANSPLANTING HOLLIES.

Everyone who has had anything to do with transplanting Hollies knows what ticklish things they are to deal with unless caught at the right time, the safest season for their removal being either just before growth commences, or immediately after it is formed and has become a little firm, when plants, even of large size, may be lifted and replanted with safety. To do this and ensure success, it need hardly be said that a certain amount of care is needed, the chief things to be particular about being to secure as large a ball as possible and to well fasten it together before removing it from the hole, and to plant with no loss of time. The holes should be dug first where the plants are to go, and they should be made much larger than the mass of earth and roots to be placed in them, so that the latter may be stretched outwards and not left in a confused tangle. The subsoil should be broken up, and if bad it ought to be removed. After setting the plant in its station some soil should be worked into every crevice and hollow, and after this the plant should be thoroughly watered, a short time afterwards filling in the rest of the soil, and making it firm. A mulching of some sort should be given, unless the branches quite cover the soil and by thus keeping the soil shaded it will remain moist for a long period of time. *J. S.*

THE APIARY.

CAPACITY OF HIVES.

A GREAT variety of opinion exists as to what ought to be the capacity of a hive. Some say they ought to be very large, and others that they ought to be very small. My experience points to the use of large hives. Of course it would be very foolish to put a very small swarm into a very large hive; the proper thing to do is to put the swarm into the hive suited to its capacity, but to encourage the use of large hives by getting them a little larger each time. Our departed friend Pettigrew got his hives larger and larger, until he had some 20 inches in diameter. Beginning with smallish hives, his swarms got larger and larger, until they were fit to put into the 20-inch hives, and fill them, and in good seasons to fill a large super as well. If a swarm be put into a skep, and keep up in one corner of it, that skep is too large, and a smaller one should be chosen; but if it spread all over the roof, and downwards as well some distance, the skep is suitable. It is very easy to manage the matter in a bar-framed hive, as it can not only be made to suit the swarm at the commencement, but can be continually added to as occasion requires. A good swarm can generally be entrusted with seven frames, and will very soon fill them; but a swarm that will fill seven frames ought to be supered at the same time it is hived. This was not formerly practised, but experience has proved the advantage of it. And the reason is not far to seek. It is the instinct of bees to store honey at the top of the frames, and the brood down lower. If a swarm is hived simply on frames it will build downwards; and if supered after this, it is probable that the bees will take no notice of the super, but continue their work downwards. If, on the other hand, the swarm is supered at the same time as it is hived, the super being at the top, the bees will at once work in the supers as well as the frames, and the work will go on simultaneously both above and below. The super is, of course, the top as far as the bees are concerned, for they do not know that the top is to be lifted off when filled. Therefore we say use large hives. Little hives produce little swarms, and little swarms are often altogether useless.

LEAVING SUPERS ON DURING WINTER.

There are many who do this, and the bees do not seem to come to any harm in consequence. We do

not see why they should not be left on. It is often more trouble to take off partly filled sections than full ones, and if left on there is ample upward ventilation, which is allowed to be a very good thing. We have often heard (and find it repeated in the

will assuredly get what honey there is to be had. *Bee.*

PLANTS AND THEIR CULTURE.

APHELANDRAS.—Although many species of *Aphelandras* have been introduced, yet those which have a real horticultural value are but few in number. When any of these few species are well done, they are not only showy, but distinct-looking, valuable decorative subjects, their terminal spikes of flowers being freely produced from every shoot. There are several ways in which to grow the plants, some persons preferring large bush plants, obtained by cutting hard back after flowering; others confine them to a single lead, and grow a quantity of them, using 48's or 32 pots. Something may be said in favour of each form, but I think the style of growing them should be made to depend greatly on the habit of the plant: for example, one of the best autumn-flowering species, *A. cristata*, which has a rather free, long-jointed habit; looks much best when grown as a fair-sized specimen from 2 to 3 feet over, its orange-scarlet spikes of flowers being then seen clear above the mass of foliage, in which condition the plant makes a capital exhibition subject. This species is at present growing freely, and if at all pot-bound should be assisted with liquid manure, as the stronger the shoots the finer will be the spikes of flowers next season. Moreover, if the plant suffers any check, the foliage is apt to turn yellow and drop, which detracts from the beauty of the plants. In species like *A. aurantiaca* and *A. Roezlii*—the latter a dwarf grower—plants with single stems, and growing in small pots, are to be preferred, when so grown, and flowering as it does in winter, it is perhaps the most useful of the genus. Its brilliant cinnabar-coloured flowers, and silvery-frosted-like leaves, associate well with other plants. This plant is easily raised from seeds, which almost every plant is sure to produce more or less. But in order to obtain the seeds some little care is necessary to prevent them from being spontaneously scattered by the plants themselves; and as the seeds do not all ripen at one time it is a good plan immediately it is perceived that ripening has begun, to tie or rather roll a piece of moderately stiff writing-paper round the flower-spikes, merely tying it at the bottom, and allowing it to remain until the majority of the seeds have ripened, when it should be removed with the spike intact. Having secured the seeds, sow them in well drained seed-pans, using a free sandy compost, and place in a moist, growing stove temperature. As soon as the young seedlings are fit to handle, prick them off into pans or boxes, and subsequently, when large enough, pot off into well-drained 48's. All the *Aphelandras* like a light mellow loam, and a temperature in summer of about 65°, and 10° less will suffice in winter. They should be freely syringed during the growing season as this tends to keep them clean and healthy. *A. Leopoldi* has citron-yellow flowers and deep green leaves, which are beautifully veined with white. Similar to this is *A. fascinator*, also banded and marked with white, but the ground colour of the leaves is of a lighter green, and the under sides are claret coloured; the flowers are deep orange-scarlet. *A. chrysops* is a distinct yellow-flowered species, and is on that account worthy of being added to a collection. Whether propagated from seeds or cuttings, the present is a seasonable time to raise plants of *cristata* and *Roezlii*; the latter will yet have time to make nice flowering plants for the coming winter and spring. The plants are better when the shoots are not pinched back. Cuttings of *A. cristata* put in now would form nice flowering plants a year hence, taking care not to stop them later than September. Cuttings of the other species may be put in now, or at any other season of the year as required, as they will root readily if placed in an ordinary propagating frame, and treated in the usual way.

Richardia ethiopica.—These useful and beautiful plants are grown in various ways in different parts of the kingdom. Some growers plant them out, and often with success, but all things considered, growing them in pots and affording shelter from the weather is the safest plan to follow. Moreover, if planting out be carried on pots are still the best in the earlier stages of growth. As *Richardias* are in most request in winter and spring, the summer is obviously the most suitable time to give the stock a general overhaul. In doing this the offsets should



FIG 110.—EUCALYPTUS URNIGERA: ADULT FOLIAGE.
(SEE P. 793.)

British Bee Journal last week) that if supers are left on all the winter the bees turn out just as well in the spring, and sometimes will have them filled by the time other people are just putting them on. The early bird gets the worm, and the early beekeeper

be assorted into sizes and kept for single crowns; the largest plants, and those which are likely to produce a good crop of suckers, when being forced into flower, should be put into 24's, the next size into 32's, and smaller ones, which will be reputed later, will do with 48's, putting in the largest ones singly, and the smaller at 3 inches apart. A rich loam suits the plants. The drainage should be small in quantity but well placed, and plenty of room should be left for giving water, making the soil moderately firm. After potting, plunge the plants in cold pits or frames—if the latter, they can be conveniently filled by placing the tallest plants at the back, and the smallest at the front. When the plunging is finished, give the whole a good soaking of water. Shade, syringe, and keep rather close until new growth commences, gradually giving more air, until on fine days the sashes may be taken off. Plants so prepared will have fine, large, well-ripened crowns, which are easily forced into flower. Of other forms, *albo-maculata* is the only one usually met with, and this succeeds under similar treatment to *athiopica*. It is a weaker grower. *F. Ross, Pendell Court.*

THE FLOWER GARDEN.

HARDY PERENNIALS.—Young plants raised from seed this year, and which have hitherto been treated in a cold frame, will require to be shifted into larger pots, the most vigorous plants to be put in 4-inch pots, which will carry them on till the time arrives for planting them out. Smaller plants should be put into smaller pots, bearing in mind that no good is to be gained by over-potting. Use clean pots and ample drainage, the last point being of great importance to this class of plants. After potting the majority of these plants it will be better to stand them in the open air in sunk beds of cinder-ashes. In potting use a compost of three parts fibrous loam, one of leaf-mould, and one of sand; and when the roots reach the sides of the pots attend well to watering, and also to keeping the surface free from weeds and moss. Continue cold frame treatment for slow growing and delicate subjects, and also for seeds which have not germinated, such as *Himalayan Primulas*, *Dodecatheons*, or others that cannot be depended upon to come up under a year at least. Do not allow the soil to get dry, nor, on the other hand, excessively moist, and keep the pots shaded from bright sunshine, and the soil free from weeds and moss.

Violas and Pansies.—To prevent damage by wind these should now be looked over, and all strong or straggling shoots pegged down, and their position made more secure by having a little fresh soil placed round about their stems. Neglect of this not unfrequently results in the plants being twisted off at the collar—in exposed situations, at all events, they are very liable to be injured from this cause. Pansy cuttings may be put in any time between now and September, but for strong plants that will stand well the inclemency of the winter and produce high class flowers we like to get them in early. Make up a specially prepared bed in a shady place, and rake in a liberal admixture of finely sifted mould and sand on the surface.

Seeds.—No time should be lost in making a second sowing of *Brompton Stocks*, *Sweet Williams*, *Antirrhinums*, and other hardy biennials, in the event of undue losses, or unsatisfactory results from the first sowing, bearing in mind that the smaller the seed of any given species the nearer to the surface it must be sown.

FRUITS UNDER GLASS.

STRAWBERRIES.—The latest lots of these will now be making satisfactory progress in cold pits and frames. Give abundance of water when the plants require it, and admit all the air possible. It is quite a relief to get these spidery subjects out of the houses. Young stock for next season's supply must have attention as soon as the runners are in a fit state for layering. This should be seen to, as success depends upon having the plants as early into their fruiting pots as possible, in order to secure large plump crowns for forcing; otherwise first-class results need not be looked for. There are several methods adopted for securing runners, all of which have been attended by good results. Some recommend the runners to be layered into 5 and 6-inch diameter pots at once; this has the advantage

of saving a considerable amount of labour in potting and watering, but unless every care is taken in watering, the soil is in some danger of becoming sour and much of the manurial properties are in consequence destroyed or washed out of the soil before the roots lay hold of them. Others advise the ground being forked between the rows, and some sharp rich material placed in a ridge on which the plants are layered. This saves a deal of labour in watering and is to be preferred to the other method; but when the plants come to be lifted for potting the roots are certain to get damaged to a greater or less degree. I have tried both these systems, but prefer layering the plants into 60-pots. These are filled with rich compost—two parts loam, one leaf-mould, and a little old Mushroom-bed manure, the pots may be plunged in three or four rows close together between every other row of Strawberries, a good strong runner being secured for each. Pinch the points from the runners beyond the one nearest the base, and secure each in its place by a stout peg or by a stone. The stone is preferable, as it keeps

about five weeks, the time varying with locality. If the trees are well established and have filled their allotted space, the young shoots should be pruned back to the fifth or sixth bud; and should the trees be young ones, stop the shoots at about one-third of their length, or they may be left longer than this, if required, merely pinching out the top of the leaders of pyramids. Avoid pruning the shoots on those trees which have become defoliated by caterpillars, and encourage them to make as much growth as they can, so as to repair the loss of foliage as soon as possible. Any trees that are making rank growth, and which produce little or no fruit yearly, should be noted down, with the view of root-pruning them in the autumn. While proceeding with the pruning of Apple trees, keep a look-out for the webs of the caterpillars of the small ermine moth, which are present in great numbers this year. The caterpillars will be found in the interior of the webs, and if these latter are carefully and quickly removed, and cast into a bucket containing some petroleum, it will be the means of lessening their ravages another season. These caterpillars and also those of the winter moth have wrought great havoc in the orchards in this neighbourhood—so much, that in some instances, the crop of fruit is quite ruined.

Ply the hoe diligently in all fruit quarters, for after the recent heavy rains the surface of the ground will have become quite hard on many sorts of land. Apple and Pear trees bearing heavy crops of fruit should have a mulch of half decayed manure placed over their roots, as by so doing, the quality of the fruit will be greatly improved. The thinning of Apples and Pears is better deferred a little longer, more especially that of Pears, as the selecting of the fruits which are to remain on the trees, can then be done with greater advantage.

As opportunities offer proceed with tacking-in the shoots of Peaches and Nectarines, pinching-in all the laterals. Morello Cherries will also require looking over, and should black aphid be found, adopt prompt measures for destroying it. The garden-engine, or hose, should be kept at work, and all fruit trees on walls should be subjected to thorough washings morning and evening of fine days. Should American blight be found on Apple trees, brush the affected parts with a little petroleum, which will destroy the insect instantly. *A. Ward, Stoke Edith Gardens, Hereford.*

THE KITCHEN GARDEN.

GENERAL DIRECTIONS.—Tomatos will now be growing freely, and should have all the lateral shoots pinched out as soon as possible, in order to strengthen the main branches. All the principal leaves should be carefully preserved, and if any of the fruits are required for show a few of the best plants should be thinned as soon as the fruit is large enough, leaving only the largest and best shaped. These plants should afterwards be supplied with liquid manure occasionally, and all should be mulched with half-rotten manure, and be well supplied with water if the weather prove hot and dry.

Any Broad Beans in flower should have their tops pinched off, which will assist the pods in swelling, and ensure a better crop. The garden should be kept clean by hoeing, and any plants of Groundsel or Shepherd's Purse should be collected, as soon as they flower, and burnt, for it is useless to hoe them up and leave them on the ground after the flowers appear.

Late Peas coming up will require protection from the ravages of sparrows. Galvanised iron-wire guards are the best protectors, if removed before the plants touch them, and threads of white cotton crossing each other about a foot above the surface will often prevent their attacking the Peas. The last sowing of Peas should now be made, and should consist principally of *Sturdy*, a few *William I.*, or other approved early variety. The early ones will be ready for use, if even an early frost should destroy the later Peas.

More seeds of *Scarlet Runners* and *French Beans* should also be sown in a sheltered position for the latest crop. Succession crops of Lettuces should be transplanted as soon as the young plants are large enough to handle, and if the weather should be dry, the earlier planted beds may be mulched and watered well, or the plants will run to seed when most wanted. The latest sowing of *White Cos* should now be made, and also a small one of *Endive* for early use. *W. H. Divers, Ketton Hall, Stamford.*



FIG. 111.—FOLIAGE OF *EUCALYPTUS CORDATA*: INVARIABLE. (SEE P. 793.)

the soil in the pots from becoming so dry in hot weather. It is not such a serious matter to water when the plants are plunged as described, as a watering-pot with a flat rose can be run over a good breadth every afternoon. In about fourteen days the plants will be ready for transferring into their fruiting pots. Those intended for early work should be potted in 5-inch, and the main lot in 6-inch diameter pots, by the middle of July if possible. Let the pots be well drained, and on the top of the drainage place a good dusting of soot, as a barrier against worms; pot firm, and disturb the roots as little as possible in the operation. *W. M. Baillie, Luton Hoo.*

THE HARDY FRUIT GARDEN.

GENERAL WORK.—Apples, Pears, and Plums in bushes and pyramids will now be ready generally for their summer pruning, to be followed by another in

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THE GARDENERS' CHRONICLE,
Vol. II., Third Series, JULY to DEC., 1887.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

WEDNESDAY, JULY 4 { Royal Botanic Society (Evening Fête).

SHOWS.

TUESDAY, JULY 3 { Bagshot, Canterbury, Diss, and Hereford.

WEDNESDAY, JULY 4 { Richmond, Croydon, Hitchin, Wimbledon, Dursley, and Farnham.

THURSDAY, JULY 5—Bath, Farningham, and Norwich.

FRIDAY, JULY 6 { Sutton, Wood Green (two days), People's Palace (two days).

SATURDAY, JULY 7 { National Rose Show at the Crystal Palace.

SALES.

TUESDAY, JULY 3 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, JULY 4 { Clearance Sale of Stove and Greenhouse Plants, at Malvern House, Sydenham, by order of T. Christy, Esq., by Protheroe & Morris.

THURSDAY, JULY 5 { Established and Imported Orchids, in variety, at Stevens' Rooms.

FRIDAY, JULY 6 { Imported Orchids, at Protheroe & Morris' Rooms.

on the books. Twelve pensioners had only subscribed for a few years, while no fewer than forty-three pensioners never subscribed a penny to the Institution. If they could have done so at one time, and did not, we do not envy their reflections.

The average age of the existing pensioners is seventy-four, the range being from one hundred to fifty-one years. The oldest pensioner on the list was a contributor for eighteen years, and consequently subscribed as many guineas. In 1860 he was placed on the pension-list, and has since received the sum of £420. His 18 guineas must be admitted to have been a remarkably good investment. The youngest pensioner on the list is a widow, whose husband subscribed £15 15s. to the Society. At the death of the husband in 1875 she became a pensioner, and has since received a sum of £168.

By the recent Act of Parliament the dividends in the Funds property of the Institution have been reduced from 43 per cent. to 42 15s., thus entailing a direct loss to the Society of £52 10s. yearly, commencing in 1889, and unless this deficit can be made up the committee will be under the unpleasant duty of reducing the number of pensioners by either three or four. It remains therefore for all those, particularly gardeners, who have the welfare of the Society at heart, to do their utmost to assist the committee in their endeavour to promote the welfare of the

serve on either committee." Letters of thanks were read from the Royal Society, Linnean Society, and Society of Antiquaries for the contribution of flowers and foliage plants sent on the occasion of their respective annual *soirées*; and also a letter from the Society's solicitors, promising that the new by-laws, duly revised, should be put before the Council within a fortnight.

THE GARDENERS' ORPHAN FUND.—A meeting of the committee took place at the Caledonian Hotel, Adelphi, W.C., on the 22nd inst., Mr. GEORGE DEAL presiding. The Honorary Secretary announced that the sum of £40 had been contributed during the past week, and of that amount £12 10s. was sent by Mr. D. T. FISHER, local secretary for Bury St. Edmunds. Some discussion ensued on a letter of enquiry from a local secretary, with the result that the committee proposed two important additions to the rules, which it is believed will meet with general approval. The first is:—That any local secretary obtaining in small sums the amount of £5 in any one financial year, shall have a vote for every such amount so obtained; but it is not inclusive of any annual donations or annual subscription. The second is:—That in the case of donations from local associations, corporate bodies, or individuals, such donations will accumulate year by year, and when the sum of £5 is reached it shall be counted as a life-subscription, and carry a vote accordingly. Some addition to Rule 2 being considered necessary, it was resolved that the committee recommend that Rule 2 be amended at the ensuing annual general meeting as follows:—Line 3 to add, "in

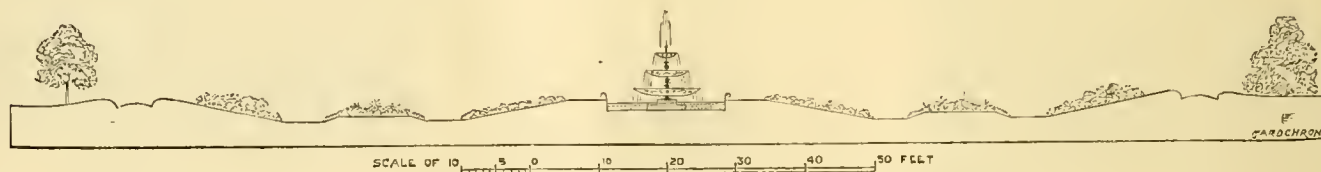


FIG. 112.—SECTION OF FLOWER-GARDEN. (SEE P. 806.)

The Gardeners' Royal Benevolent Institution.

The prosperity and public spirit of any class of the community may often be gauged by the condition and progress of its charitable institutions. Tried by such a test, horticulture is not altogether wanting, though it is to be wished that the support afforded to the benevolent societies were more general and more diffused than it is. Nevertheless, the Right Hon. JOSEPH CHAMBERLAIN, who is to take the chair at the dinner of the Gardeners' Royal Benevolent Institution on Wednesday next, will have a very nice illustration of evolution from small beginnings—of constant progress, and fitting adaptation to new circumstances.

When the Institution was founded there was a doubt among the founders (among whom we may mention the names of JOHN LEE and E. R. CUTLER as still working for the Society), as to whether the funds in hand would be adequate to fulfil the first demands on the Society. Contrast that state of things with the present, when the number of pensioners is 126, who are aided and comforted in their need by an annual expenditure of £2252. Of the 126 existing pensioners fifty-seven receive their pension as it were of right, and without having been subjected to the trouble and expense of an election. Payment of the subscription for fifteen years by the husband secures this certainty for himself or for his widow, while in any case the widow of a pensioner succeeds to a pension of £16 a year, and of these there are now fourteen

Society, which has now existed for forty-nine years.

The Right Hon. JOSEPH CHAMBERLAIN, the Chairman of the ensuing Festival, fully realising the difficulties of the committee in the reduction of one-twelfth of their annual income—viz., £52 10s.—has instructed the Secretary to put down his name for that amount, and he trusts that the friends of the Institution and gardeners and lovers of gardening will assist him to the best of their ability, so as to make the occasion of his presidency a marked feature in the annals of the Institution.

THE ROYAL HORTICULTURAL SOCIETY.—We are rejoiced to be able to announce that the Society's financial condition is now such that all outstanding liabilities are discharged or provided for, and a very considerable balance in hand remains to the credit of the Society. This happy result should be, and doubtless is, some compensation to the Council for their assiduous labours, and will encourage them to proceed in the arduous task of reconstruction. They have earned the thanks of the community.

COUNCIL MEETING.—At a Council meeting, held on June 26, a report was read from the sub-committee of the Council in regard to the arrangements for 1889, and it was decided to give publicity to the following notice:—"That the Council, having now in hand the composition of the Fruit and Floral Committees for 1889, would be glad to receive suggestions from the general body of Fellows as to any Fellows whom they may consider eligible to

private, public, and market-gardens," so that it will read—"Foremen in private, public, and market-gardens, &c." It should be stated that the committee bring forward this addition in order to widen the basis of the Institution, many persons having been led to the conclusion that the market-garden element in particular was excluded from the benefits of the Fund. Due notice of the recommendation will be given in the notice convening the meeting, in compliance with the regulation set forth in the last rule.

THE LATE DR. ENGELMANN.—The munificence of Mr. HENRY SHAW has secured the publication in a collected form of the heretofore scattered papers of the late Dr. ENGELMANN, under the editorship of Professor TRELEASE and the late Dr. ASA GRAY. Not only the letterpress is thus reproduced, but in many instances also the illustrations. Thus, in the volume before us, we have nearly one hundred lithographs of Cactaceae, which are most serviceable to students of these plants. Dr. ENGELMANN's papers on Conifers, Oaks, Yuccas, Agaves, Vines, and other groups, to which he devoted attention, are given in full, together with very numerous minor papers; a full index is supplied, as well as a preface and a memoir by Dr. ASA GRAY. When it is remembered that botanical work was only done by Dr. ENGELMANN in the scanty leisure afforded by professional labours, the bulk of this volume will seem no less remarkable than the conscientious thoroughness with which each paper was, so far as circumstances permitted, worked out.

FRUIT AND FLOWERS AT CHISWICK GARDENS.—Very interesting just now is a fine collection of

Ivy-leaved Pelargoniums in choice variety, double and single-flowered; and a display of German Iris outdoors. The long viery, as it is called, gives promise of a fine crop of fruit this season, the Gros Colmar variety looking especially good. Strawberries, will be good crops. To those interested in vegetables there is a collection of some forty varieties of Cabbages to be witnessed, which are at the present time in capital trim. There will be in a few weeks a fine show of Tomatos in fruit, one house—the Rose-house being filled with Tomatos planted out; and another house is filled with plants in pots.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

—At a meeting of this Society, held on Saturday last,

PENTSTEMON MENZIESII.—A shrubby, much-branched species, with rather thick spoon-shaped, glabrous, finely-toothed leaves, about an inch long, by half an inch in breadth. The flowers are borne in racemes at the ends of the branches, and are about 1 inch long, and of a deep rosy-lilac colour. The yellow anthers are densely woolly. The plant is a native of the mountains on the north-western side of North America. Received from the Royal Botanic Garden, Edinburgh.

CLINTONIA ANDREWSIANA.—From the Edinburgh Botanic Garden we have received a specimen of this perennial Liliaceous plant, which has approximate, sessile, broadly ovate glabrous leaves, resembling, in size and form, those of the Col-

sements a sum of from £80,000 to £120,000 annually, promises to diminish in consequence of a blight which has appeared on the Chestnut trees, and which is locally known as the *pie'd noir*, or black-foot. The matter is being carefully investigated, in the hope of finding a remedy for this disease, which seriously affects the whole agricultural population.

TABLE DECORATIONS.—The *Queen*, not content with describing such personalities as the dresses worn at private dinner parties, now extends the system to describing the decorations of the table; in due time we shall have the *menu*. We transcribe some portion of the article:—"On Saturday, the 16th inst., Mrs. P. W. gave a very pretty entertainment, when the table was decorated with shaded

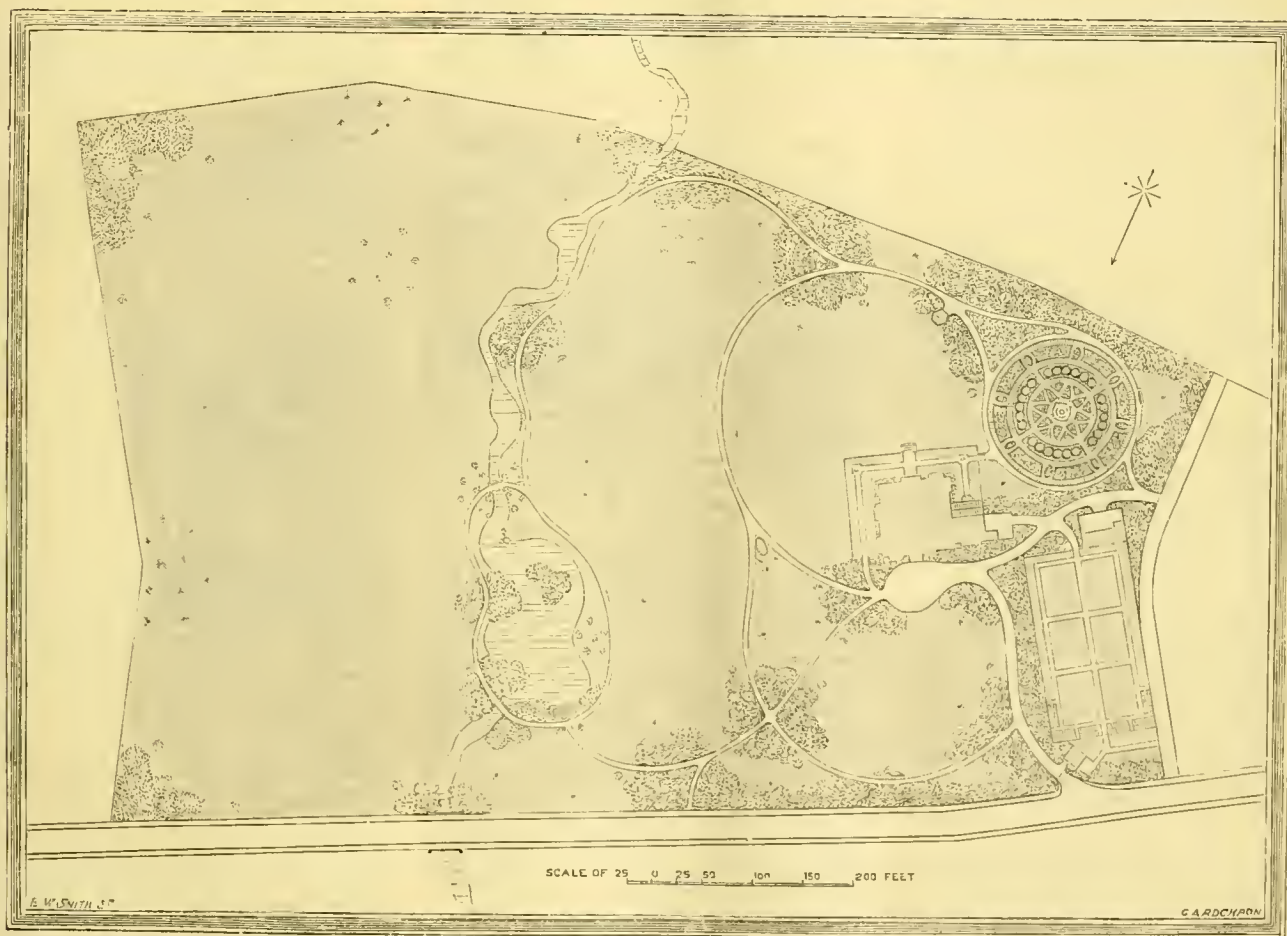


FIG. 113.—PLAN OF GARDEN. (SEE P. 806.)

the Duke of Teck, the President, presented a Gold Medal and purse of fifty guineas to Mr. ELLIS, L.R.C.P., of Liverpool, the winner of the Queen's Jubilee Prize given by the Society for the best essay upon the "Plants and Vegetable Products introduced into the United Kingdom for Use in the Arts and Manufactures, and for Food, during Her MAJESTY'S Reign"—a criticism of which will be found on another page.

NICE FOR THE JURY.—Among the prizes offered at the International Horticultural Exhibition to be held at Cologne is one for the best Tobacco for chewing. The schedule does not inform us who are to serve on the jury—perhaps a party of Jack Tars would be a sympathetic and appreciative tribunal.

chicum. The flowers are borne in umbels at the end of long, erect, naked scapes about 2 feet in height. The pedicels are ascending, spreading or reflected, very slender, about half an inch in length, rather shorter than the elongated, bell-shaped flowers, which consist of six oblong segments of a deep rose colour. The flowers are followed by blue berries. The plant is a native of California, and is amply worth a place in every herbaceous border, though it is rarely seen. Some of the allied species have been described as species of *Smilacina*. The Lobeliaceous plant, also called *Clintonia*, should now be called *Downingia*, the plant now alluded to having the prior right to the name *Clintonia*.

CHESTNUT DISEASE IN BREST.—It is reported from Brest that the Chestnut harvest, which repre-

pink Roses, placed in stands, and laid on the cloth. The same evening Mrs. M. had her dinner-table decorated with foliage Ferns and other rare kinds of leaves. Mrs. W. chose choice Pinks, Roses, and mauve Orchids for her table—a most lovely and rare combination. On Monday Mrs. T., in Pembridge Square, had white flowers and ornamental foliage disposed about the cloth; and Mrs. R. had nothing but pink Roses. On Tuesday Lady B.'s table at Chesterfield House was decorated with long wreaths of rare ornamental foliage and Mignonette, arranged in many new designs; and here, again, the scent was most delicate and delightful. Mrs. C., in Portland Place, had a table superbly decorated with choice and varied foliage, corsage bouquets being prepared for each lady, and button-holes for the gentlemen. Mrs. M. had rare mauve Orchids on her

table, intermixed with pink Orchids, arranged in a central stand, from which radiated long wreaths on to the cloth. Lady T., in Grosvenor Place, had a table decorated with alpine Poppies and grasses, arranged in stands and on the cloth, with much artistic skill; and Mrs. P. selected the same mixture. Mrs. P. had a lovely display of pink Roses and Mignonette, arranged in new designs upon the cloth. Lady O'N., in Lennox Gardens, gave a large dinner party on Tuesday, the guests expressing much admiration for the arrangement of alpine Poppies and wild flowers, some of which were arranged in silver wheelbarrows. The Hon. Mrs. C. had also selected wild flowers, grasses, and alpine Poppies. Mrs. H., in Hyde Park Square, had a table decorated with white flowers and ornamental foliage."

TALISIA PRINCEPS.—Much interest attaches to this plant from its mode of growth, and the circumstance that for years it has been supposed to be either a *Theophrasta* (*T. pinnata* JACQUIN), or a *Brownea* (*B. princeps* and *B. erecta*), LINDEN, *Catalogue*. Now that it has flowered, at Kew, Professor OLIVER recognises it as a species of *Talisia*, a genus of Sapindaceæ. The stem produces no lateral branches, but each year forms, at its extremity, a superb plume of spreading, broad pinnate, acuminate leaves, at first flushed with rose, and attaining a length of 6 feet. In addition to these fully developed leaves, or rather preceding them in order of development, is a series of much smaller, erect leaves, also pinnate. Thus the plant produces leaves of two distinct forms, while its mode of growth is like that of a *Cycas*. The flowers are small, very numerous, and borne in large branching panicles. It is supposed to be a native of Venezuela, but at present is only known from cultivated specimens. It is figured in HOOKER'S *Icones*, t. 1769.

ST. NEOTS HORTICULTURAL SOCIETY.—The annual exhibition of this Society will take place, as usual, on Bank Holiday, August 6, and among the prizes offered is that of a Silver Cup, value £5, for twenty-four blooms of Roses, dissimilar, the Cup being offered by the President, A. J. THORNHILL, Esq., Diddington. The balance-sheet shows a surplus of £30.

ORCHID PRICES.—At the sale of the first portion of the collection of Orchids formed by F. A. PHILNICK, Esq., Q.C., which took place at the Central Auction Rooms, Cheapside, on the 26th and 27th inst., under Messrs. PROTHMER & MONNIS, the following were among the best prices realised:—*Lælia anceps* Dawsoni, £31 10s.; *L. elegans* Turneri, £27 6s.; *L. lilacina* ×, £21. Twenty-three guineas were paid for *Cattleya Trianae* Clio; and 22 guineas were realised by C. Mendelii Wallacei, and also by *Cypripedium Veitchii*; *Coleogyne cristata* Lemoniana, reached £21, and *C. c. alba*, 18 guineas.

CINCHONA CULTURE IN JAVA.—The low price at which quinine has ruled for some time past in the European markets is making itself felt in the Cinchona plantations. Advices from Java state that "prices in the home markets are anything but encouraging, and this will no doubt act as a check to the expansion of the area under cultivation." Up to the end of last year, however, the exports were steadily increasing, as year by year the more recent plantations attain the requisite age for harvesting the bark. During the past year the shipments amounted to about 1400 tons against 1100 tons in 1886, the Government plantations contributing in each case about a quarter of the whole quantity.

TRADE NOTICE.

MESSRS. SUTTON & SONS, seed merchants, of Reading, and 5, Westminster Chambers, S.W., announce the retirement, by effluxion of time, on May 31 last, of Messrs. Martin Hope Sutton and Alfred Sutton, who have been members of the firm for more than fifty years. The firm of Sutton & Sons will be continued in future under the same style and title by the sole proprietors, Messrs. Martin John Sutton, Herbert Sutton, Arthur Warwick Sutton, and Leonard Goodhart Sutton, who have for several years past been the acting partners.

PLANT PORTRAITS.

ANGREECUM SEDENI, Rehb. f., *Lindenia*, t. 135.—Segments white, linear lanceolate, spur orange-coloured. See *Gardeners' Chronicle*, 1878, p. 133.

ANTIRRHINUM NUTTALLIANUM, Benthani, *Gartenflora*, t. 1275 (3), June 15, 1888.—Small species, with ovate leaves and small flowers of a bluish colour, with an orange palate, like *Linaria cymbalaria*. South California. Dammann & Co., Portici, Naples.

BAHIA CONFERTIFLORA, DC., *Gartenflora*, June 15, t. 1275 (1).—A dwarf perennial Composite, with finely cut hoary foliage and yellow flower-heads. Native of California, introduced by Dammann & Co., Portici.

CATLEYA INTERMEDIA VAR. *GIBERNAE*, *Lindenia*, t. 133.—Flower-segments white, linear lanceolate, lip white, flushed and striped with rose.

CHEENACTIS TENUIFOLIA, Nuttall, *Gartenflora*, June 15, t. 1275 (2).—Dwarf, cut-leaved, yellow-flowered Composite, from Southern California, suitable for borders. Dammann & Co., Portici.

ENIA STRIOLATA, *Illustration Horticole*, t. 48, May, 1888.

EUPHORBIA APHYLLA, *Gartenflora*, p. 277, May 15, 1888.

EUPHORBIA JACQUINIEFLORA, *Garden*, May 26, 1888.

OBOTOGLOSSUM TRIUMPHANS, Rehb. f., *Lindenia*, t. 134.

OXERA PULCHELLA, *Garden*, June 2.—See *Gardeners' Chronicle*, February 18, 1888.

STANHOPEA PLATYCEBAS, *Garden*, June 9.

VANDA SUPERRA, hort.—A form of *V. lamellata*, with spreading flower-segments of a primrose-yellow colour mottled with red, the two lower sepals especially; lip relatively small-lilac. *Lindenia*, t. 135.

WARREA TRICOLOR VAR. *STAPELOIDES*, Rehb. f., *L'Orchidophile*, June, 1888.—Flower-segments pale primrose, petals with reddish stripes, lip broad, scoop-shaped, obtuse, reddish-brown. Vervae & Co., Mont St. Amand, Gand.

ZYGOPETALUM MAXILLARE, *Illustrierte Monatshefte*, June, 1888.

LANDSCAPE GARDENING.

BEFORE explaining the different features of the plan (fig. 113, p. 805), I will first make a few remarks from observations I have made at various times in different parts of the country. It appears that before laying out a private park the extent of the estate is not always sufficiently considered so as to make the former in proportion to the importance and style of the house, which often leads to the grounds being made beyond the limits of prudence and economy in the matter of occupation and keeping. Extent and beauty are quite distinct objects, and I think, a small garden where the boundary is not obtrusive is often more elegant and interesting, as well as being more convenient, than a large park.

The pleasure-grounds and park shown in the plan, fall more or less gradually in parts down to the stream, which runs through the estate, and part of which I have converted into an ornamental lake, with a small wooded island in the centre, also rock-work, covered with Ferns and mosses, and rustic bridges spanning the stream—all of which confer an additional beauty to the whole place. The proprietor may also derive a real advantage from its utility by being able to have a boat, for which a boat-house is provided, and also by keeping it well stocked with those kinds of fish which thrive well in clear fresh water. The path which leads round to the further side of the lake in the park being defended from the inroads of stock by an iron fence.

The house, with conservatory attached, is on a broad terrace, with an elegant vase at each corner. The views of the grounds and lake from the principal apartments are very fine, with a church and another large gentleman's residence in the distance. A rustic summer-house is placed on the lawn, which is kept well rolled for tennis, &c.

The large flower garden with fountain in the centre is designed so that the beds are formed on

slightly sloping ground (see section, fig. 112), which shows the flowers off to good advantage. There are beds for ordinary bedding plants, the large outside beds being meant for hybrid perpetual Roses, and the smaller ones for Teas. There are covered garden seats, so placed as to command different views of the grounds.

The back road, which leads to other parts of the estate, is very convenient for tradesmen going to the house, as well as for the stables, and kitchen garden. A range of greenhouses and vineries is provided; there are frames; potting and boiler-shed, with soil heaps, &c., on other side of walk. The gardener's lodge is convenient of access to the greenhouses and garden. A. G. Jackman, Woking.

HOME CORRESPONDENCE.

OUTDOOR GRAPES.—Mr. Froude, in his *Oceana*, says, when speaking of New Zealand:—"Outdoor Grapes may be had for the asking, and are good enough for all ordinary appetites. There are also Grapes grown under glass for those who can only be satisfied with expensive luxuries, &c." I have long entertained an idea that some varieties of Grapes, with proper attention, might be better grown in the open air in this country than is generally found to be the case, and it would doubtless be interesting to many to ascertain the names of the varieties which, according to Mr. Froude's account, are found to succeed so well in the open air in the vicinity of Auckland, or, if such varieties have already been introduced to this country. If so some of your readers may be inclined to furnish the desired information. At present, so far as I know, there are but few varieties which, with every attention, such as training, stopping, and the careful thinning out of the fruit, are found to ripen well out-of-doors in this country. And the quality of these varieties, even when grown under glass with every necessary attention, is only moderate: hence the desirability of in some way securing other, and, if possible, improved varieties for open-air culture. Could the hybridiser or rather the cross-breeder be induced to give this matter serious attention, it is possible that the result might be of even more value than attempts to introduce supposed suitable varieties from the continent of Europe or the colonies. Improved varieties of the Grape Vine have been obtained by the perseverance of the cross-breeder, but I am unable to say whether any effort has been made with the view of obtaining varieties expressly suited for outdoor culture. A hardy constitution and early ripening are the essentials. The Grape Vine in the open air in this country seeds freely. In the early part of last summer I noticed on the border in front of a south wall, on which a Muscadine Vine was trained, abundance of healthy self-sown seedling Vines; but what is required is a good flavour and size. The varieties which may be likely to transmit to the ordinary out-of-doors varieties improvement in the needful direction might possibly be Frontignans, Black Hamburgs, Foster's Seedling, and Ferdinand de Lesseps. P. G.

WYCH ELMS.—Seeing a reference to Wych Oak—the "Wych," pardon the pun, is incorrect—I am tempted to ask whether the marvellous blooming and fruiting of the Wych Elm, as seen here, has been common this season? Some fine twenty years old trees, very vigorous and spreading, have been so laden with seed-pods or vessels as to have the whole of the branches literally covered, far beyond anything of a similar kind I have ever seen. The seed-vessels littered the ground as they fell, giving the appearance of a dressing of spent llops. Perhaps the kind is not the true Wych Elm, although so regarded here. It has broad leaves and very spreading growth. A. D. [We believe the occurrence is general this year. Ed.]

BURNT EARTH.—I can recommend this for general use. The first illustration of its value which came in my way was when engaged in carrying out a new garden a short time ago. I was greatly surprised upon entering the glass-houses to see the luxuriance and beauty of the young stock of plants, especially of Gloxinias, Ferns, Palms, foliage plants, and

Cucumbers, and on inquiry I was told that, owing to dearth of silver-sand and leaf-mould, burnt earth had been added liberally to the soils. The most delicate-rooted plants luxuriated in what was little else than crude top-spit loam with a liberal admixture of the burnt earth. It may be well to add that only the very finest siftings had been used. It would seem, therefore, that owners of old town gardens, in which the soil has lost its ordinary mechanical properties, may benefit themselves by partially burning and remixing the soil. *William Earley, Ilford.* [The value of this material in promoting root-development was shown experimentally by the Editor some years ago. Eo.]

CHAINING-UP CEDARS OF LEBANON.—Mr. Waterman writes me to-day regarding the above query, which he asked in the *Gardeners' Chronicle* of May 26, but to which he has received no reply. In answer I would say, let the Cedar branches have their own way, and mar them not by either props or chains. What Mr. Waterman says is only too true—that the branches frequently snap across just outside the band or support, and therefore the best way is to leave the branches alone, and during a calm snow-storm ease them of their burden as well as can be done by means of a long and light pole with a hook attached to the end. Props and chains, apart from the evil they do otherwise, render trees unsightly and unnatural. Do the work as carefully and tastefully as you can, chaining large limbs together that have an upright inclination is work well done, but with horizontally-inclined branches, the best way, I have found, is to leave them alone. Mr. Waterman also enquires about some of the largest Lebanon Cedars in this country—where they are growing, and size. To this I will reply later on. *A. D. Webster.* [A Y-shaped piece of wood or iron fixed on the end of the pole is better than a hook, as with this implement the branch can be raised, not pulled further down as is done with a hook—very often to the injury of the tree: some snow is shaken off when the branch is raised, and all of it is loosened, so that when the branch is allowed to fall into place the rest slides off. The iron fork should always be wrapped round with soft rag. A very large Cedar, covering many square rods of ground, and supported by many wooden posts, is, or was, in existence till recently at Addington Palace, Kent. En.]

YUCCA ALOIFOLIA VARIEGATA.—A well-grown example of this ornamental subject, 9 feet high, and in capital condition, is planted out in the centre bed in the conservatory at Watermouth Castle, the beautiful seat of Major C. H. Bassett, three miles south-east of Ilfracombe. The plant is very telling when contrasted with the other well-grown foliage and flowering plants in the same house. *H. W. W.*

REPOTTING LILIUMS IN MAY.—I do not propose to interpose between your correspondents, Messrs. Ward and Jenkins, on this subject beyond a line or two. There are two classes of Liliun bulbs offered for sale, home-grown and imported. The treatment of both is essentially different. The former you can shake out and repot, as indicated by Mr. E. Jenkins, when the stems die down in early or late autumn. The latter, it is still an undecided point whether to pot at all, when they arrive in November or December, or place in cocoanut-fibre until roots push out in spring. Suppose that Mr. Ward pots up his imported bulbs, or not imported, in small pots, and repots them in May into larger ones, he would be doing what I and thousands of amateurs are doing about that time with the best results. Mr. Jenkins is, to my mind, perfectly right in objecting to the "shaking out of the roots" at that time; this should be done at the first potting, and repotting without disturbing a single root-fibre whenever it is necessary to do so. No other plants, except Hyacinths, have such fragile roots. *W. J. Murphy, Clonmel.*

CONFERENCE OF FRUIT GROWERS.—I have been invited by circular to assist at a conference of fruit growers, which it is proposed to hold at the Crystal Palace, in conjunction with the annual fruit show on September 28 next. No one can find fault with the directors of that popular place of resort if they thus strive to render the Palace practically instructive as well as entertaining. What seems odd, however, is that, with a Royal Horticultural Society professedly anxious to obtain some reputation as a practical body, it should have so far utterly ignored the great question of the national production of hardy fruits, and left the field open to a non-horti-

cultural body. I have no doubt the Palace people will work the proposed Conference well, and thus perform great public service. *Pomona.* [We regret the Society has not taken this matter up this year, and continued the success it achieved at the Apple and Pear Conferences. En.]

FRUIT PROSPECTS.—Virtually we have no fruit in East Anglia. Apples, *nil*—all maggots; Pears, do.; Plums, do.; Apricots, do.; Peaches, fair; Raspberries, Gooseberries, and Currants, fair; Strawberries, half a good bloom, and half of those blind—a horrid record. Our diamond and ground cordons and pyramidal Apple trees look as if they had stood in the line of fire of a powerful battery. I question if I could find a perfect Apple leaf in the place!!! *D. T. Fish.*

YELLOW CHRYSANTHEMUMS.—Since the common field *Chrysanthemum segetum* has been introduced into gardens, the process of selection of the finest flowers has resulted in a remarkable development of size and beauty, so that they are now in great request. Very probably the taste for yellow *Chrysanthemums*, blue *Centaureas*, and scarlet *Poppies*—three of the very brightest coloured of our wild flowers—will never die out, and any one of them mixed with grasses or cornstalks still finds admirers, especially when applied to the decoration of head-coverings. In the yellow *Chrysanthemum*, one excellent result of selection has been to lengthen the petals without increasing the dimensions of the disc, so that we have a truer flower, if possible, as the charm of nearly all flowers is found in fully developed petals. Blooms now constantly open some 3 inches across, with broad petals, some showing a little laciniation, which may well lead to the hope that deeply serrate petals will be produced presently. Seeds of these flowers drop and come up in great abundance, if so permitted, but that is hardly gardening. Some half-dozen flowers, selected and marked, ripen plenty of seed, and this, if sown early in April, produces plants to dibble out, giving ample room, for in soil of moderate quality they will grow large, and yield an abundance of flowers. *A. D.*

BLIND NARCISSUS POETICUS.—It is not to be wondered at that the general blindness of the buds of the double *Narcissus poeticus* this year has attracted attention. It is many years since there has been so extensive a failure. When I lived at Eton, near Windsor, the failure of a portion of the buds was common in my garden there; but here, in West Cheshire, where the soil is heavy and retentive, though the bulbs are very abundant, it is unusual to see a blind bud; but this year at least one-third of the buds have become blind. About ten days before they ought to expand the nascent petals, when about a quarter of an inch long, and forming a visible rosette within the base of the spathe, turn brown and wet, as if scalded, and perish. The time at which they went off this year was within two or three days of May 20. I am convinced that cold has nothing to do with it, even as a predisposing cause. I have made many observations about this. For instance, the severest spring cold in recent years was in 1885, when on three successive nights late in March the average minimum here was 17°, but no failure in the flowering of *N. poeticus* took place in that year. My garden at Eton was sheltered and warm, but in a certain place where the roots of an Elm tree drew the soil, the buds nearly always went blind, but more in dry springs than when the weather was wet. I have no doubt that a predisposing cause is weakness of growth, caused by drought and impoverished soil, but the immediate cause is something atmospheric. If the blind buds are examined it will be found that the spathe is air-tight, and will explode with a crack if snapped between the finger and thumb. For some reason or other the inclosed air or gas seems to become poisonous to the weakly young petals. A month ago I noticed in this garden, where several thousand double *N. poeticus* flower every year, two small clumps, within 14 inches of one another, and at the same distance from the edge of a flower border; evidently both of the clumps were the increase of one bulb accidentally left in the soil, and the conditions of growth seemed exactly similar. Each clump had about half-a-dozen buds; on one they were all blind, on the other all flowering. I will call them B. and F. I marked them at the time, intending to investigate the underground conditions, which I did to-day. Each clump consisted of about six cohering healthy bulbs, those in F. having a stronger look. From the surface of the ground to the base of the bulbs of F. the depth was

6 inches, and the roots were fast in a lump of the natural brick-clay of the garden which hung to them. The bulbs of B. were deeper, 8 inches to the base; and the soil round the roots was dusty and light, the clay having been dug out there. This seemed to show that lightness and dryness of soil is sometimes the cause. As regards the immediate cause, I accidentally, a few days ago, came upon some remarks in Sweet's *English Flower Garden*, series ii., t. 188, and as these agree with my views and experience I will conclude by transcribing them:—"The partially developed flower seems as if it had been scalded by the heat of the sun's rays. Now as this defect occurs much less frequently in moist than in dry seasons, it is probably occasioned by the sun's overheating the air in the spathe, and exhausting the sap of the plants quicker than the roots in dry seasons can supply it, and thus as it were scalding the nascent blossoms, before they have time to accomplish their full development, and escape from the unhealthy air of the swollen and indurated spathe. Wherefore, it should seem that poverty, and consequent want of vigour is the pre-disposing, and at length efficient cause of this disease." It may be worth remarking that the sun-heat for a few days about the time that the destruction of the buds took place this year was abnormally high, my thermometer having marked 78° in the shade on May 19—an unusual heat in any time of summer on this cold soil. *C. Wolley Dod, Edge Hall, Malpas.*

—The double-flowered *N. poeticus* used to go blind here, but since we took to lifting a third of the stock every year, every bulb bears a flower. If your correspondents who fail with it would go and do likewise, adding sand or gravel to the soil if stiff and cold, but no manure, I think we should hear less of "blind" flowers. All our *Narcissus* bulbs are planted 6–9 inches deep, so as to be below the drought line in summer, and the frost line in winter. We find it makes all the difference in the world to many bulbs whether they are below this line or not, and 9 inches is our limit in Dublin, although other soils and latitudes would vary in this way. Lovely warm weather here, with showers. *F. W. Burbidge.*

THE DUKE OF BUCKLEUCH GRAPE AS AN EARLY FRUITER.—I have one house—this is the earliest, planted—with three kinds of Grapes, viz., the Duke of Buckleuch, Black Hamburgh, and Foster's Seedling. These three varieties of Grapes are treated alike as regards heat and ventilation, and the only difference in treatment is, that I give the Duke much more of lime and wood-ashes at the roots before starting; and also in pruning I leave as much young wood as I can, as this variety fruits best and produces the best bunch from young wood, only the wood must be thoroughly ripened. I leave on every alternate spur four or five eyes. Grapes were cut from the Duke of Buckleuch on May 26, and were fine in bunch, berry, and the colour and flavour also good. The Black Hamburgh ripened twelve days later, and Foster's Seedling about ten days later than the Hamburgh. Foster's Seedling is of good quality and a most abundant bearer—the best of all Vines for pot culture, which I have grown, and is, I think, the most useful of white Grapes for early work. *W. Smythe, Basing Park, Alton, Hants.*

HEUCHERA SANGUINEA.—One of the leading features among the fine bunches of hardy perennials exhibited at the recent exhibition of the Royal Oxfordshire Horticultural Society was a mass of this very fine and striking perennial. It imparted to the stand in which it was seen a rich glow of colour of a striking character. It is said to be comparatively easy to cultivate, and at the same time it is very free. *R. D.*

CONIFERS FRUITING.—I quite agree with the remarks in your issue for June 9, that the season last year being so hot and dry, induced the early ripening of the wood and the formation, if I may use the expression, of fruit-buds. Never before have I seen such a promising lot of seed on many of the trees—even the Golden Cypress in a nursery quarter which I saw the other day, will produce its seed by the bushel. I had occasion to transplant a tree of *Pinus monticola* in 1886, and when, at the end of August last year, I had to provide at a moment's notice a memorial tree for the King of the Belgians to plant, this was the one chosen as being more likely to live, having been so recently transplanted, and therefore well furnished with roots; and notwithstanding the dryness of the season it grew well, and,

singular to relate, that although only 7 feet high it is now producing a crop of cones. Now what I want to remark is, that it was the double transplanting which produced the early coning, for had this tree been left untouched it would probably not have fruited in less than a quarter of a century; and this leads me to say, Would it not be better to have recourse to this plan, when one is desirous of propagating a species or variety by seed, rather than by layering or grafting the side branches which oftentimes have a tendency to form forked leaders? The fruit trees, the nurseryman knows well, are induced by root-pruning to early fruitfulness, but I do not remember this being recommended for Conifers; I would be understood not to advocate this plan generally, but only when there is a scarcity of seed of some kind which it is desired to multiply as quickly as possible. I was much struck with the beauty of the blossom of *Abies Alcoquiana*, which has flowered very freely here in the pinetum this season. It is just twenty-seven years since I helped the late James Veitch, of Chelsea, one winter's evening, to pick out the seeds from the cones which had just arrived from his son, the late Mr. John Veitch, who had gathered them some two months previously on the sacred mountain of Fusi-yama, in Japan, so that its blooming here for the first time had a special interest for me. *J. Rust, Eridge Castle.*

VERONICA FORMOSA.—Under this name there is in flower at Chiswick, an evergreen *Veronica* with pale blue flowers, in the form of small spikes. It is quite a little gem, as tiny plants blossom. I should imagine it is a species requiring greenhouse treatment in winter. As to its specific name, a greenhouse herbaceous *Veronica* bearing the name of *formosa* was introduced from Van Diemen's Land in 1825, but this is said to bear white flowers. Can any light be thrown upon the apparent confusion? *R. D.*

THE APPEARANCE OF VEGETATION.—I think it would be very interesting, and perhaps useful, if we could have a record of the effects of the exceptional summer of 1887 on the vegetation of 1888. Of course it is difficult to say exactly how far the present appearance of things is owing to the roasting of last summer, and we may confuse *propter hoc* with *post hoc*. Still if the same effects are noticed everywhere we may fairly assume the same causes. From my own observation here I should attribute to the summer of 1887 the following effects:—1. The excellent way in which many tender plants have stood the late bad winter and spring. 2. The fact that many plants, especially flowering shrubs, are flowering here for the first time. 3. The great abundance of flowers, especially on shrubs; and 4. The brilliancy of all variegations. I particularly notice this in golden variegations, which usually may be pale yellow, and mixed more or less with green, but this year are uniformly brightly golden. *Henry N. Ellacombe, Bilton Vicarage, Gloucestershire.* [We trust our correspondents will favour us with their observations on this point. *Ed.*]

THE OLD GLOBE FUCHSIA.—Visitors entering the charming village of Lee (three miles west of Ilfracombe, and from that direction), cannot fail being struck with the beauty of a garden hedge overhanging the road consisting of this once familiar garden *Fuchsia*, and at the end of which there is a huge bush of it about 9 feet high and as much through in the best possible condition. I may say, in passing, that the scenery in the Lee valley, with its lofty hills, numerous steep narrow lanes, the banks and walls of which are clad with a variety of Fern, &c., is not surpassed by any in North Devon. *H. W. Ward, June 20.*

FRUIT REGISTER.

PEACH WATERLOO.

With this post I send you a Peach of the Waterloo, and also one of Grosse Mignonne, both of which were taken from trees growing side by side, as a proof of the earliness of the Waterloo. The tree of the former variety is carrying a crop of from ten to twelve dozen of fruit, and was planted in 1884. It has for the last three seasons cropped well, made plenty of capital fruiting wood, and I find it one of the best to set, always needing severe thinning. These trees were started in the first week of February, and forced very gently all along, with the

result that I was able to gather the first ripe fruit on June 3. I have gathered ripe fruit of it in the last week of May, and I consider the Waterloo to be six weeks earlier than either Royal George or Grosse Mignonne, and judging from the time Hale's Early ripens in the early house, it is fully three weeks before that variety. As regards flavour it is not equal to Royal George, Grosse Mignonne, or Noblesse, nor is it so large as Sea Eagle; but for earliness it is the best of all. I shall be pleased to hear if this variety has been started in December, and with what result. The leaves enclosed are from the same tree. The fruit this season is not so large as I have had them, the heaviest as yet taken from the tree barely weighing 6 oz., while the largest of last year weighed 8 oz. *H. Markham.* [The fruit was nicely coloured, quite ripe, and of fair flavour—the fruit of Grosse Mignonne wanted quite six weeks more time to ripen it. *En.*]

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, JUNE 26.—A bright assemblage of flowering plants, augmented by numerous cut flowers from the nurserymen, rewarded the visitor at the Drill Hall on the above date. Orchids this time paled before the gorgeous *Pæonies*, *Pyrethrums*, and *Delphiniums*, and out-of-door blooms generally. Some fine hardy shrubs, valuable either for their foliage or flowers, came from Coombe Wood; tuberous *Begonias* were plentiful, and *Pelargoniums* were not a few. The company which congregated in the afternoon was more numerous than has been witnessed there on most of the previous meeting days. As in winter and spring there was a want of warmth, there is now too much, and it is rendered uncomfortable by the absence of ventilation.

Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. Rev. W. Wilks, Dr. M. T. Masters, W. Goldring, H. Herbst, W. Bates, G. Paul, W. Holmes, R. Dean, T. Baines, C. Noble, J. Dornay, H. M. Pollett, J. O'Brien, E. Hill, B. Wynne, A. F. Lendy, G. Duffield, and J. Walker.

Hardy Plants.—The group of outdoor shrubs from the nursery of Messrs. J. Veitch & Sons was of considerable interest, including, as it did, several plants which, if not new, are yet not generally found in gardens, viz., *Escallonia exoniensis*, a white-flowered species; *Escallonia macrantha sanguinea*, *Robinia hispida*, well flowered, pink racemes; *Rhaphiolepis ovata*, *Senecio elaeagnifolius*, a bold leaved distinct looking New Zealand shrub of close compact habit; *Daphniphyllum glaucescens*, often previously noted in these pages; *Casalpinia japonica*, a plant with pinnate foliage and spike of yellow flowers having crimson anthers and yellowish-green calyx; *Pæonia Artimea*, a double flower, rose-coloured, with white tips to the petals; *Rhus glabra laciniata*, beautiful foliage, with red ribs and leafstalk; *Eulalia japonica gracillima*, a tall greyish-green grass of graceful habit of growth; *Juniperus virginiana alba spica*, an almost white form at this season; *Philesia buxifolia*, a dwarf Yew-like bush, with crimson tubular flowers; *Veronica Girdwoodiana*, an erect growing species with small foliage and terminal spikes of blue flowers. A few Japan Maples and a few other plants of lesser interest completed the group.

G. F. Wilson, Esq., Heath Bank, Oakwood, showed an *Anemone* species allied to *A. polyantha*: the habit is tall (2 feet), and flowers white; *Campanula* G. F. Wilson is not unlike a small edition of *C. carpatia*; the other exhibits were cut blossoms of *Milla laxa*, and *Cereus Alice Wilson*, raised and named by the late Mr. Harvey, of Boston, Mass.

One side of a long table was taken up by Messrs. Kelway & Sons' (Langport) display of *Pæonies*, *Pyrethrums*, and *Delphiniums*. Many of the former are recent seedlings, and consisted of both single, half-double, and double flowers, in many colours. We name only a few—the plants which were thought worthy of a Certificate, viz., *Cyclops*, purplish-crimson, double; *Mrs. Salway*, also double, a creamy-white flower; *Lady Carrington*, semi-double, pale flesh; *Maria Kelway*, of the same colour with white; *Agnes Mary Kelway*, a flower with immense guard-petals over which are inserted a dense row of thread-like petals, the middle of the flower being filled with broad petals—the colour is light rose. In *Delphiniums* may be mentioned *Bassanio*, a good spike

of cobalt-blue, with white mark in the centre; and *Figaro*, a bright blue, with violet-purple centre petals. In *Pyrethrums* of a hardly perennial character may be named *Sirius*, with numerous overlapping golden rays and brown disc; and *Buffalo Bill*, a flower with a single line of fluted forelets like the annual variety, *Lorenziana*, but of a much larger size.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, contributed a large collection of hardy cut flowers, embracing, of *Liliums*, *L. maritimum*, *L. Martagon*, *L. pardium* var. *pumila*, and others; many brightly coloured forms of the Iceland Poppy, *Pæonies*, *Pyrethrums*, *Triteilia laxa*, *Chrysanthemum maximum*, and a semi-double *Chrysanthemum* with narrow white rays and a prominent yellow disc, *Of Calochortus* there were several good forms—one named *C. venustus* var. *citrius*, of a bright yellow ground colour, bearing spots of brown at the base of the segments, was certificated. The diameter of the flower was about 2½ inches. (Silver Banksian Medal.)

The tastefully displayed group of well-grown *Irises* (chiefly forms of the Spanish *Irises*), and a few *Pæonies*, from Mr. Walker, Whitton, Middlesex, attracted much attention. The following forms of the Spanish *Irises* were specially fine:—*Bilderdyk*, bright blue, with the usual yellow tongue on the falls; *Vondel*, rich yellow; *Canary Bird*, pale yellow; and *Almanus*, pale lilac, with falls of white. A Silver-gilt Banksian Medal was awarded.

Messrs. W. Paul & Son, Chesham, sent a few alpine and rock plants in pots. *Thymus serpyllum album* and a dark-coloured variety, shown as *coccineum*, were both very attractively shown in large masses; *Phyteuma comosum* in bud, a difficult subject; *Liparia latifolia*, *Mimulus radicans*, *Campanula Portenschlagiana*, and *Epilobium obovatum* were among the most noteworthy plants. The same firm also showed six boxes of cut *Pæonies*—*Jeanne d'Arc*, pale yellow, double, with pink guards; *Madame Lebon*, pale rose, double; *Pottsi*, a semi-double form, of the same colour as *Madame Lebon*; and *Grandiflora nivea*, very full double, pure white, but with occasionally a narrow margin of crimson to a few of the inner petals—were all good flowers.

Aristolochia ornithocephala, with its conspicuous and large flowers; and *A. trilobata*, with smaller and duller flowers, were sent by Mr. F. Ross, Pendell Court Gardens, Bletchingley.

A bright display was made by the "Shirley" *Poppies*, selected forms of the field Poppy, *Papaver Rhæas*, from the Rev. W. Wilks, Shirley Vicarage, Croydon. The colour of these flowers ranged from pure white to bright red, with numerous intermediate combinations.

Orchids.—The flowering plants from the gardens of Sir Trevor Lawrence, Bart., M.P. (gr., Mr. Bickerstaff), consisted of the following:—*Dendrobium Bensoniae*, a nice piece, full of flower; *Masdevallia Harryana*, Bull's blood, *Cattleya Mossiae Kleinekiana*, a plant with five blooms, which are white, lip also white, blotched with purple, and the throat yellow; *Thunia nivalis*, *Epidendrum atropurpureum*, sent as *E. Randii*, the sepals and petals of a greenish-bronzy colour; the lip is white, with a purple blotch and stripes at the base; several *Cattleyas Mendelii* and *Mossiae* of some merit completed the exhibit.

The group shown by Messrs. H. Low & Co., Clapton, contained many *Cattleyas*, some of fine markings and size, as *C. Mossiae aurea striata*, pale purple sepals and petals, lip beautifully filled, and of an intense shade of purple. Another variety had a purple mottled lip, with a white margin a quarter of an inch wide. *C. gigas*, *Mendelii* variety, lip and throat all of dark purple; the lip is distinctly lobed and boldly frilled. Other plants in this group were *Vanda teres*, *V. Roxburghi*, and many *Cypripediums bellatulum*, &c.

In the group sent by F. G. Tantz, Esq., Studley House Hammersmith (gr., Mr. Cowley), were *Epidendrum atropurpureum*, *Cattleya Aclandiae*, *Saccobolium Rheedii*, *Physisiphon Loddigesi*, a curiosity in *Orchids*, of dwarf growth, with two minute flower-spikes covered with very small orange flowers.

Miscellaneous.—The Rev. H. H. D'Ombrian showed a single flowered wild Rose with the perfume of the Sweet Brier. The parentage is unknown to the exhibitor; but it is probably a seedling from some native species. Warm-house *Rhododendrons* raised from the Sumatran species and hybrids—multicolour *Curtisii* and *Teysmannii*—were exhibited by Messrs. J. Veitch & Sons; *Hippolyta* is orange-red; *Portia primrose-yellow*; *Taylori*, pink; *Queen of Yellows*, yellow, very clear. A note on the subject of these

improved forms will be found in our issue for June 16 last, p. 752.

A group of *Pelargoniums* (fancy, show and spotted), was staged by Mr. C. Turner, Slough, and were very fine when the time of year is considered, as it is now late for these plants. There were about fifty plants in all, chiefly of the show type. *Ambassadors* (fancy) is delicate rose, with a white eye, and is borne in large trusses. *Spotted Beauty* (spotted) is very pale carmine, each petal bearing a spot of intense carmine. *Madame Marie Knecht*, pure white, with a trace of a red spot on two of the petals. *Vivid* (show) is a bright-coloured variety, scarlet, with almost black spots. *Buffalo Bill* (spotted) is lilac, with dark purplish spots.

Messrs. J. Laing & Son, Forest Hill, S.E., sent a very extensive group of tuberous *Begonias*, arranged with *Palms* and *Aralias*, for which a Silver Bankian Medal was given. The following were fine:—*Guardsman*, single, bright scarlet; *Mrs. Petch*, single, with crimson margin; *Duke of Edinburgh*, single, dark red; *Princess Sophie*, single, rose-lake; *Rose Celeste*, single, pale rose; *Lord Loughborough*, double, scarlet, and much crimped.

Messrs. H. Cannell & Sons, Swanley, Kent, also showed a few *Begonias*. *Dr. Lowe*, double, rosy-flesh, good full flower, was a fine bloom. They also had several cut blooms.

FIRST-CLASS CERTIFICATES.

To *Daphniphyllum glaucescens*, from Messrs. James Veitch & Son.

To *Calochortus venustus* var. *citrinus*, from Mr. Ware.

To *Eulalia japonica gracillima*, from Messrs. J. Veitch & Sons.

To *Cass-alpina japonica*, from Messrs. J. Veitch & Sons.

To *Epidendrum atro-purpureum*, from Sir Trevor Lawrence, Bart., M.P.

To *Epidendrum atro-purpureum*, from F. G. Tautz, Esq.

To *Rhododendron Hippolyta*, from Messrs. Veitch & Sons.

To *Pelargonium* (fancy) *Ambassadors*, from Mr. C. Turner.

To *Pelargonium* (spotted) *Spotted Beauty*, from Mr. C. Turner.

To *Striped Brier* (flower of), from Rev. H. H. D'Ombrian.

To *Delphinium Figaro*, from Messrs. Kelway & Sons.

To *Paeonies* *Cyclops*, Miss Salway, Miss Brice, Agnes Mary Kelway, Maria Kelway, Lady Carrington, from Messrs. Kelway & Sons.

To *Delphinium Bassanio*, from Messrs. Kelway & Sons.

Fruit Committee.

Present: Dr. R. Hogg, in the chair; and Messrs. J. Lee, P. Crowley, R. D. Blackmore, G. W. Cummins, S. Ford, J. F. Rivers, W. Warren, J. Marshall, W. Denning, C. Ross, H. J. Veitch, T. J. Saltmarsh, G. Norman, J. Wright, and J. Willard.

Three lots of Melons were submitted from Mr. A. James, Woolston Rectory, Cheltenham; an orange-fleshed sort was shown, which had a bitter flavour. Mr. Gleeson, Clumber Gardens, Worksop, showed a large white-fleshed variety, of fairly good quality and flavour; and Mr. Bennett, Cobham, sent a green-fleshed sort, small in size, and also of good quality. Mr. C. Ross, Welford Park Gardens, sent a white Grape, a seedling from Black Monukka; it is, we understand, on trial at Chiswick, and no opinion of its merits was expressed.

Strawberries were exhibited from the Society's Garden at Chiswick, where they are just now ripening well. The examples sent were all of Mr. Laxton's raising, and included *Noble*, a large fruit of good flavour; *King of the Earlies*, medium size, good colour; and *Admiral and Lieutenant* were also shown. The *Noble* was also sent by Messrs. Paul & Son, Cheshunt.

A wire frame for supporting Melon fruits came from Mr. W. Hussey, Hains Hill, Twyford; it consists of a series of wire hoops, supported on uprights, and with a base made by a plate of zinc.

LINNEAN.

JUNE 21.—Dr. Maxwell Masters, V.P., in the chair.

Mr. F. W. Oliver exhibited the aquatic and terrestrial forms of *Trapella sinensis*, of which he gave a detailed account, illustrated by diagrams.

Dr. R. C. A. Prior exhibited a branch of the so-called "Cornish Elm," and described its peculiar mode of growth, which suggested its recognition as a distinct species. In the opinion of the botanists present, however, it was regarded as merely a well marked variety of the common Elm.

On behalf of Mr. R. Newstead, of the Grosvenor Museum, Chester, photographs and drawings of the Little Grebe, *Podiceps minor*, were exhibited, to illustrate a peculiarity observed in the mechanism of the leg bones.

Mr. A. W. Bennett exhibited under the microscope, and made remarks upon, filaments of *Sphaeroplea annulina* (from Kew), containing fertilised oospores.

Mr. Thomas Christy exhibited specimens of different varieties of Kola-nuts.

The following papers were then read:—1. Dr. P. H. Carpenter, on the "Comatulæ of the Mergui Archipelago;" 2. Professor P. Martin Duncan and W. P. Sladen on the "Echinoidea of the Mergui Archipelago;" 3. Mr. W. P. Sladen on the "Asteroidea of the Mergui Archipelago;" 4. Mr. W. Bolus on "South African Orchideæ;" 5. Mr. R. A. Rolfe, "A Morphological and Systematic Revision of *Apostasia*."

This meeting terminated the session 1887-88—one specially memorable as the Centenary of the Society.

ROYAL OXFORDSHIRE HORTICULTURAL.

JUNE 19.—This exhibition, held annually in Commemoration week, took place in the delightful gardens of Worcester College, a charming show being provided, but the weather was so cold and dull as to be more like March than June.

Plants (open).—The chief interest centred on these. In the class for nine stove and greenhouse plants in flower Mr. J. Cypher, Cheltenham, was an excellent 1st, with fresh and bright specimens of *Ixora Williamsii*, *Dracophyllum gracile*, *Bougainvillea glabra*, *Phænocoma prolifera* Barnesii, *Anthurium Scherzerianum* Veitchii, *Aphelexis spectabilis*, *Erica depressa*, and two *Azaleas*. 2nd, Mr. J. F. Mould, nurseryman, Pewsey, Wilts, in our report of the Reading show stated, in error, to be of Devizes.

Mr. J. Cypher had the best six Cape Heaths, having good examples of *depressa*, *ventricosa grandiflora*, *v. hirsuta*, *Kingstoniana*, *tricolor* Wilsoni, and *t. elegans*. 2nd, Mr. H. James, with good plants of *tricolor* Wilsoni, *t. ventricosa*, and *Candolleana*. *Pelargoniums* in collections of twelve were not up to their usual mark, Mr. C. Turner's plants being badly missed. Mr. J. Mattock, nurseryman, Headington, was awarded a 2nd prize.

Cut Flowers: Roses.—Prizes were offered for twenty-four trebles, dissimilar—a large quantity to get thus early in such a season. Mr. J. Mattock was the only exhibitor, and was placed 1st with good examples of the following:—*Catherine Mermet*, *Souvenir d'Elise*, *Rubens*, *Perle des Jardins*, *Niphetos*, *Maréchal Niel*, *Devoniensis*, *Souvenir d'un Ami*, *Marie van Houtte*, *Jean Ducher*, *Madame Lambard*, and *Grace Darling*. In that for twenty-four varieties, single blooms, Mr. Geo. Prince, nurseryman, Oxford, was 1st, with some very good blooms, the leading varieties being *Comte de Nadaillac*, *Maréchal Niel*, *Madame de Watteville*, *Princess of Wales*, *Souvenir d'Elise Vardon*, *Grace Darling*, *Adam*, *Alba rosea*, *Duke of Edinburgh*, *Lady Mary Fitzwilliam*, *Niphetos*, and *Madame Lambard*. 2nd, Miss Watson Taylor, Headington.

Table Decorations.—The best three pieces, nicely arranged, came from Mr. J. Mattock; J. S. Parker, Esq., Ilfley, near Oxford, being 2nd. Then followed a number of classes for plants, the competition confined to members only.

Stove and Greenhouse.—G. H. Morrell, Esq., Headington, had the best collection of eight varieties, his best specimens being *Justicia carnea*, well bloomed; *Bougainvillea glabra*, *Tabernaemontana coronaria flore-pleno*, *Impatiens Sultani*, *Yucca alba* and *rosea*. Mr. George Jacob, Mill Lane Nursery, Witney, had the best six plants—*Cattleya Mendelii*, *Oncidium aphecelatum*, *Cypripedium barbatum*, and *Anthurium Scherzerianum* being his best specimens. The best specimen, variegated or ornamental plants were *Chamaerops excelsa* and *Encephalartos villosus*. The best stove plant was a good piece of *Cattleya Gaskelliana* from Mr. G. Jacob (gr. H. Morrell) being 2nd, with *Ixora coccinea*. The best specimen hardy plant was a very fine piece of *Cypripedium spectabile* from Mr. R. Price, Headington; R. N. Byass, Esq., Ronsheam Park, being 2nd, with *Dentzia crenata* fl.-pl.

Orchids.—The plants of these were small but good. Mr. George Jacob had the best four, staging *Cattleya Mendelii* and *C. Mossiae*, *Odontoglossum vexillarium*, and *Cypripedium barbatum*; 2nd, C. A. Bevers, Esq., Oxford, with *Odontoglossum citrosum*, *Deodorium thyrseferum*, and *Cattleyas Mendelii* and *Mossiae*.

Miscellaneous Flowering Plants included *Gloxinias*, *Acibimenes*, *Calceolarias*, very well shown by Messrs. J. Walker of Thame, and R. J. Johnson of Oxford. Of *Fuchsias*, a capital half-dozen came from Mr. J. Walker, *Lye's Charming* being specially attractive. In tuberous *Begonias* some very fair plants were staged; and there were also several classes for show, zonal and Ivy-leaved *Pelargoniums*. The variegated varieties, and especially those known as *tricolor*, are well done at Oxford, being nicely grown and finely coloured.

Ferns.—These were shown in sixes of exotic, and in two classes for nine and six plants. Some very good British Ferns were staged. The crowded tents prevented us from obtaining the successful exhibitors' names.

Cut Flowers.—There is one class for 24 bouquets that were made up small in order, it would seem, that they might be sold at the close of the show. It is a useless class in many respects, and it would be much better if it were changed for, say, a dozen bunches of stove and greenhouse cut flowers. There was also a class for nine bouquets. Single zonal *Pelargoniums*, one truss of each, were a good feature, Mr. J. Mattock being 1st, and Mr. John Walker 2nd. Mr. Geo. Prince had the best twenty-four cut Roses, showing some charming blooms; Dr. Bywater Ward, Warneford Asylum, being 2nd. Mr. J. Mattock had the best eighteen varieties, and Mr. A. Evans, Marston, the best twelve. There was also a class for nine varieties. It was pleasant to see some of the old-fashioned florists' *Ranunculus*—the best stand of eighteen blooms coming from Mr. P. Southby, Bampton. Pinks were shown, and also Pansies. Mr. Joseph Lakin had a fine lot of blooms of fancy varieties of the latter. Mr. J. Green, Oxford, had the best stand of nine bunches of double *Pyræthrums*. But the feature of the cut flower classes was the stands of twelve bunches of hardy perennials, for these were a very fine feature, Mr. Joseph Lakin, who, as an amateur, makes a great specialty of these plants, having very fine bunches indeed, chief among them being *Papaver orientale*, *Campanula glomerata* *Dahurica*, *Geum coccineum* fl.-pl., the double form of *Tradescantia virginica*, an orange *Erigeron*, fine double *Pyræthrums*, &c. Mr. R. Price, Headington, was a good 2nd, with *Hemerocallis flava*, *Heuchera sanguinea*, very bright; *Onosma taurica*, *Dictamnus fraxinella*, &c. These collections were deserving of much higher prizes than those awarded, and it is a feature that should be extended.

Fruit.—Of this there was a limited quantity. The best three bunches of white Grapes were Foster's Seedling, from Colonel Miller, Shotover House, Wheatley; Mr. Robins, The Gardens, Hartwell House, Aylesbury, being 2nd with the same variety; Mr. Geo. Parker, Great Tew Park, came 3rd, with Duke of Buccleuch. Mr. Parker had the best three bunches of black Grapes, showing good Black Hamburgh; R. N. Byass, Esq., Rousham Park, being 2nd.

The best dish of Peaches was Alexander, from Mr. Robins; Mr. P. Southby coming next, with Stirling Castle. The best dish of Nectarines, Lord Napier, was from Mr. Robins; Pitmaston Orange, from G. H. Morrell, Esq., Headington, being placed 2nd. Hero of Lockinge was decidedly the best Melon. Cherries and Strawberries were also shown.

Vegetables.—A large number of classes were devoted to these; but the chief interest centered in the special prizes offered by Messrs. Sutton & Sons, Reading, and Messrs. E. Webb & Sons, Wordley, Stourbridge. There was a good competition for these, but time did not admit of going into particulars.

Collections of wild flowers, shown by cottagers, were a very interesting feature indeed.

A ROSE SHOW AT THE ALEXANDRA PALACE.

JUNE 27 AND 28.—The managers of this undertaking, amongst the attractions of their programme for this season, have included horticultural exhibitions, and the first of these—a Rose show—took place on the above dates. It may be said to have been a modest revival of the more famous exhibitions which were held there from time to time in former years.

Besides the Rose show proper of the miscellaneous exhibits from various nurserymen appeared on the tables, and those of horticultural builders and sundriesmen in other parts of the central hall.

Roses: Nurserymen.—In the forty-eight single blooms, distinct, the 1st place was taken by Messrs. Paul & Son, Old Nurseries, Cheshunt, and whose best blooms, which—taken as a whole, were good for this unfavourable season—were Lady M. Fitzwilliam, François Levet, Countess of Rosebery, Ruhens, Mrs. C. Wood, Violette Bowyer, Duke of Edinburgh, Maurice Bernardin, Souvenir d'Elise Vardon, M. Niel, Alba roses, and Devonians. Mr. C. Turner, Slough, was 2nd, with a lot of blooms, which ran Messrs. Paul & Son rather closely. Good blooms were observed in Madame Verdier, Annie Laxton, H. Schultheiss, Lady Mary Fitzwilliam, Perle des Jardins, Catherine Baumann, Elie Morel, and Madame de St. Jamain. Mr. W. Rumsey, Waltham Cross, was 3rd, with flowers much under his usual mark, but yet regular in form and even in size.

For twenty-four trebles of H.P.'s, the winners were the same as in the previous competition and in the same order; the Roses also were nearly identical as to variety. Lady Alice, Lady Mary Fitzwilliam, were nice flowers, as was American Beauty, a flattish formed Rose of purplish-crimson colour, in Messrs. Paul's stand. Mr. Turner had Baroness Rothschild, Dr. Sewell, and Ulrich Brunner, in good form. It was remarked that wherever Ulrich Brunner appeared it was always in good condition and of large size. Four competitors.

For twenty-four single blooms, distinct, Mr. G. Prince, Market Street, Oxford, took 1st honours; the Teas in his stand were marked by their usual excellence—Madame Cusin, Souvenir d'Elise Vardon, Amazon, bright yellow, fine, when half-opened; Souvenir d'un Ami, Devonians, Catherine Mermet. The 2nd prize fell to Messrs. G. & W. Burch, Peterborough; the best were—Camille Bernardin, E. Y. Teas, Ulrich Brunner, Alphonse Soupert, Dr. Andry, &c.—an even stand of fresh vigorous bloom.

For twelve Tea and Noisette, single blooms, Mr. Prince was not to be denied the 1st place; Messrs. Harkness Brothers, of Bedale, took 2nd place. Fine blooms noted in these stands were Perle des Jardins, Princess Alice, Souvenir d'un Ami, Catherine Mermet, Maréchal Niel, Jean Ducher. There were seven competitors.

Amateurs' and Gentlemen's Gardeners' Classes.—For the best thirty-six blooms, distinct, S. P. Budd, Esq., Bath, took 1st place, with flowers fairly good; the best of them, and those not observed in other stands, were La Havre, Queen of Queens, Pierre Carot, Dupuy Jamain, and Marie Van Houtte. The 2nd prize fell to Mr. J. Brown, Reigate, who had nice examples of Pride of Waltham, Mrs. Baker, Grace Darling, Comtesse Nadailac, Marie Cointet, and Star of Waltham.

For twenty-four single blooms, H.P.'s only, Mr. Budd was again 1st with nice bloom, of which mention may be made of A. K. Williams, Dupuy Jamain, Etienne Levot, Magna Charta, and Captain Christy. R. E. West, Esq., Firth Dean, Reigate, showed a small flowered, even lot of blooms.

For the best twelve blooms, distinct, there was much competition, the 1st prize falling to the Rev. E. G. King, Madingley Rectory, Cambridgeshire. Nice examples were Anna Olivier, Catherine Mermet, Maréchal Niel, Louis Van Houtte, and a bloom of La France, which was adjudged the best bloom in the exhibition, and took therefore the Silver Medal, value £2, offered by Messrs. W. Wood & Sons, Wood Green, N. The 2nd prize fell to Mr. Perry, gr. to Mrs. Rowlett, Cheshunt, Marie Baumann, Ulrich Brunner, C. Le-febre, Comte Raimbald, and François Levot being the best of a rather small but nicely-finished lot of blooms. The Rev. Page Roberts took 1st prize for six Teas or Noisettes, and the Rev. F. R. Burnside, of Chipping Campden, the 2nd. As nice flowers in these stands we name La Boule d'Or, Caroline Kuster, Catherine Mermet, Souvenir d'Elise, Niphotos, and Maréchal Niel.

Open Classes.—In these classes of the competition the number of blooms required was small, to allow growers of moderate means to compete. Messrs. Paul & Son, Old Nurseries, Cheshunt, took the 1st prize with Mrs. John Laing in the class for any Rose.

In the class for new Rosea, not in commerce, a new white Tea was shown by Mr. G. Prince, Oxford, named S. A. Prince. It is a dead white, very full, and likely to prove a valuable Rose of its colour, but more must be seen of it in a variety of soils and situations before deciding on its merits. Details of its parentage were not afforded.

The Rev. T. R. Bernalde won the 1st prize for a

dozen of any yellow variety with Maréchal Niel—very superior examples; Messrs. Paul & Son were 1st for white Roses, showing Lady Alice, well done. Mr. C. Turner was 1st in the class for crimson with Marie Baumann; and the 1st prize for a dozen of any Rose not included in the above competitions with Lady Mary Fitzwilliam, a pale flesh-coloured variety.

In baskets of Rosea Messrs. Perkins & Sons, Coventry, showed the trained hand and eye combined with good taste, taking the 1st prize; the 2nd falling to Anne M. Williams, Highgate Hill. Messrs. Perkins & Sons carried off the best prize for a hand bouquet, Miss Williams coming 2nd; and the 3rd in this and the previous class fell to Mr. W. A. Holmes, who spoilt his device by employing too much bloom and foreign foliage.

Messrs. Paul & Son led with twenty pot Roses, stocky floriferous plants, rather too abundantly staked; Mr. C. Turner taking 2nd place.

Miscellaneous exhibits came from Mr. B. S. Williams, consisting of Orchids, stove and greenhouse plants; Mr. H. B. May, Dyson's Lane, Upper Edmonton, sent a fine imposing group of choice varieties of Ferns, Dieffenbachias, Dracenas, &c.; Messrs. Hooper & Co., Maida Vale and Covent Garden, showed Lillies, Ornithogalum arabicum, Blandfordia flammea, Campanula clycanthemus, Adiantum Veitchii, Caladiums, &c.; Messrs. W. Cuthush & Sons had hard-wooded plants, Ferns, &c.; Messrs. Cooling, Bath; Turner, Slough; Prince, Oxford; W. Taylor, Hampton, showed Roses of various classes, not for competition.

Mr. T. Ware showed an excellent group of hardy flowers, such as he showed at the Drill Hall, Westminster, on the previous day, and took the Silver Cup, valued at £4, given by Mr. W. Colchester, of Colchester, the proprietor of Ichthemic manure.

Mr. Newton, of Hitchen, whose ingenious and durable glasshouses were mentioned, and the method of glazing illustrated in our pages, showed a section of one of his houses, fitted with a very ingenious yet simple raising gear for ventilators, worked either in or outside a house.

Mr. Peel, High Street, Wood Green, likewise showed wooden greenhouses for amateurs, portable, and very cheap.

LAW NOTES.

THE NON-GUARANTEE CLAUSE.

REYNOLDS v. WRENCH & SONS.—This case, which involved the question of the validity of the non-guarantee clause used by wholesale seedsmen, came on in the Court of Appeal, before Lord Esher and Lords Justices Lindley and Lopes, on the 21st inst. It was an appeal by the defendants from the refusal of the Divisional Court (confirming the judgment of Mr. Justice Denman) to allow their counter-claim against Mrs. Reynolds for damages claimed under the circumstances reported in a previous number, pp. 115 and 590. The Court dismissed the appeal, and the question is now therefore finally decided unless the defendants take the case to the House of Lords, which it is understood it is not their intention of doing. The clause has now been upheld by every Court before which it has been argued.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending June 25, is furnished from the Meteorological Office:—

"The weather has varied greatly in different parts of the kingdom. Over Ireland and Scotland it was generally fine, but in most parts of England the conditions were dull and unsettled, with severe thunderstorms in many places. Towards the end of the period thunderstorms were experienced in some parts of Ireland also. On our S. and S.W. coasts much fog or mist prevailed at times.

"The temperature has differed considerably in the various districts. It has been on the whole rather above the mean in Ireland and the west of Scotland, slightly below over the west and south of England, and from 3° to 6° below over the east and north-east parts of the kingdom. At the commencement of the period the thermometer was extremely low for the

time of year over our more southern counties. In London and at Cambridge the maximum was only 53°, at Rothamstead 52°, and at Hillington 51°. As the week advanced, however, temperature increased very generally, and on the 25th maxima between 80° and 85° were recorded in most parts of Great Britain. The lowest of the minima were registered in most places either on the 19th or 20th, when the sheltered thermometer fell to between 34° and 37° over the inland parts of Scotland, to 35° over the 'Midland Counties' and 'England N.W.', and to between 40° and 45° elsewhere.

"The rainfall has been almost entirely absent from Scotland, and considerably less than the mean over Ireland and the west and north-east parts of England, but in the 'Midland Counties' and 'England S.' an excess is shown.

"Bright Sunshine has been very deficient over southern, central, and south-west England, but over Ireland, Scotland, and the north of England the percentage of the possible amounts of duration ranged from 42 to 66.

MEAN TEMPERATURE OBSERVED AT CHISWICK DURING THE WEEK ENDING JULY 7. (AVERAGE OF FORTY-FOUR YEARS.)

July 1	63°·7	July 5	63°·1
" 2	62°·8	" 6	63°·1
" 3	62°·9	" 7	63°·2
" 4	63°·0	Mean for the week ...	62°·9

MARKETS.

COVENT GARDEN, June 28.

BUSINESS more brisk this week, with good supplies. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Grapes, per lb. ...	1 6-3 6	Peaches, dozen ...	4 0-12 0
Kent Cobs, 100 lb. ...	40 0-45 0	Pine-apples, Eng., lb. ...	2 0-...
Lemons, per case ...	12 0-21 0	— St. Michael, each ...	2 0-5 0
Melons, each ...	1 0-3 0	Strawberries, lb. ...	0 6-1 6

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, p. doz. ...	4 0-...	Mushrooms, punnet 1 0-1 6	
Asparagus, Fr., bund. 1 6-4 0		Mustard and Cress, punnet ...	0 4-...
— English, 100 ...	3 6-6 0	Onions, per bushel ...	0 4-...
Beans, Kidney, lb. ...	1 0-...	Parsley, per bunch ...	0 4-...
Beet, red, per dozen 1 0-2 0		Putatoes, per cwt. ...	4 0-5 0
Carrots, per bunch ...	0 9-...	— Kidney, per cwt. ...	4 0-5 0
Cauliflowers, each ...	0 8-...	Rhubarb, per bundle ...	0 4-...
Celery, per bundle ...	1 6-2 6	Shallots, per lb. ...	0 6-...
Cucumbers, each ...	0 9-1 0	Spinach, per bushel ...	2 6-...
Endive, per dozen ...	2 0-...	Spruce, per bundle ...	1 0-...
Green Mint, bunch ...	0 4-...	Tomatoes, per lb. ...	1 0-...
Herbs, per bunch ...	0 4-...	Turnips, per bunch, new ...	0 8-...
Leeks, per bunch ...	0 6-...		
Lettuce, per dozen ...	1 6-...		

POTATOS.—Jersey Flukes, 9s. to 10s.; do. Kidneys, 7s. to 8s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arelia Sieboldi, doz. ...	6 0-12 0	Foliage plants, various, each ...	2 0-10 0
Bouvardias, per dozen 9 0-12 0		Fuchsias, doz. ...	4 0-9 0
Calceolarias, dozen 4 0-9 0		Heliotropes, dozen ...	6 0-9 0
Coleus, dozen ...	3 0-6 0	Hydrangeas, dozen ...	9 0-18 0
Cyperus, per dozen ...	4 0-12 0	Lobelias, per dozen 3 0-6 0	
Dracena terminalis, per dozen ...	30 0-60 0	Marguerites, doz. ...	9 0-12 0
— viridis, per doz. 12 0-24 0		Mignonette, 12 pots 4 0-8 0	
Ericas, various, per dozen ...	6 0-18 0	Musks, dozen ...	1 6-3 0
— ventricosa, doz. 16 0-30 0		Myrtles, per dozen ...	6 0-12 0
Euonymus, in var., per dozen ...	6 0-18 0	Palms in var., each 2 6-12 0	
— variegatus, doz. 16 0-30 0		Pelargoniums, doz. ...	6 0-15 0
Evergreens, in var., per dozen ...	6 0-24 0	— Ivy-leaf, dozen ...	3 0-8 0
— variegatus, doz. 16 0-30 0		— scarlet, dozen ...	3 0-9 0
Ferns, in var., doz. 4 0-18 0		Roses, dozen ...	12 0-24 0
Ficus elastica, each ...	1 6-7 0	Saxifrages, dozen ...	13 0-18 0
		Spiraeas, dozen ...	6 0-12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, 12 blms. ...	2 0-4 0	Panicles, 12 bun. ...	9 0-18 0
Bouvardias, per bun. ...	0 6-1 0	Pelargoniums, 12 spr. ...	2 6-1 0
Calceolarias, 12 blms. ...	1 0-2 0	Pinks, 12 bun. ...	2 0-4 0
Chrysanthemums, annual, 12 bun. ...	1 0-3 0	Poppies, 12 bun. ...	4 0-6 0
Conflowers, 12 bun. ...	1 6-3 0	Primulas, double, 12 ...	...
Eucharis, per dozen 3 0-6 0		— sprays ...	0 9-1 0
Forget-me-nots, 12 bunches ...	2 0-4 0	Pyrethrums, 12 bun. ...	4 0-6 0
Gardenias, 12 blooms 1 6-4 0		Roses, Tea, per doz. ...	0 6-1 6
Heliotropes, 12 spr. ...	0 6-1 0	— coloured, dozen ...	2 0-4 0
Iris, various, 12 bun. ...	3 0-9 0	— red, per dozen ...	1 0-2 0
Lilium longiflorum, 12 blooms ...	3 0-5 0	— " 12 bunches 3 0-6 0	
Marguerites, 12 bun. ...	3 0-6 0	— Safrano, dozen ...	0 9-1 6
Muscadines, 12 bun. ...	3 0-6 0	Spruces, 12 bun. ...	4 0-6 0
Narcissus, double, 12 bunches ...	4 0-6 0	Stephanotis, 12 spr. ...	2 0-4 0
— single, 12 bun. ...	1 6-3 0	Tuberose, 12 blms. ...	0 6-1 0
		White Lilac, French, per bunch ...	4 6-6 0

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, do PLEASE NOTE that letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be written on one side only of the paper, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

COAL SMOKE AND FLUES: *J. B.* Fill up all joints with fire-clay, or good brick-making clay failing that, and mix with horse-droppings or chaff. Near the furnace the clay must be put on liberally; or some cement may be used there for covering and filling the joints. It will require frequent examination, or injury to the plants will ensue.

CORRECTION.—We regret that inadvertently our remarks on the show of Rhododendrons in the Row, Hyde Park (see p. 778, in our last issue), made by Mr. Antony Waterer, got attached to one dealing with Mr. J. Waterer's exhibition of these plants in Cadogan Place.

FUNGUS ON GRASS: *Mrs. A. Dixon.* The white fungus growing on the grass is the immature state of *Epichloë typhina*, Ful. Very common on all species. It is one of the Ascomycetes figured in Greville's *Scot. Crypt. Flora. M. C. C.*

HOLLY HEDGE: *E. C. L.* In August early.

HYPERICUM, SUPPOSED HYBRID: *C. W. D. H. Bursari.*

JASMINUM SAMBAC: *A. N. J.* Fusion of two or more flowers is not unusual in this plant. No doubt it arises from over-luxuriance.

MILDEW ON GRAPE VINES: *J. E. & S.* Apply sulphate of potassium at the rate of $\frac{1}{2}$ oz. to 1 gallon of rain-water, with the syringe. Allow it to remain ten minutes, then syringe off with clean water. Keep the house rather warmer, and be careful about the ventilation. See our issue for June 2, p. 697.

NAMES OF PLANTS: *S. M.* 1, *Thymus serpyllom* var. *pubescens*; 2, *Valeriana officinale*; 3, *Syringa Josikea*; 4, *Lathyrus latifolius*; 5, *Dianthus plumarius*.—*A. B.* 1, *Calycanthus floridus*; 2, *Platanus Richardi*.—*J. W.* *Podophyllum peltatum*.—*M. A. H.* *Abies orientalis*; *Crataegus coccinea*.—*F. N. B.* 1, *Hedera Regnieriana*; 2, consult some grower of Ivies.—*D. T.* 1, *Ulmus*; 2, *Pyrus salicifolia*; 3, *Crataegus coccinea*.—*W. C.* The white variety of the common Foxglove (*Digitalis purpurea*).—*Atticus.* 1, *Campanula glomerata*; 2, *Stenactis*; 3, *Aster*, not recognised; 4, *Tanacetum Balsamita* (the Costmary); 5, *Lilium Martago*; 6, *Barbarea vulgaris* double flower.—*E.* *Scapellhorn*. *Lonicera tomentella*.—*W. & S.* *Arthropodium cirrhatum*.—*W. S.* 1, *Geranium pratense*; 2, *Astrantia major*; 3, *Trollius europæus*—Globe flower; 4, *Polemonium cœruleum*; 5, *Tiarella cordifolia*; 6, *Grevillea rosmariifolia*; 7, *Centaurea montana*.—*C. W.* *Oncidium pulvinatum*; *Cattleya Forbesii*.—*W. T. O.* *Epidendrum aromaticum*; *E. cochleatum* (the larger flower).—*J. C.* 1 and 2, *Epidendrum fragrans* vars. —*W. F. S.* *Schomburgkia tibicinis*.—*Constant Reader.* 1, *Dendrobium chrysotoxum*; 2, *Oncidium flexuosum*; 3, *Dendrobium suavisimum*; 4, *Clerodendron Thomsonianum*.—*E. Cooper.* *Læloopsis domingensis*.—*C. E. B. Y.* 1, *Sedum sarmetotum*; 2, next week; 3, *Centaurea cyanus*; 4, *Phlebodium aureum*; 5, *Pteris arg.*—*Subscriber.* *Catalpa bignonioides*.—*C. W. D.* *Hypericum*, supposed hybrid, *H. Bursari*.

ORANGE RUST ON ROSES: *J. M.* You are lucky to have been a Rose grower so long and not seen it. A full description and figure is given in our Rose Supplement, July 7, 1877. Cut off the affected branches and burn them.

PANSIES: *W. Caudwell.* Some good flowers amongst those sent, but the bulk of them were deficient in substance, regularity, and finish. Further selection and care in hybridising are required to produce first-class flowers.

PARIS MARKET GARDENING: *J. A. S.* *Gleanings from Paris Gardens*, W. Robinson, F.L.S. (F. Warne & Co., London).

QUASSIA CHIPS: *J. E.* For black-fly, 4 oz. to be boiled for 10 minutes in 1 gallon of rain-water. Greenfly may be killed with rather less Quassia chips per gallon. It may also be made much stronger, and the decoction added in any desired proportion to clear water. Soft-soap, at the rate of 3–4 oz. to the gallon, increases the destroying and defensive properties of Quassia-water.

STRAWBERRY CAPTAIN: *A. B.* A nice-flavoured, useful, early variety.

TOMATO DISEASE: *R. S.* See our number for Nov. 12, 1881, p. 621. Burn the plant.

CATERPILLARS: *Many Correspondents.* The destruction is caused by the caterpillars or grubs of various insects. The Ermine moth (*Hyponomeutella padella*), which strips Thorn, Apple, and other trees, fastening their shoots together by fine webs. Our illustration (fig. 114) shows a species which attacks the Apple, *H. malivorella*. Hand-picking is the only remedy



FIG. 114.—THE ERMINE MOTH.

at present available. When the perfect insect appears, lay a sheet beneath the branches, and shake the branches vigorously so that the insects fall into the sheet, when they may be easily destroyed. The grub of the pretty little winter moth is also very destructive. It is a "looper," as shown in our illustration (fig. 115). At first they are grey, but are afterwards shining-green, with a blue line down the back, and two yellowish-white lines on either side, and a few scattered hairs. These creatures also tie the leaves together with their webs, and are extremely destructive to fruit trees. On the first appearance of the moth, in October or November, fasten a strip of brown paper round the trunk of



FIG. 115.—THE WINTER MOTH.

the tree and paint it over with oil or tar, when large numbers of the wingless egg-laying female moths may be caught. Lastly, encourage birds, such as tom-tits and starlings. The moths, if not checked in this way, will deposit their eggs on the branches of the trees, or on the buds, where they remain all the winter uninjured by the cold and wet, and are hatched in spring and early summer.

COMMUNICATIONS RECEIVED.—*H. G.*—*G. P.*—*W. S.*—*G. C.*—*D. T. F.*—*H. B.* *Geoeva*.—*J. H. L.*—*J. J.*—*Norman Cookson* (next week).—*W. G. S.*—*H. G.*—*J. H. Krelaga*.—*Dr. Costerus*.—*G. Pounce* (Wa think your note has been mis-sent).—*W. G. S.*—*R. H. V.*—*J. R. J.*—*W. S.*—*F. T. H.* (next week).—*P. L.*—*W. J. M.*—*C. B. P.*—*W. W.*—*Harrow*.—*J. A. O. F. S.*—*J. T. H.*—*W. W.*—*J. S.*—*J. H.*—*J. D.*—*W. R.*—*H. W.*—*W. S.*—*L. O. W.*—*R. A. G.*—*Thorn*.—*J. Morton*.—*J. Morgan*.—*T. J. White* (next week).

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.

TEA ROSES.

GARAWAY CO. offer 12 of the above, best named sorts, including MARECHAL NIEL and NIPHETOS, in 5-inch pots, for 10s. cash.

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Twelve DAHLIAS, choice exhibition var., 3s.; Mrs. Sinkin, pink, 2s. 6d. per dozen.

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CHRYSANTHEMUM, Japanese, Incurved, and Pompon, true to name, in single pots, 10s. per 100; from store pots, 5s. per 100.

C. CUNDY, F.R.H.S., The Nurseries, Sudbury, Suffolk.

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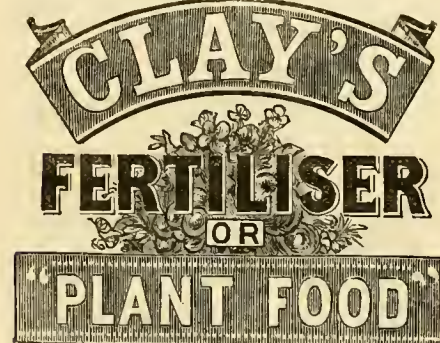
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BEST BROWN FIBROUS PEAT, 5s. per sack, 5 for 22s. 6d.
BEST BLACK FIBROUS PEAT, 4s. 6d. per sack, 5 for 20s.
COARSE SILVER SAND, 1s. 6d. per bushel; 14s. 2-ton; PURE LEAF MOULD, 3s. per sack. (25s. per ton.)
YELLOW FIBROUS LOAM, 4s. per bushel.
BEST MUSHROOM SPAWN, 3s. per sack.
RAFFIA, LABELS, STICKS, from 1 ft. to 5 ft., BAMBOO CANES, 3 ft. to 12 ft., VIRGIN CORK, CHEMICAL MANURES, NETTING, &c.
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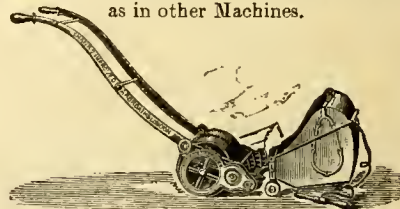
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THE COMMITTEE have the pleasure to announce the following Contributions to be added to the Subscription List of the Right Hon. JOSEPH CHAMBERLAIN, M.P., on the occasion of his presiding at the 45th Anniversary Festival, to be held on JULY 4, 1888:—

The Marquis de Castegay, Searesbrick Hall, Ormskirk	£10 10 0	His Grace the Duke of Leeds	£10 10 0
John Munro, Esq., Richmond (annual)	2 2 0	Baron Ferdinand de Rothschild, M.P.	10 10 0
Miss Mitchell, Macrocarpa, Ventnor	10 10 0	G. F. Wilson, Esq., Heatherbank, Weybridge	5 5 0
George Willis, Gardener, Tetecote, Holsworthy, Devon	10 10 0	Miss J. Dunning Smith, 10, Kensington Palace Gardens	5 0 0
Thomas McClure, Gardener, Hartley Grange, Winchester	1 15 6	Miss Gretton, Bladon, Burton-Trent (annual)	1 1 0
Charles Ross, Gardener, Welford Park, Newbury	10 10 0	Thomas A. Perry, Esq., Bitham House, Avon Dassett, Leamington (annual)	1 1 0
James Harris, Gardener, Woolland House, Blandford	10 10 0	Joseph Willis, Gardener, Bishop's Teignton, Teignmouth	1 5 0
Joshua Fellowes, Esq., Churchfield, West Bromwich (annual)	1 1 0	J. C. Geiselbrecht, Esq., 8, Leadenhall Street	3 3 0
George Culverwell, Gardener, Newcastle, Ireland	1 1 0	J. S. Morgan, Esq., Dover House, Rochester	10 10 0
James Barnard, Gardener, Camden Wood, Chislehurst	10 10 0	Henry Tate, Esq., Park Hill, Streatham (annual)	2 2 0
R. Jordau, Gardener, Llanaw House, Godalming	2 2 0	Henry E. Hole, Esq., Loughborough	1 0 0
Joseph Willis, Gardener, Hollowmead, Bishop's Teignton (annual)	1 1 0	J. P. Heseltine, Esq., Waihampton (annual)	1 0 0
J. B. Thomsons, Seedsmen, Birmingham (annual)	1 1 0	J. T. Agg Gardner, Esq., M.P., Carlton Club	10 10 0
P. Jacobm, Esq., Cheam Park, Cheam (annual)	1 1 0	The Right Hon. W. H. Smith, M.P.	5 5 0
Richard Hunt, Gardener, Hurst Grange, Twyford (annual)	1 1 0	Edwd. Leach, Gardener, Hinton Admiral, Hunts	0 5 0
William Davies, Gardener, The Warren, Hayes Common (annual)	1 1 0	T. Smith, Gardener, Sapworth Hall, St. Ives	1 5 0
William Wall, Gardener, Birdingbury Hall, Rugby (annual)	1 1 0	J. Rymell, Gardener, Iatwood Hall, Norwich	0 16 0
H. C. Hardy, Esq., Danehurst, Wickford	1 1 0	Henry Tillman, Esq., Covent Garden	2 2 0
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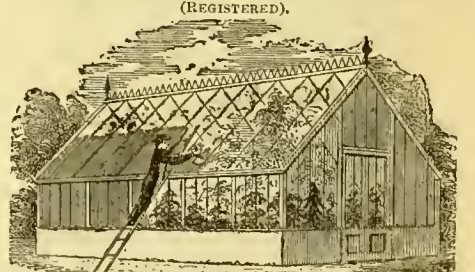
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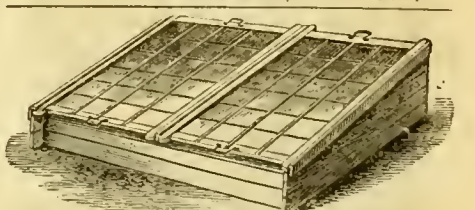


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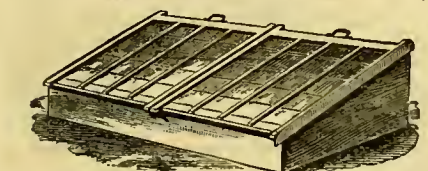
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STOCK	SIZES
Inches.	Inches.
14x12	20x16
16x12	20x16
18x12	22x16
20x12	24x16
22x12	26x16
24x12	28x16
26x12	30x16
28x12	32x16
30x12	34x16
32x12	36x16
34x12	38x16
36x12	40x16
38x12	42x16
40x12	44x16
42x12	46x16
44x12	48x16
46x12	50x16
48x12	52x16
50x12	54x16
52x12	56x16
54x12	58x16
56x12	60x16
58x12	62x16
60x12	64x16
62x12	66x16
64x12	68x16
66x12	70x16
68x12	72x16
70x12	74x16
72x12	76x16
74x12	78x16
76x12	80x16
78x12	82x16
80x12	84x16
82x12	86x16
84x12	88x16
86x12	90x16
88x12	92x16
90x12	94x16
92x12	96x16
94x12	98x16
96x12	100x16
98x12	102x16
100x12	104x16
102x12	106x16
104x12	108x16
106x12	110x16
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832x12	836x16
834x12	838x16
836x12	840x16
838x12	842x16
840x12	844x16
842x12	846x16
844x12	848x16
846x12	850x16
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To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS. **JAMES CARTER AND CO.** have at all times upon their Register reliable and competent MEN, enquiry of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

WANTED, a **GARDENER!!!** — Having had long experience and an extensive connection we are in a position to **RECOMMEND MEN** thoroughly capable of filling with credit any situation in the Gardening World. On receipt of full particulars we will recommend a suitable Man. Correspondence invited. — **R. B. LAIRD AND SONS**, Successors to Downie & Laird, Seed Merchants, Edinburgh.

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To Noblemen, Gentlemen, &c. **GARDENER (HEAD).** — **G. J. WOOLLETT**, Nurseryman, Caterham, wishes to recommend a thoroughly practical man as above. — Apply as above.

GARDENER (HEAD). — Age 31; five and a half years Head Gardener to the late Sir Alfred Ryder. Excellent character and testimonials. Abstainer. — **C. HIGGINS**, Wallwood, Torquay.

GARDENER (HEAD). — Middle-aged, married; first-rate Grape and Plant Grower, and good Kitchen Gardener. Good character. — **P., 3, Arney's Cottages**, Sutton Common, Surrey.

GARDENER (HEAD). — Age 30, married, no family; thoroughly experienced in Stove and Greenhouse Plants, Flower and Kitchen Gardening. Good character. — **GOOD**, Marl Place, Brenchley, Kent.

GARDENER (HEAD). — Age 30; single at present; fifteen years' experience in all branches. Highly recommended by his present employer, with eight years' good character as Foreman. — **W. FISHER**, 6, South Cottages, York Road, Weybridge.

GARDENER (HEAD). — **EARL STANHOPE** strongly recommends his late Gardener. Thorough knowledge of Flowers, Fruit, and Vegetable Culture. Successful Exhibition of Grapes, Roses, &c. Twelve years in present situation. — **R. GRAY**, Chevening, Sevenoaks.

GARDENER (HEAD); age 30, married when suited. — **MR. COTTERELL**, Spanish Road, Wandsworth, Surrey, S.W., wishes to recommend T. Keene as above. Fifteen years' experience in Early and Late Forcing of Fruits, Flowers, and Vegetables; also Flower and Kitchen Garden. — Please apply as above.

GARDENER (HEAD), where two or more are kept. — Age 42; has a thorough practical knowledge of his profession in all branches; understands Stock and Poultry. Wife good Landress and Poultry-woman. Personal character. Good testimonials. — **J. HILL**, 21, Scales Road, Tottenham, Middlesex.

GARDENER (HEAD WORKING). — Age 39, married, one daughter (age 12), twenty-four years' experience. Good all-round. Good character and testimonials. — **C. HENDY**, 2, Oxford Street, Kingsdown, Bristol.

GARDENER (HEAD WORKING). — Age 37, no family; thoroughly practical in all branches. Ten years' good character from last place. Over twenty years' experience. Wages moderate. — **L. M., 1, Castle Place**, Nottingham.

GARDENER (HEAD WORKING). — Age 32, married, no family; experienced in all branches of the profession; Late and Early Forcing. Abstainer. Good character and testimonials. — **W. G., 38, Brackebury Road**, Shepherd's Bush, W.

GARDENER (HEAD WORKING). — Age 38, married, one boy (age 12); thoroughly practical. Wife good Poultry Woman. Twelve months' good character; seven years' previous. — **HEATHLANDS**, Maybury, Woking, Surrey.

GARDENER (HEAD WORKING). — Age 35; married, one child; twenty years' practical experience. Thorough knowledge of Early and Late Forcing of all kinds of Fruit, Flowers, and Vegetables. First-class characters from previous and present employers. — **C. BLICK**, Gardens, Summerfield House, Elstree.

GARDENER (HEAD WORKING, or good SINGLE-HANDED). — Single; good experience in Flower and Kitchen Gardens. — **PAUL AND SON**, Herbarious Nursery, Broxbourne; or **TOMS**, 2, Station Cottages, Broxbourne.

GARDENER (HEAD, or SINGLE-HANDED). — Married, no family; a first-class, oil-round man. Well up in all branches. Highest references. — **GARDENER**, 8, Grove Cottages, Bengoe, Hertford.

GARDENER (HEAD or SINGLE-HANDED). — Age 35, married, no family; experienced in all branches. Five years' good character. Shall be glad of temporary work. — **T. D., 22, Orleans Road**, Twickenham.

GARDENER (HEAD, or SINGLE-HANDED). — Age 40; twenty-nine years' experience in all branches in the South and North of England. Twelve years' excellent reference. Left through death. — **G. WHITEMAN**, Lamton Street, Chester-le-Street, Durham.

GARDENER (HEAD, or good SINGLE-HANDED). — Age 40, married; thoroughly experienced in Stove and Greenhouse Plants, Vines, Peaches, Melons, Cucumbers, Flower and Kitchen Garden. Good character and testimonials. — **W. H., 9, Eagleheart Road**, Catford, Kent.

GARDENER (WORKING); age about 32, married, two children. — **LORD DYNEVOR** wishes to recommend as above his Foreman, who has been with him ten years. — **23, Cavendish Square**, London, W.

GARDENER and BAILIFF. — Thoroughly practical, having a large experience in Forcing Fruit, Flowers, and Vegetables, Stove and Greenhouse Plants, and Orchids; also Land and Stock. — **CLIMAX**, Camp Road, St. Albans.

GARDENER (SECOND). — Age 23; six years' good character. — **H. WESTGATE**, The Pines, Goldhawk Road, Hammersmith, W.

GARDENER (SECOND). — Age 34; abstainer. Good experience in all branches of Gardening. Two years in present place. Highly recommended by present and previous employers. — **FLETCHER**, Temple Gardens, Marlow, Bucks.

GARDENER (UNDER, or SINGLE-HANDED). — Age 22; good character from last place. — **A. ALDERMAN**, Daddford, Stowe, Buckingham.

GARDENER (UNDER). — Single; used to In and Outdoor Work. Excellent references. No objection to Bothy. — **H. F., 2, West Street**, Ewell, Epsom, Surrey.

GARDENER (UNDER). — Age 23; good experience in all branches. Five years with present employer. Good character. — **A. WELCH**, 7, Stanhope Road, North Finchley, N.

GARDENER (UNDER), in a Gentleman's establishment; wishes to improve. — Age 21; highest reference from present employer. — **W. BANTON**, Broomfield Cottage, Morley, near Derby.

FOREMAN, under Glass. — Age 25; twelve years' experience in all branches. Good character. Bothy preferred. — **F. H., 31, Doynton Street**, New Town, Highgate, N.

FOREMAN, in good establishment. — Age 28; thirteen years' experience. Well versed in all branches. Filled two similar situations; two years in present. — **G. HOLLISTER**, Redfield, Walslow, Bucks.

FOREMAN, in the Houses. — Age 27; eleven years' experience in good places. Good references from last and previous employers. — **G. LILLEY**, Thorney, near Peterborough, Cambs.

To Nurserymen.

FOREMAN (GENERAL), and PROPAGATOR. — Well up in Fruits, Roses, Rhododendrons, Conifers, Clematis, and general routine of the Trade. First-class reference. — **F. A., 41, Wellington Street**, Strand, W.C.

FOREMAN, or SECOND, in a good establishment. — Age 24; eight years' experience. Left through no cause. Can be thoroughly recommended from previous employers. — **W. CASTLE**, Reading Street, Saint Peter's, Ramsgate, Kent.

FOREMAN, or good SECOND; age 26. — **MR. HOLLINGSWORTH**, Quora Court, Loughborough, Leicester, would be pleased to recommend to any Gardener or Gentleman as above. Two and a half years in present situation.

PROPAGATOR and GROWER, or FOREMAN. — Fifteen years' experience. First-class Grower of Plants and Cut Flowers. Good references. — **G., 66, Elm Street**, Cardiff, South Wales.

PROPAGATOR and GROWER of Soft-wooded Plants for Market. — Age 28; fourteen years' experience. — **J. P., 21, West Street**, Kettering.

MARKET GROWER. — Young; has been in the Trade some time. Pelargoniums, Ferns, &c. — **H. M., 3, Myrtle Road**, New Hampton.

GROWER. — Age 23; Soft-wooded Plants, Ferns, and Cut Flowers for Market. Good references from Market Nurseries. — **H. CORBETT**, Oak Cottage, Belle Grove, Welling, Kent.

JOURNEYMAN (First), in the Houses. — Age 23; eight years' experience. Good references from present and previous employers. — **W. HOLDEN**, The Gardens, Lockerley Hall, Romsey, Hants.

JOURNEYMAN, in the Houses. — Age 18; four years' experience in Stove and Greenhouse Plants. Good character. — **A. HIGGS**, 3, Dyke's Cottages, Ascot, Berks.

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To Nurserymen.

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IMPROVER, in a good Garden. — Age 20; three years' experience. — **G. RUST**, Seapark, Forres, N.B., can recommend a young man as above.

IMPROVER, in the Houses. — Age 19; good character. — **H. POWELL**, The Gardens, Wyastone Leys, Monmouth, will be pleased to recommend a young man as above.

IMPROVER, in the Houses. — Age 21; five years' experience. Four years in present situation. — **S. SURKIDGE**, Pinhoe, near Exeter, Devon.

IMPROVER, in the Houses. — Age 20; energetic and obliging. Four and a half years' experience. Inside and Out. Good character. — **A. CORBOLD**, Woodland Cottage, Vanbrugh Hill, Blackheath, S.E.

IMPROVER, under Glass in a Gentleman's garden. — Age 20; has had four years' general experience In and Out-doors. Can be highly recommended. — **J. K., J. D. Craig**, Nurseryman, Camberley, Surrey.

ASSISTANT. — Age 22; six years' experience. Well up in Seeds, Plants, and Nursery Stock. — **J. H., The Birches**, Worsley, Stourbridge.

TO GARDENERS. — **MR. ROBERTS**, Prestwold Gardens, Loughborough, wishes to Exchange his Son, a strong, active youth (age 12) into a good place under a Foreman, for a young man of more experience; one capable of taking Charge of Vineries, Peach-houses, &c.

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